

SIGNAL



CHRISTMAS GREETINGS



To **Peter Farrelly**, "Irish Pine" – Christmas Greetings and best wishes to you, your wife, Maureen, and son, Allen, and a bright New Year, with love from Mam, Dad, Brothers and Sisters.

To **Michael Boland**, "Irish Oak" – Christmas Greetings and best wishes from Mother, Dad, Brother, Sisters and families, also from your Fiancee, Mary.

To **Pat O'Mahony**, Junior Engineer – Greetings for Christmas and the New Year from all the family.

To **Michael Purcell**, "Irish Star" – Congratulations and best wishes on your twenty-third birthday – Dad, Mam, Breda, Ina, Maura, Sean, Pdraig and Seamus.

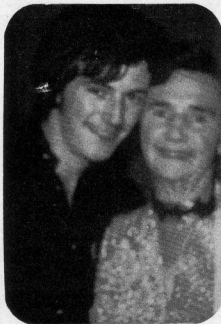
To **John V. Moynihan**, "Irish Oak" – Wishing you a very happy Christmas and every good wish for the New Year. Also best wishes on your twenty-fourth birthday – Mam, Dad, Marie, Liz, Denis, Anthony, Carol, Denis, Ben, Betty and John. Also from all your friends. We are all looking forward to seeing you soon.

IN APPRECIATION

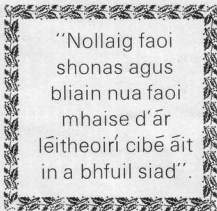
On behalf of my family and myself I would like to express my deepest gratitude to **Capt. B. Reilly, Mr. and Mrs. Liam Fanning, Officers and Crew of the "Irish Star" and the staff of the Dublin and Cork offices, for the moral and financial support rendered during our recent bereavement.**

M. Coleman,
2nd Steward, "Irish Star"

To **Thomas Hughes**, "Irish Larch" – Happy Christmas to you and all on board. Hope you all have a nice time – we will be thinking of you – from Mam, Dad and all here at home in Lusk. Also greetings from Mary, Noel and children and from Patricia, Liam and Paul. Special Greetings from Therese and George who said to tell you they missed you at their wedding. Birthday Greetings are also extended to you for your Birthday which took place on 10th November.



To **Paul Lumsden** (seen here with his mother), "Irish Pine" – Greetings for Christmas and best wishes for the new Year from Mam, Dad, and all at home.



To **Florie O'Keefe**, "Irish Oak" – A very happy Christmas from your Mum, Dad, Sister and seven Brothers. Also special greetings for your Birthday which will take place next February.

To **Joseph Hobbs**, "Irish Plane" – Greetings and best wishes for Christmas and also for your Birthday on 19th December from all at Birchgrove. Greetings and good wishes also for Christmas and your Birthday from all at Bancroft Park, Tallaght.

To **Pat Collins**, "Irish Maple" – Congratulations on your promotion to Chief Engineer and best wishes to you for your Birthday which took place on 26th November. Good wishes also to your new wife, Josephine.

"Happy Birthday to **Noel Byrne** of the "Irish Maple" and Holiday Greetings to all of those my family had a chance to meet on the Irish Shipping Lines" from Dyan Nelson, Seattle, Washington, U.S.A.

To **Paddy Duffy**, "Irish Elm" – Greetings and Best Wishes for Christmas and the New Year from Teresa, your sons Pat and Trevor and daughter Sandra. Also Best Wishes from Mother.

To **John Hickey**, "Irish Maple" – Greetings for Christmas and the New Year from Mam, Dad, Ann, Kathleen, Tina and Auntie Peg.

To **James Ryder**, "Irish Oak" – Greetings to Jim, Irene and Cathy, Love and best wishes for Christmas and New Year – From Mam, Dad, Mary, Eddie, Betty and Karl. A special 'Hello' to Cathy from Susan, Karri, Jacqui, Stephanie, Stuart and Karl.

To **John F. Murphy**, "Irish Larch" – Best Wishes for a very Happy Christmas and good luck in the New Year – From Dad, Mam and Mary.

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TWO NEW BULK CARRIERS FOR COMPANY

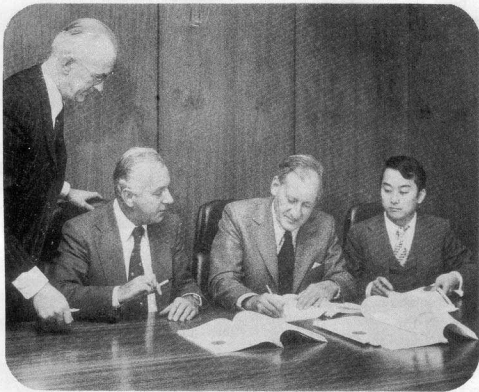
Irish Shipping Ltd. has concluded an agreement with Mitsui and Co. of Japan for the purchase of two new vessels. The ships will be built at the Hayashikane Shipyard at Shimonoseki and will be delivered about the end of 1976. The cost of the new vessels is approximately 40% below current European and world prices. The prices of the new buildings are fixed and will not be subject to the kind of escalation clause which is insisted upon by shipbuilders throughout the world to offset the effects of future inflation. Because of the favourable terms which have been negotiated through Mitsui, Irish Shipping will be able to finance the purchase of the new ships from its own resources. Extended credit over a period of seven years will be made available to the Company for the purchase.

The Chairman of Irish Shipping, Mr. Perry Greer, said the ships were of excellent design and had been obtained at rock-bottom prices. If this arrangement had not been achieved the Company could not have contemplated the placing of orders for new ships in the difficult times through which the shipping industry was now passing. Mr. Greer said that the acquisition of the new ships would enable Irish Shipping to maintain and, if possible, to increase the opportunities for employment for Irish men and women aboard Irish ships. He said it would also enable the Company to continue to compete against the shipping lines of the world for international trade.

The Hayashikane Shipyard is a subsidiary of the Mitsui Trading Company which is one of the largest in Japan and has international connections. The agreement with Mitsui was only concluded after full investigation of the available resources of world shipyards and followed six months of protracted negotiation. If, for any reason, these ships are not delivered, any interim payments made by Irish Shipping will be refunded under guarantees provided in the contract.

Particulars of Vessels

The ships will be built to a specially modified design agreed by the Company's technical staff to meet the trading requirements of the fleet. The vessels are geared



Mr. W. A. O'Neill (I.S.L.) signing the contract watched by his co-signatories Mr. E. Keegan (Director I.S.L.) and Mr. S. Tanaka (Mitsui), standing on left is Mr. J. N. McGovern (I.S.L.).

bulk-carriers each with five holds and five hatches. They are intended mainly for the carriage of bulk cargoes such as phosphate as well as lumber and steel. The holds have been lengthened to facilitate the carriage of long steel cargoes. They will be fitted with McGregor hatch covers with single wire pull, opened by deck cranes and the covers will be of the folding type. The deck cranