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- **Directory of Marine Diesel Engines.** IMarE.

1994

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Directory of Marine Diesel Engines

An A-Z listing of worldwide marine diesel engine manufacturers and their engine types giving principal design/operational data

MER

MARINE ENGINEERS REVIEW

This Diesel Engine Directory is published as a supplement to Marine Engineers Review by Marine Management (Holdings) Ltd on behalf of the Institute of Marine Engineers

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Circulation
16 100

© 1994 Marine Management (Holdings) Ltd
Printed in England by
Cradley Print Ltd

Representation:

France
Agence Gustav Elm, 41 Av Montaigne,
75008 Paris. Tel: (1) 4723 32 67

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USA
Trade Media International, 1328 Broadway, New York, NY 10001. Tel: (212) 564 3380

Front cover

Wärtsilä Diesel's Vasa 20 auxiliary engine is a unique combination of compact size, modern design and top performance. The output range of the 4.6 and 9-cylinder units is 520-1485kW within the speed range of 720-1000rev/min, making the Vasa 20 suitable for a wide variety of vessels.

The core values offered by the Wärtsilä Vasa 20 are:

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- Designed for low cost
- Optimised for low fuel consumption

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Wärtsilä Diesel Oy, PO Box 244, 65101 Vaasa, Finland
Tel: +358 61 3270; Fax: +358 61 317 1906

Four-stroke and two-stroke engine designers can look back on a year of progress in refining performance and reliability, and forward to a more rewarding marketplace for propulsion and genset drives.

Medium and high speed

In the large medium speed engine sector GMT's ageing 550mm bore design was rejuvenated by an upgrading which exploits the rotating-piston concept hitherto unique to New Sulzer Diesel's ZA40S series and its predecessors. The technology transfer was smoothed by the Italian company's longstanding relationship with Sulzer and the fact that its parent Fincantieri group shares majority ownership of the Swiss-based designer/licensor with Germany's Bremer Vulkan.

The resulting A55 model has a longer stroke (680mm), improved fuel economy and an 8% increase in output to 1250kW (1700bhp) per cylinder at 425rev/min. The re-design also sought simplified maintenance procedures and higher reliability. The series, which is considered particularly attractive for ferries and cruise ships, is available in 6L to V18-cylinder versions to span an output band from 7500 to 22 500kW (10 200 to 30 600bhp).

The mid-bore medium speed engine arena is contested by a new contender, last year

seeing the launch of the long-gestating replacement for Stork-Wärtsilä Diesel's TM410 engine. The Dutch company's new SW38 design filled a gap in the Finnish parent group's highly successful four-stroke portfolio, slotting between the Vasa 32 and Vasa 46 series.

The 380mm bore/475mm stroke engine logged a debut contract from Wagenborg Shipping as the propulsion plant for a 9000dwt multi-purpose cargo vessel newbuilding. The SW38 design is initially rated to deliver 660kW (900bhp) per cylinder at 600rev/min. An output range from 3960 to 11 880kW (5385 to 16 155bhp) is thus covered by 6L to V18-cylinder models.

An impressively short and low engine profile aims to maximise net cargo-carrying capacity in newbuilding projects, while the reduced weight of the machinery installation fosters a lighter and lower cost hull structure.

The adoption of a new combustion philosophy was facilitated by the high stroke/bore ratio of 1.25:1, a maximum cylinder pressure of up to 210 bar, and a maximum fuel injection pressure of 1500 bar. Such parameters, the

designer explains, underwrite the flexibility to select a compression ratio, injection timing and injection rate achieving the desired noxious emission values: NOx reductions of 50-70% are reportedly possible without compromising fuel consumption.

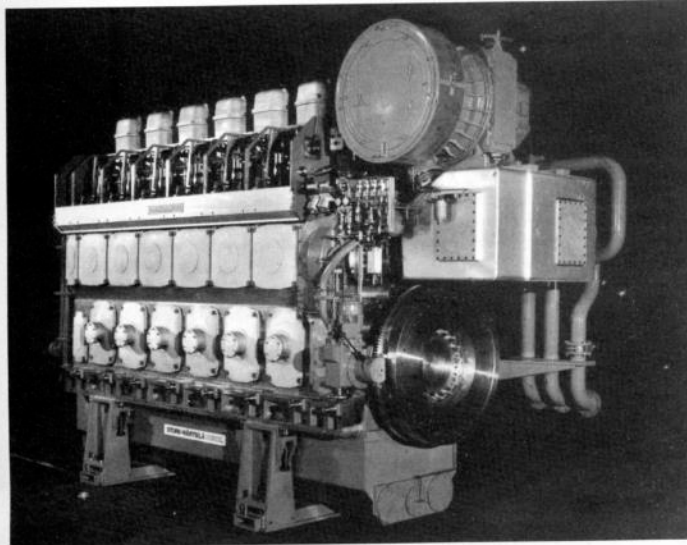
Key contributions are made by a completely new fuel injection system and the combustion chamber design. The claimed ability of the engine to meet future NOx emission limits without a catalytic converter installation should be of special interest to coastal operators.

The Norwegian member of Wärtsilä Diesel's extended family, Wärtsilä Wichmann Diesel, has been renamed Wärtsilä Propulsion AS. The company is a specialist in supplying complete packages embracing Vasa engines, gearboxes, propellers, nozzles and control systems. It also continues to offer its own-design Wichmann 28 engine.

Sales of Wärtsilä Diesel's Vasa 46 engine topped the 100 mark in 1993, new orders including 10x12-cyl models for two large diesel-electric cruise liners booked at Chantiers de l'Atlantique by RCCL. Four 8-cyl models were specified for the diesel-electric plant of a 125 000dwt North Sea shuttle tanker building at Samsung for Conoco.

The breadth of the Wärtsilä Diesel family's in-house four-stroke portfolio is such that its longstanding SEMT-Pielstick enginebuilding licence has not been renewed. The French-based licensor will now take over the associated after-sales service business, spares stocks and former market responsibilities of the Finnish group.

Large Japanese longhaul coastal passenger/vehicle ferries continue to favour SEMT-Pielstick's most powerful medium speed design, the 570mm bore PC4.2 series. A pair of




← Stork Wärtsilä Diesel's new SW38 — the replacement for the TM410 — is designed as a very low NOx emission engine

Model	Cycle	Cylinders	Bore (mm)	Stroke (mm)	Mean Piston Speed (m/s)	Speed (rev/min)	Output (kW/cyl)	Output range (kW)	Bmpcp (bat)	Sfoc (g/kWh)
Cooper Industries (formerly Imo Delaval Inc.) Enterprise Engine Division, 1351 Harbor Bay Parkway, Suite 1000, Alameda, California, 94501-6541, USA. Tel: +1 510 748 7320, Fax: +1 510 748 7409.										
R4	4	6,8L, 12,16,20V	431.8	533.4	8.0	450	454	2700-9000	15.30	199
R5	4	6,8L, 12,16V	431.8	533.4	9.14	514	634	3750-10000	19.00	199
HA	4	6L	355.6	381.0	8.0	630	248	1500	13.00	
HVA	4	8,12,16V	355.6	381.0	8.0	630	248	2050-4100	13.00	
C. Power (Marine) Ltd PO Box 832, Bells Hill, Lanarkshire, ML4 3JZ, UK. Tel: 0698 748181, Fax: 0698 746021.										
3/332	4	3L	111.76	106.70		2000	10.10	31	7.51	
3/333	4	3L	111.76	111.76		2200	11.60	35	7.38	
3/333H	4	3L	111.76	111.76		2200	13.10	40	8.28	
4/442	4	4L	111.76	106.70		2100	11.60	47	8.14	
4/444	4	4L	111.76	111.76		2100	13.22	53	8.62	
4/444T	4	4L	111.76	111.76		2100	18.25	73	10.98	
4/254	4	4L	107.00	115.00		2600	15.85	64	8.76	
6/666	6	6L	111.76	111.76		2300	13.65	82	7.79	
6/380	4	6L	107.00	115.00		2600	15.78	95	8.76	
6/474	4	6L	111.80	132.10		2600	22.33	134	10.98	
6/666T	4	6L	111.76	111.76		2300	19.25	116	10.70	
6/363TC	4	6L	105.00	115.00		2400	18.66	112	12.80	
6/363TCIC	4	6L	105.00	115.00		2450	24.83	149	12.80	
6/666TI	4	6L	111.76	111.76		2500	29.33	176	12.96	
6/474TCIC	4	6L	111.80	132.10		2600	42.33	254		
CRM Spa Motori Marini Via Marmate 41, 21053 Castellanza (VA), Italy. Tel: +39 331 501548, Telex: 334382 CREMME I, Fax: +39 331 505501.										
12D/S	4	12	150	180	12.45	2075	57.25	687	10.43	228
12D/SS	4	12	150	180	12.45	2075	84.17	1010	15.33	238
18D/S	4	18	150	180	12.45	2075	54.56	982	10.03	238
18D/SS	4	18	150	180	12.45	2075	67.39	1213	12.26	224
BR-1	4	18	150	180	12.45	2075	74.17	1335	13.48	227
BR-2	4	18	150	180	12.72	2120	85.83	1545	15.27	230
Cummins Engine Company Ltd Royal Oak Way South, Daventry, Northants NN11 5NU. Tel: (0327)76000, Telex: 58643, Fax: (0327)79412.										
4B 3.9M	4	4	102	120	10.0	2500	14.25	57	6.69	233
4BT 3.9M	4	4	102	120	10.0	2500	24.25	97	9.12	215
6B 5.9M	4	6	102	120	10.0	2500	14.33	86	6.96	236
6BT 5.9M	4	6	102	120	10.0	2500	18.83	113	9.24	225
6BTA 5.9M1	4	6	102	120	10.0	2500	27.33	164	9.79	228





- **Directory of Shipowners, Shipbuilders and Marine Engineers.**

99 *Directory of Shipowners, Shipbuilders and Marine Engineers.*

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OF
**Shipowners, Shipbuilders
and Marine Engineers**
1950

(FORTY-EIGHTH YEAR OF PUBLICATION)

COMPILED UNDER THE DIRECTION OF
THE EDITOR OF *Shipbuilding and Shipping Record*


PRICE THIRTY SHILLINGS NET

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15 TOTHILL STREET, WESTMINSTER, S.W.1
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1950

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PREFACE TO THE 1950 EDITION.

THE FORTY-EIGHTH YEAR OF PUBLICATION.

A CONSIDERABLE amount of new information appears in this edition, including particulars of Japanese and German concerns and an elaboration of the Italian entries. All sections have been revised and enlarged, and the growing importance of tank experiment work is reflected in the inclusion of a list of experimental tanks of the world and those in charge of them.

The frequent changes of the names of ships have been recorded but it has not been practicable to keep pace with them during the concluding stages of compilation. An up-to-date tabulated list of the changes of names of British ships is now a regular weekly feature of *Shipbuilding and Shipping Record*, and as this list is compiled in collaboration with the General Register and Record Office of Shipping and Seamen it covers all changes on the British Register irrespective of the size (great or small) of the ships.

So far as the British railway-owned fleets are concerned, these are all grouped under one collective heading in the Official Appendix, at the end of the book, immediately preceding the indexes.

For help in the work of revision we are indeed most grateful to the thousands of contacts at home and overseas which have to be made when compiling a Directory of this character, and for the willing co-operation of everyone in checking the proofs submitted to them.

The general arrangement of the volume has been stabilised on the basis adopted three years ago. The Table of Contents overleaf summarises the various features and their position in the Directory.

While care is taken to ensure that the information given in the Directory is accurate, the publishers cannot give any guarantee that such is the case. Nor can they accept responsibility on account of inaccuracies which may have crept in.

LONDON, January 1950.

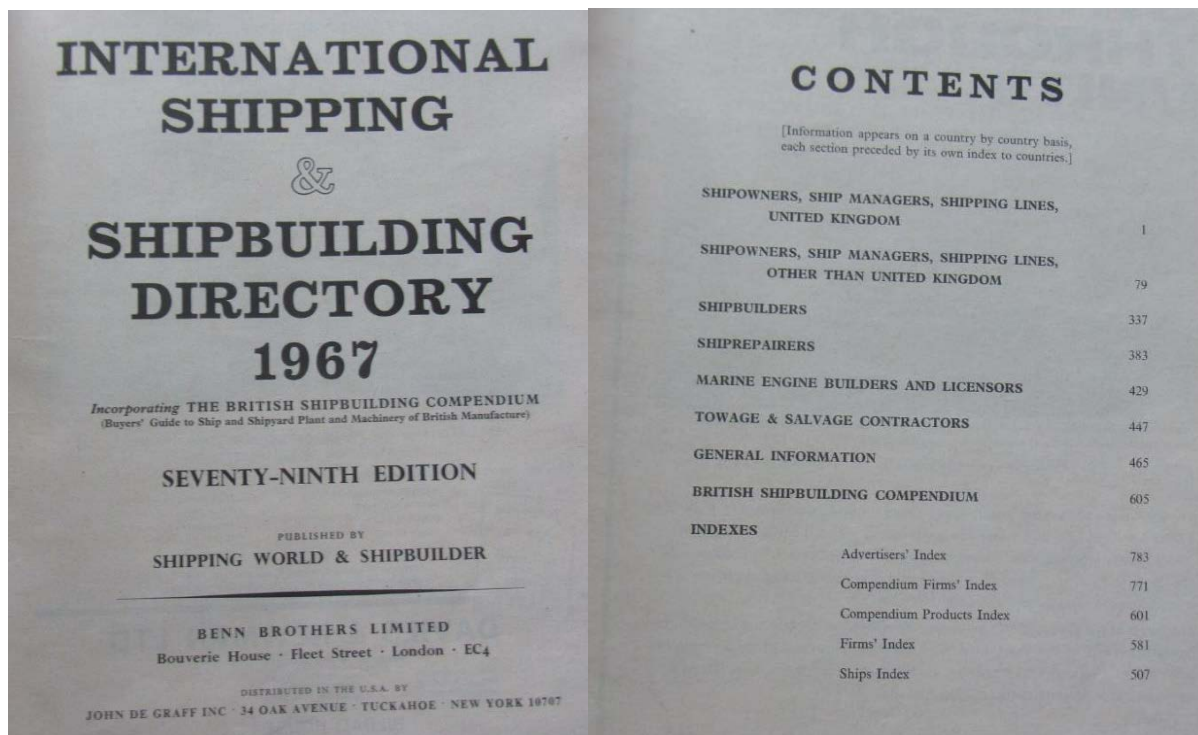
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THIS BOOK IS PRODUCED
IN COMPLETE CONFORMITY
WITH THE AUTHORISED
ECONOMY STANDARDS

<p>ACADIA OVERSEAS FREIGHTERS, Ltd. Directors: J. H. MARRAS & Co. Ltd. 100, Broad Street, Birmingham, B3 2JQ, England. Agents: Messrs. J. H. MARRAS & Co. Ltd., 100, Broad Street, Birmingham, B3 2JQ, England. Telephone: 2-2222 (4 lines). Cable: "MARRAS" (MARRAS) BIRMINGHAM.</p> <p>ACADEMIC—<i>Trade</i> Steamship Line.</p> <p>ACADEMIC Fleet:</p> <table border="0"> <tr> <td>1. ACADEMIC</td> <td>2. ACADEMIC</td> </tr> <tr> <td>3. ACADEMIC</td> <td>4. ACADEMIC</td> </tr> <tr> <td>5. ACADEMIC</td> <td>6. ACADEMIC</td> </tr> <tr> <td>7. ACADEMIC</td> <td>8. ACADEMIC</td> </tr> <tr> <td>9. ACADEMIC</td> <td>10. ACADEMIC</td> </tr> </table>	1. ACADEMIC	2. ACADEMIC	3. ACADEMIC	4. ACADEMIC	5. ACADEMIC	6. ACADEMIC	7. ACADEMIC	8. ACADEMIC	9. ACADEMIC	10. ACADEMIC	<p style="text-align: center;">Shipowners.</p> <p>ACKTON HALL COLLIERY Co., Ltd. 20, Rutland & Co., N.Y.</p> <p>ACTIV REDERI A/B. 100, Gøttelids, Havn, & Stockholm.</p> <p>ACTIVE FISHING Co., Ltd. 100, Gøttelids, Havn, & Stockholm.</p> <p>ADELAIDE STEAMSHIP Co., Ltd. The. 100, Gøttelids, Havn, & Stockholm.</p>
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- International Shipping and Shipbuilding Directory



DIRECTORY OF SHIPOWNERS, SHIP MANAGERS AND SHIPPING LINES

SECTION I UNITED KINGDOM

Companies are arranged according to the countries in which their ships are registered, or in which the owners' main place of business is situated. Where liner services are operated under a Line Name jointly by companies in different countries, cross-references are given under each country concerned.

Under company fleets, dwt indicates summer deadweight, oa is used as the abbreviation for length overall, the breadths as given are extreme breadths, dft indicates summer loaded draught, and refrigeration capacity is referred to in cubic feet.

We are happy to acknowledge the assistance of Lloyd's Register in the checking of the following fleets.

ABERDEEN COAL & SHIPPING CO. LTD.

Head Office: Albert Quay, Aberdeen.
Branch Office: Stonehouse & Cory Ltd., Exchange Buildings, Newcastle-on-Tyne, 1.
Director and Manager: Matt. Lintz.
Directors: John N. Stephen, Andrew W. King, William Brebner, Charles F. Graham.
Consulting Engineers: Pirie & Smith, South Market Street, Aberdeen.
Ferryhill, cargo, 740 dwt, 567 grt, 174'10" oa x 28'1" x 12'1" dft; diesel, 10 knots; b.1946
2, Leith.

ACME SHIPPING CORP.

Managers: Man Lemos Shipping Agencies
13 Aki Miaouli, Piraeus.
London Agents: Lyras Bros. Ltd., 9 Camomile Street, London, E.C.3.
Charalambos N. Pateras, cargo, 12,700 dwt, 9,319 grt, 502'6" oa x 61'8" x 29'9" dft; diesel, 14 knots; b.1960 Brod. "3 Maj."

AIDEN SHIPPING CO. LTD.

16 Woodside Crescent, Glasgow, C.3.
Telephone: Douglas 8574/7. Telegrams: Clydebuilt, Glasgow. Telex: GLW 77203.
Managers: Harrisons (Clyde) Ltd. (which see).
Services: World trading.
Finnorkar, bulk carrier, 38,469 dwt, 18,615 grt, 610'6" oa x 82'8 1/2" x 33'5" dft; diesel, 15 1/2 knots; b.1965 John Brown, Clydebank. (On Bareboat Charter to Stirling Shipping Co. Ltd.)

ALEXANDER SHIPPING CO. LTD.

53 Leadenhall Street, London, E.C.3.
Telephone: Royal 2020. Cables: Houlders, Telex, London. Telex: 28026, 28361.
Managers: Houlder Brothers & Co. Ltd. (which see).
Directors: Sir Charles G. Alexander, Bt. (Chairman), C. W. Warwick, J. M. Houlder, M.B.E., J. E. Alexander, F. W. Whittle, H. J. Worley.
Secretary: M. Banbury.
Services: U.K./River Plate/U.K. berths; also general trading.

Queensbury, cargo, 10,650 dwt, 6,175 grt, 457' oa x 59'11 1/2" x 26'8" dft; diesel, 12 1/2 knots; b.1953 Burntisland.
Shufesbury, cargo, 11,900 dwt, 8,532 grt, 457' oa x 61'9" x 28'10" dft; diesel, 13 knots; b.1958 Burntisland.
Tenbury, 11,020 dwt, 8,458 grt, 462' oa x 63' x 28'11 1/2" dft; 16 knots; b.1965 Burntisland.
Tewksbury, cargo, 11,880 dwt, 8,532 grt, 457' oa x 61'9" x 28'10" dft; diesel, 13 knots; b.1959 Burntisland.
Worbury, cargo, 11,970 dwt, 8,531 grt, 457' oa x 61'9" x 28'10" dft; diesel, 13 knots; b.1960 Burntisland.

ALLIANCE MARINE TRANSPORT CO. LTD.

Cory's Buildings, Bute Street, Cardiff.
Telephone: 30361. Telegrams: Almatra.
Chairman: P. E. Bethell.
Secretary: L. D. Phillips.
Managers for: Drakelow Steamship Co. Ltd. (which see); Laverton Steamship Co. Ltd.

Ship-brokers and Chartering Agents

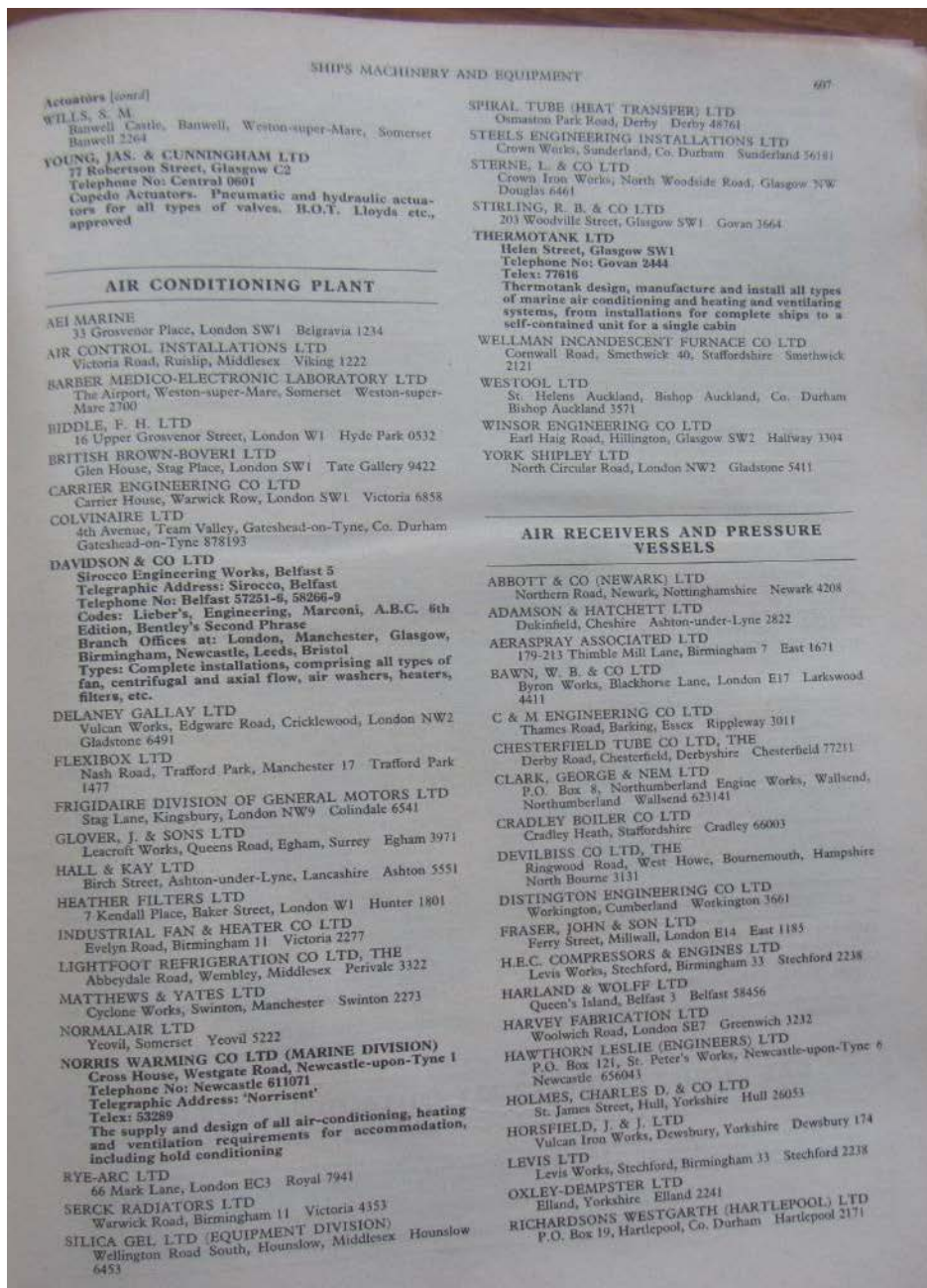
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CHARLES GEE & CO.
48 Fenchurch Street, London, E.C.3

Telephone: Mansion House 0161. Telegrams: Geeho, London, E.C.3. Telex 281637/8

AGENTS FOR FINLAND STEAMSHIP CO.





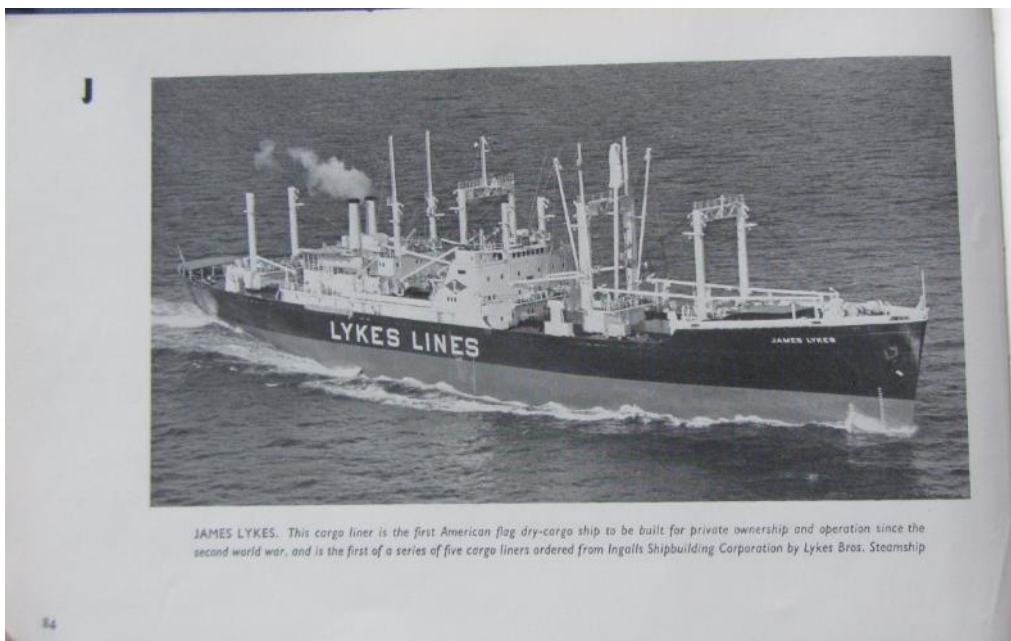
- **Merchant Ships World Built**



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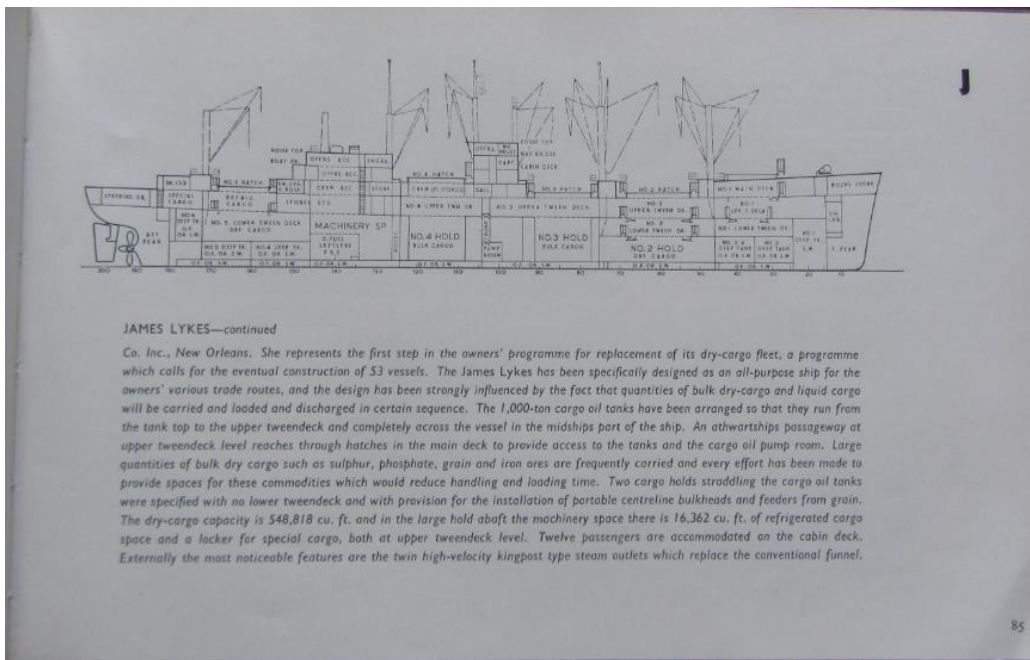
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5



JAMES LYKES. This cargo liner is the first American flag dry-cargo ship to be built for private ownership and operation since the second world war, and is the first of a series of five cargo liners ordered from Ingalls Shipbuilding Corporation by Lyket Bros. Steamship

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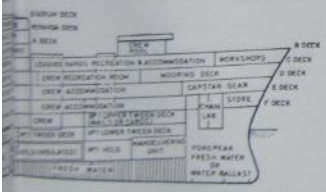
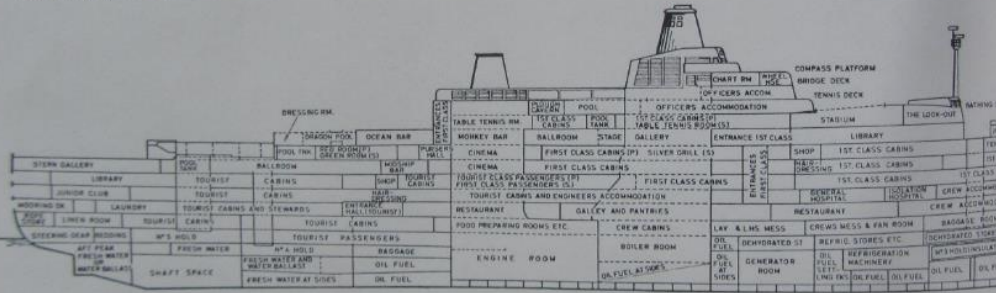


JAMES LYKES—continued

Co. Inc., New Orleans. She represents the first step in the owners' programme for replacement of its dry-cargo fleet, a programme which calls for the eventual construction of 53 vessels. The James Lykes has been specifically designed as an all-purpose ship for the owners' various trade routes, and the design has been strongly influenced by the fact that quantities of bulk dry-cargo and liquid cargo will be carried and loaded and discharged in certain sequence. The 1,000-ton cargo oil tanks have been arranged so that they run from the tank top to the upper tweendeck and completely across the vessel in the midships part of the ship. An athwartships passageway at upper tweendeck level reaches through hatches in the main deck to provide access to the tanks and the cargo oil pump room. Large quantities of bulk dry cargo such as sulphur, phosphate, grain and iron ores are frequently carried and every effort has been made to provide spaces for these commodities which would reduce handling and loading time. Two cargo holds straddling the cargo oil tanks were specified with no lower tweendeck and with provision for the installation of portable centreline bulkheads and feeders from grain. The dry-cargo capacity is 548,818 cu. ft. and in the large hold abaft the machinery space there is 16,362 cu. ft. of refrigerated cargo space and a locker for special cargo, both at upper tweendeck level. Twelve passengers are accommodated on the cabin deck. Externally the most noticeable features are the twin high-velocity kingpost type steam outlets which replace the conventional funnel.

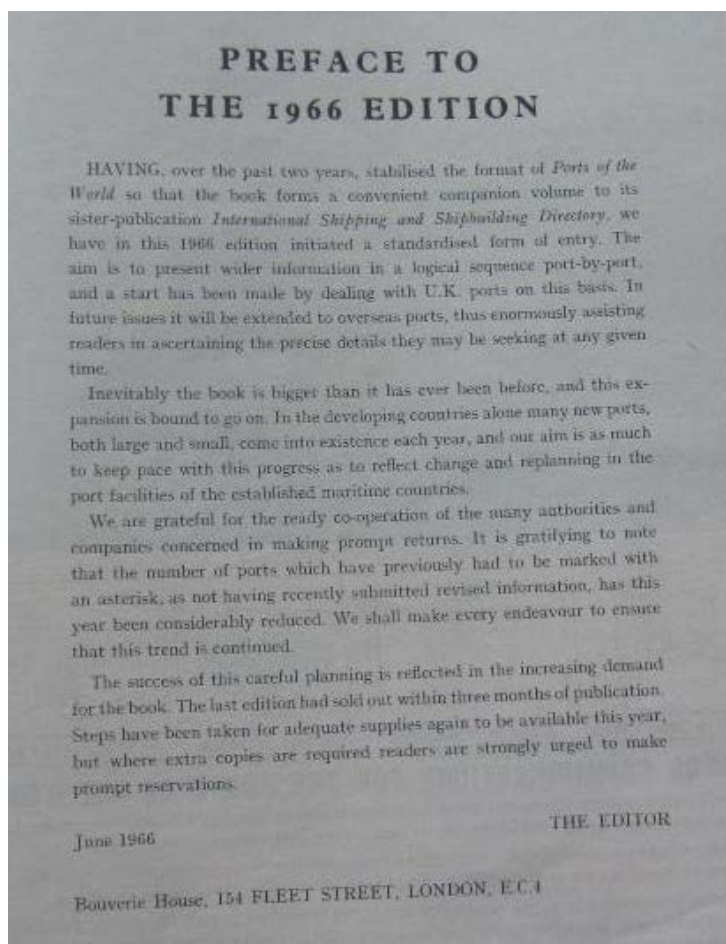
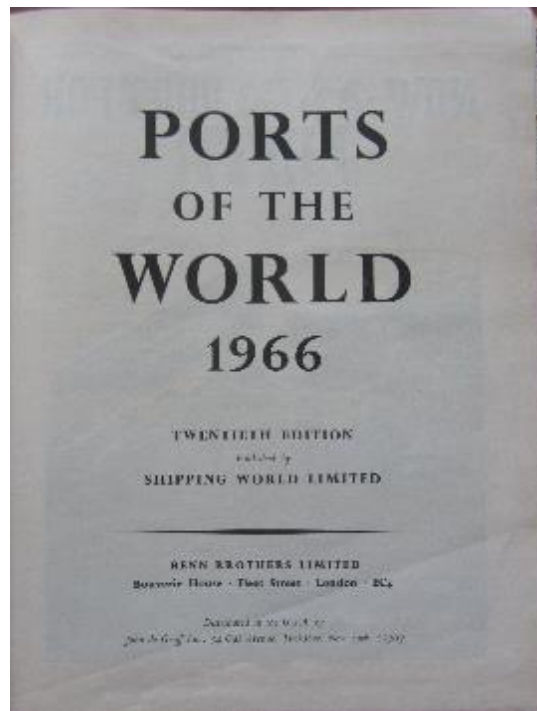
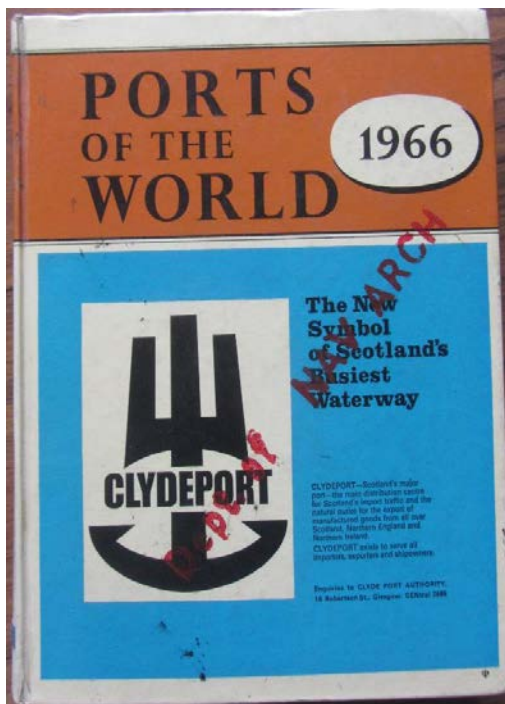
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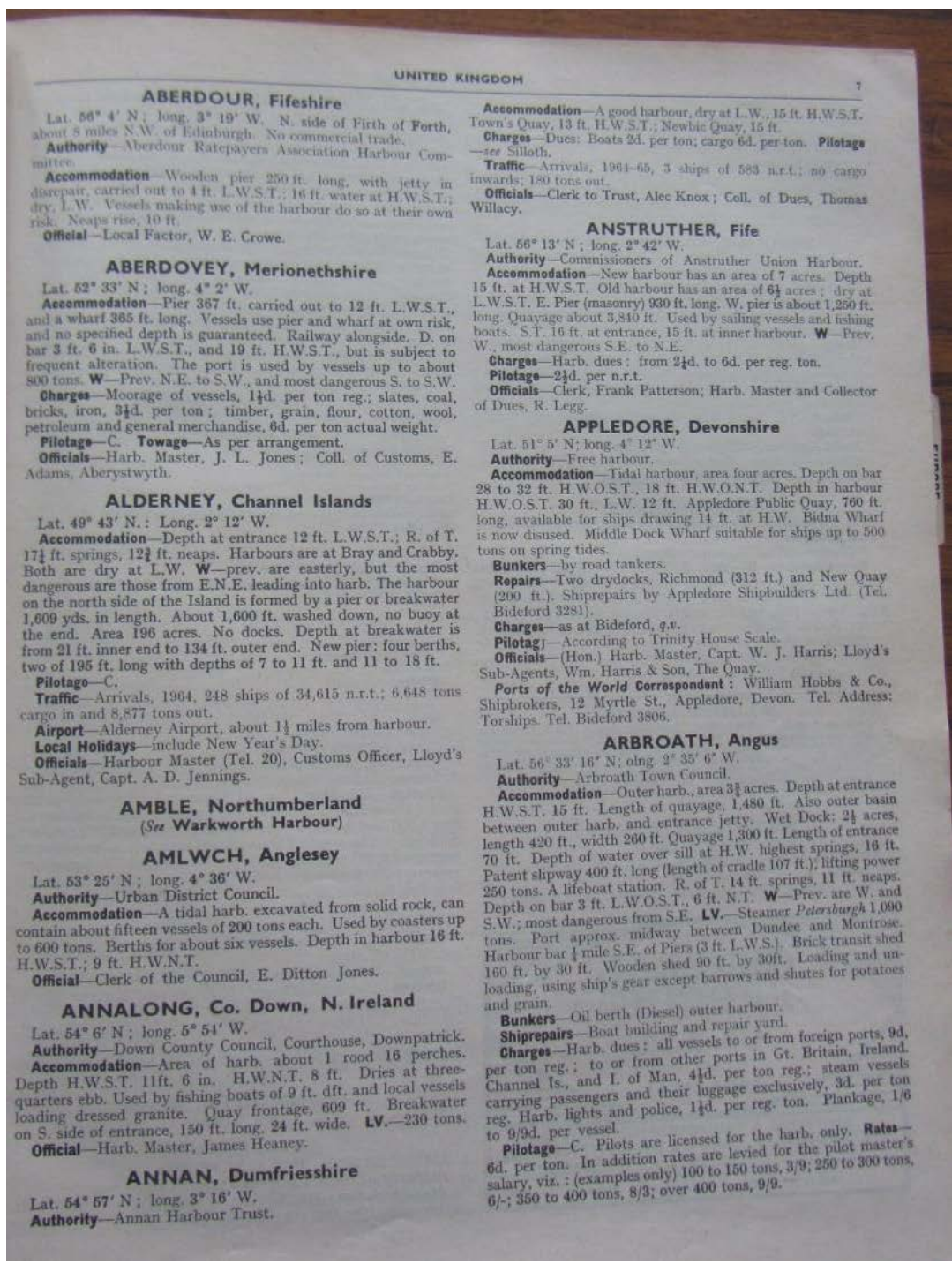
ORIANA. This twin-screw turbine steamship is owned by the Orient S.N. Co. and will be joined by the P. & O.'s new liner Canberra (which will be described in Vol. X, "Merchant Ships: World Built") and operated by the P. & O.-Orient Lines. Externally the Oriana has a graceful hull in contrast with the superstructure and the flower-pot funnels. However, efficiency is the keynote of the design and she is considered one of the most remarkable ships the superstructure and the flower-pot funnels. However, efficiency is the keynote of the design and she is considered one of the most remarkable ships the superstructure and the flower-pot funnels. However, efficiency is the keynote of the design and she is considered one of the most remarkable ships the superstructure and the flower-pot funnels.



a straight run for the cradles. The lifeboats are built of fibreglass and are carried approximately 3 ft. 6 in. over the shipside to give more space inboard. The vessel is propelled by twin screws, each driven through double-reduction gearing by a set of steam turbines (h.p., i.p. and l.p.) of Pametrada design. The total normal service shaft horse-power of 65,000 at 147 propeller revolutions per minute is roughly twice that of any previous Orient liner. Steam is supplied to the turbines at a pressure of 700 lb./sq. in. and a temperature of 950 deg. F. by four watertube boilers of Foster Wheeler external superheater design, built under licence by Vickers-Armstrongs (Engineers) Ltd.

• Ports of the World





UNITED KINGDOM

ABERDOUR, Fifeshire

Lat. 56° 4' N; long. 3° 19' W. N. side of Firth of Forth, about 8 miles N.W. of Edinburgh. No commercial trade.
Authority—Aberdour Ratepayers Association Harbour Committee.
Accommodation—Wooden pier 250 ft. long, with jetty in disrepair, carried out to 4 ft. L.W.S.T.; 16 ft. water at H.W.S.T.; dry, L.W. Vessels making use of the harbour do so at their own risk. Neaps rise, 10 ft.
Official—Local Factor, W. E. Crowe.

ABERDOVEY, Merionethshire

Lat. 52° 33' N; long. 4° 2' W.
Accommodation—Pier 367 ft. carried out to 12 ft. L.W.S.T., and a wharf 365 ft. long. Vessels use pier and wharf at own risk, and no specified depth is guaranteed. Railway alongside. D. on bar 3 ft. 6 in. L.W.S.T., and 19 ft. H.W.S.T., but is subject to frequent alteration. The port is used by vessels up to about 800 tons. **W**—Prev. N.E. to S.W., and most dangerous S. to S.W.
Charges—Moorage of vessels, 1½d. per ton reg.; slates, coal, bricks, iron, 3½d. per ton; timber, grain, flour, cotton, wool, petroleum and general merchandise, 6d. per ton actual weight.
Pilotage—C. **Towage**—As per arrangement.
Officials—Harb. Master, J. L. Jones; Coll. of Customs, E. Adams, Aberystwyth.

ALDERNEY, Channel Islands

Lat. 49° 43' N.; Long. 2° 12' W.
Accommodation—Depth at entrance 12 ft. L.W.S.T., R. of T. 17½ ft. springs, 12½ ft. neaps. Harbours are at Bray and Crabby. Both are dry at L.W. **W**—prev. are easterly, but the most dangerous are those from E.N.E. leading into harb. The harbour on the north side of the Island is formed by a pier or breakwater 1,600 yds. in length. About 1,600 ft. washed down, no buoy at the end. Area 196 acres. No docks. Depth at breakwater is from 21 ft. inner end to 134 ft. outer end. New pier: four berths, two of 195 ft. long with depths of 7 to 11 ft. and 11 to 18 ft.
Pilotage—C.
Traffic—Arrivals, 1964, 248 ships of 34,615 n.r.t.; 6,648 tons cargo in and 8,877 tons out.
Airport—Alderney Airport, about 1½ miles from harbour.
Local Holidays—include New Year's Day.
Officials—Harbour Master (Tel. 20), Customs Officer, Lloyd's Sub-Agent, Capt. A. D. Jennings.

AMBLE, Northumberland
(See Warkworth Harbour)

AMLWCH, Anglesey

Lat. 53° 25' N; long. 4° 36' W.
Authority—Urban District Council.
Accommodation—A tidal harb. excavated from solid rock, can contain about fifteen vessels of 200 tons each. Used by coasters up to 600 tons. Berths for about six vessels. Depth in harbour 16 ft. H.W.S.T.; 9 ft. H.W.N.T.
Official—Clerk of the Council, E. Ditton Jones.

ANNALONG, Co. Down, N. Ireland

Lat. 54° 6' N; long. 5° 54' W.
Authority—Down County Council, Courthouse, Downpatrick.
Accommodation—Area of harb. about 1 rood 16 perches. Depth H.W.S.T. 11ft. 6 in. H.W.N.T. 8 ft. Dries at three-quarters ebb. Used by fishing boats of 9 ft. dft. and local vessels loading dressed granite. Quay frontage, 609 ft. Breakwater on S. side of entrance, 150 ft. long, 24 ft. wide. **L.V.**—230 tons.
Official—Harb. Master, James Heaney.

ANNAN, Dumfriesshire

Lat. 54° 57' N; long. 3° 16' W.
Authority—Annan Harbour Trust.

Accommodation—A good harbour, dry at L.W., 15 ft. H.W.S.T. Town's Quay, 13 ft. H.W.S.T.; Newbie Quay, 15 ft.
Charges—Dues: Boats 2d. per ton; cargo 6d. per ton. **Pilotage**—see Silloth.
Traffic—Arrivals, 1964-65, 3 ships of 583 n.r.t.; no cargo inwards; 180 tons out.
Officials—Clerk to Trust, Alec Knox; Coll. of Dues, Thomas Willacy.

ANSTRUTHER, Fife

Lat. 56° 13' N; long. 2° 42' W.
Authority—Commissioners of Anstruther Union Harbour.
Accommodation—New harbour has an area of 7 acres. Depth 15 ft. at H.W.S.T. Old harbour has an area of 6½ acres; dry at L.W.S.T. E. Pier (masonry) 930 ft. long. W. pier is about 1,250 ft. long. Quayage about 3,840 ft. Used by sailing vessels and fishing boats. S.T. 16 ft. at entrance, 15 ft. at inner harbour. **W**—Prev. W., most dangerous S.E. to N.E.
Charges—Harb. dues: from 2½d. to 6d. per reg. ton.
Pilotage—2½d. per n.r.t.
Officials—Clerk, Frank Patterson; Harb. Master and Collector of Dues, R. Legg.

APPLEDORE, Devonshire

Lat. 51° 5' N; long. 4° 12' W.
Authority—Free harbour.
Accommodation—Tidal harbour, area four acres. Depth on bar 28 to 32 ft. H.W.O.S.T., 18 ft. H.W.O.N.T. Depth in harbour H.W.O.S.T. 30 ft., L.W. 12 ft. Appledore Public Quay, 760 ft. long, available for ships drawing 14 ft. at H.W. Bidna Wharf is now disused. Middle Dock Wharf suitable for ships up to 500 tons on spring tides.
Bunkers—by road tankers.
Repairs—Two drydocks, Richmond (312 ft.) and New Quay (200 ft.). Shiprepairs by Appledore Shipbuilders Ltd. (Tel. Bideford 3281).
Charges—as at Bideford, *q.v.*
Pilotage—According to Trinity House Scale.
Officials—(Hon.) Harb. Master, Capt. W. J. Harris; Lloyd's Sub-Agents, Wm. Harris & Son, The Quay.
Ports of the World Correspondent: William Hobbs & Co., Shipbrokers, 12 Myrtle St., Appledore, Devon. Tel. Address: Torships. Tel. Bideford 3806.

ARBROATH, Angus

Lat. 56° 33' 16" N; long. 2° 35' 6" W.
Authority—Arbroath Town Council.
Accommodation—Outer harb., area 3½ acres. Depth at entrance H.W.S.T. 15 ft. Length of quayage, 1,480 ft. Also outer basin between outer harb. and entrance jetty. Wet Dock; 2½ acres, length 420 ft., width 260 ft. Quayage 1,300 ft. Length of entrance 70 ft. Depth of water over sill at H.W. highest springs, 16 ft. Patent slipway 400 ft. long (length of cradle 107 ft.); lifting power 250 tons. A lifeboat station. R. of T. 14 ft. springs, 11 ft. neaps. Depth on bar 3 ft. L.W.O.S.T., 6 ft. N.T. **W**—Prev. are W. and S.W.; most dangerous from S.E. **L.V.**—Steamer *Petersburgh* 1,090 tons. Port approx. midway between Dundee and Montrose. Harbour bar ¼ mile S.E. of Piers (3 ft. L.W.S.). Brick transit shed 160 ft. by 30 ft. Wooden shed 90 ft. by 30ft. Loading and unloading, using ship's gear except barrows and shutes for potatoes and grain.
Bunkers—Oil berth (Diesel) outer harbour.
Shiprepairs—Boat building and repair yard.
Charges—Harb. dues: all vessels to or from foreign ports, 9d. per ton reg.; to or from other ports in Gt. Britain, Ireland, Channel Is., and I. of Man, 4½d. per ton reg.; steam vessels carrying passengers and their luggage exclusively, 3d. per ton reg. Harb. lights and police, 1½d. per reg. ton. Plankage, 1/6 to 9/9d. per vessel.
Pilotage—C. Pilots are licensed for the harb. only. **Rates**—6d. per ton. In addition rates are levied for the pilot master's salary, viz.: (examples only) 100 to 150 tons, 3/9; 250 to 300 tons, 6/-; 350 to 400 tons, 8/3; over 400 tons, 9/9.

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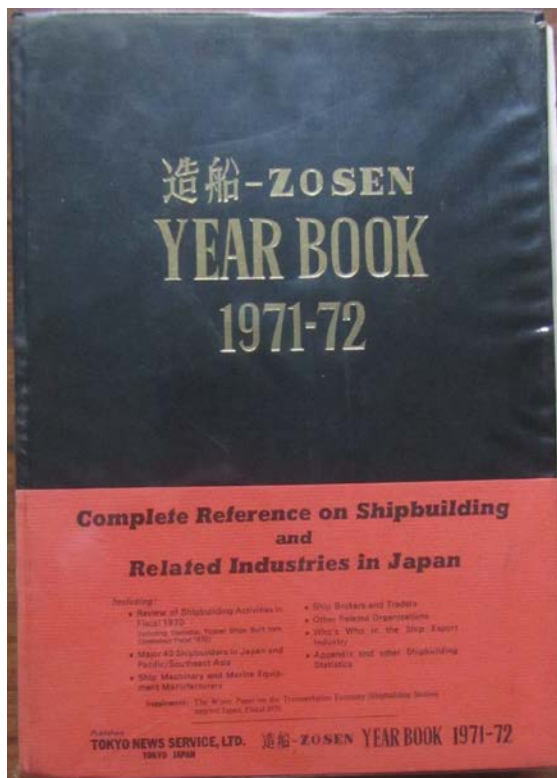
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ABBREVIATIONS USED

A.S.T. —Average spring tides.	L.W.D. —Low water datum.
Authority —Authority or owner of port, docks, etc.	M.H.W. —Mean high water.
Bbls. —Barrels.	M.L.W. —Mean low water.
Bu. —Buoys.	M.L.L.W. —Mean lower low water.
Cap. —Capacity.	Max. —Maximum.
D. —Depth of water.	Min. —Minimum.
Dft. or Dft. —Draft (draught).	N.I.A. —Nearest international airport.
En. —Entrance.	N.T. —Neap tides.
Equip. —Equipment.	O.T. —Ordinary tides.
E.T.A. —Estimated time of arrival.	Pilotage, C. —Compulsory.
Exp. —Exports.	" N.C. —Non-compulsory.
Fms. —Fathoms.	R. of N. —Range of neaps.
F.W. —Fresh water.	R. of T. —Rise of tide.
H.W. —High water.	Rys. —Railways which connect with the harbour.
Imp. —Imports.	S.T. —Spring tides.
Lat. —Latitude.	S.W.L. —Statutory water level.
Long. —Longitude.	Tr. —Trade of port.
L.V. —Largest vessel or vessels which have entered the port at any time.	W. —Wind, i.e. the prevailing or other winds which affect the harbour.
L.W. —Low water.	W. of En. —Width of entrance.
L.W.O.S.T. —Low water at ordinary spring tides.	

An asterisk (*) against the name of a port denotes that the particulars have not recently been confirmed.

- **Zosen Yearbook**



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Typical Ships Built Here

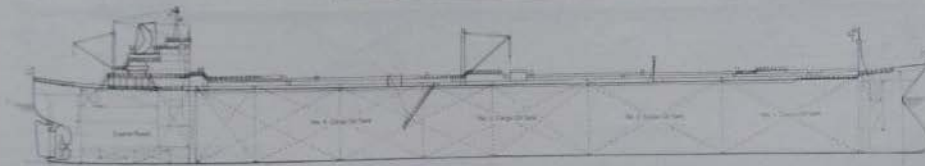
(Note: Covered in this column are some typical vessels built by major shipyards for shipowners at home and abroad during the 15-months from January 1970 to March 1971.)

Tankers



"British Explorer"

The 215,603 dwt tanker "British Explorer" completed on March 31, 1970 at the Nagasaki Shipyard of Mitsubishi Heavy Industries for BP Medway Tanker Co. She is the first of seven identical vessels ordered by the British Petroleum Group from three major shipbuilders here. The ship has a 30,000 shp Mitsubishi double reduction-gear turbine engine for a service speed of 15.3 knots. Her main particulars are: Length oa, 326.0 meters; length bp, 310.0 m; breadth, 48.71 m; depth, 24.50 m; draft, 19.006 m and 108,530.21 g/t.

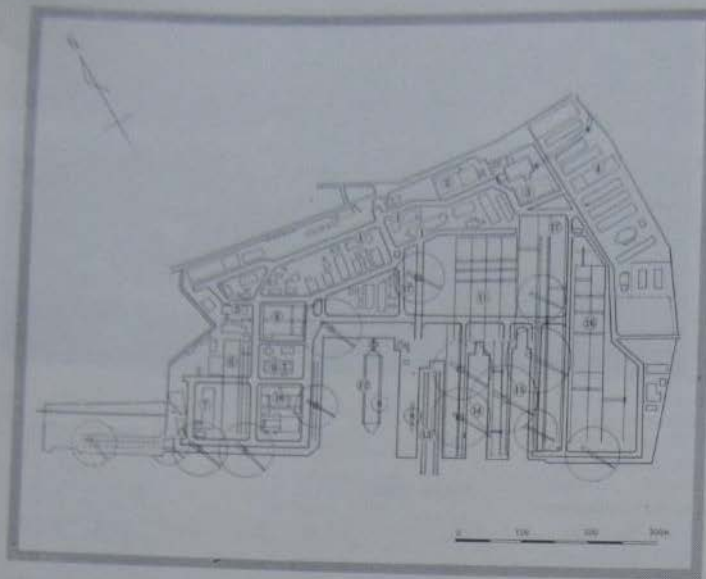


"Port Hawkesbury"

The 250,000 dwt tanker "Port Hawkesbury" completed on July 15, 1970 at the Tsu Shipyard of Nippon Kokan K.K. for Canadian Pacific (Bermuda) Limited. The mammoth-sized tanker is the second vessel built at the Tsu Shipyard's CANALOCK, and the first of two identical vessels ordered by this owner from NKK. She has a 34,200 bhp Mitsui B&W diesel engine of 9K9SFF type, the largest power unit ever installed in an NKK-built export vessel. Her main particulars are: Length oa, 338.1 meters; length bp, 320.0 m; breadth, 51.8 m; depth, 26.7 m; draft, 20.55 m 134,000 g/t.



Arrangement of Shimizu Shipyard



- 1 Office
- 2 Photo Marking Shop
- 3 Hall for Employees
- 4 Dormitory for Employees
- 5 Design Office
- 6 Outfitting Shop
- 7 Carpenter Shop
- 8 Plumbing Shop
- 9 Foundry Shop
- 10 Machine Shop
- 11 Fabrication Shop
- 12 Floating Dock
- 13 Spanning
- 14 No. 2 Building Berth
- 15 No. 1 Building Berth
- 16 Machine Shop
- 17 Assembly Shop

Japan. It specializes in building small and medium-size ships, including fast cargo liners, coal and lumber carriers, and other specialized ships.

Especially, the yard is Japan's only builder of catamaran type ships. The annual building capacity of the yard exceeds 110,000 g/t; repair capacity over 600,000 g/t. Various types of steel structures are also manufactured at this yard.

How to get to the shipyard from Tokyo: About 2 hours by New Tokaido Line (to Shizuoka) and car.

Ryokko Maru (BC)	Sanko Kisen Kaisha	18,634	11,745
Ikoma Maru (Catamaran CF)	Kansai Steamship Co.	848	2,697
Ritsurin (Catamaran CF)	Ukoh Kokudo Ferry Co.	620	2,700

Order Backlog:

20 ships, 396,376 dw/t (278,460 g/t), including 13 export ships, 263,776 dw/t (17,560 g/t), as of the end of March 1971.

Tonnage Delivered:

(figures in brackets refer to export ships)

Year	Number	dw/t	g/t	Remarks
1963	4	41,633	26,807	
	(1)	(21,278)	(13,517)	
1964	8	86,772	58,213	
	(3)	(40,310)	(25,729)	
1965	9	153,375	90,791	
	(4)	(98,932)	(55,740)	
1966	6	116,325	79,049	
	(5)	(103,758)	(69,125)	
1967	8	148,023	109,523	
	(6)	(101,668)	(72,666)	
1968	9	138,891	96,782	
	(8)	(120,506)	(85,305)	
1969	11	180,712	120,639	
	(7)	(133,395)	(96,548)	
1970	20	375,450	259,200	
	(13)	(265,200)	(170,300)	

Details for 1970 follow:

Ship's Name & Type	Owner	dw/t	g/t
Holland Brisk (BC)	Koninklijke Paketvaart Maatschappij N.V.	26,783	15,982
Shuko Maru (BC)	Sanko Kisen Kaisha	18,633	11,556
Marylisa (BC)	Parnassos Shipping Corp.	27,053	15,806
Hakko Maru (BC)	Sanko Kisen Kaisha	18,634	11,741
Zita (BC)	Parthenon Shipping Corp.	27,081	15,665

Main Equipment and Capacity:

	length (m)	width (m)	depth (m)	cranes	capacity (dw/t)
Building Berth No. 1	201.00	24.60		80t x 1, 6t x 1	26,000
No. 2	187.00	24.30		30t x 1	20,000
Slipway No. 1	70.00	13.50		25t x 1	2,300
No. 2	63.00	11.50		1t x 1	1,500
Floating Dock	105.00	19.40	11.00	3t x 1	7,000
Yard area	170,026 m ²				

Conversion Factors

(Length)			
1 meter	39.3701 inch	10 m	32.8081 feet
1 meter	3.28081 feet	10 m	10.9361 yard
1 meter	1.09361 yard	100 m	328.081 feet
(Weight)			
1 ton	0.98420 ton (Eng)	10 kg	352.740 ounce
1 ton	1.10231 ton (US)	10 kg	22.0462 pound
1 ton	2204.62 pound	100 kg	220.462 pound
(Cubic)			
1 m ³	61023.7 inch ³	10 m ³	353.147 feet ³
1 m ³	35.3147 feet ³	10 m ³	13.0795 yard ³
1 m ³	1.30795 yard ³	100 m ³	3531.47 feet ³

How to contact the Collection:

The Marine Technology Special Collection
Newcastle University
Room 3.32
Armstrong Building
Queen Victoria Road
Newcastle upon Tyne
NE1 7RU
United Kingdom

Email: marine.archive@newcastle.ac.uk

Telephone: +44 (0) 191 20 83522
or 86718 (Enquiries)

URL:
www.ncl.ac.uk/marine/facilities/specialcollection/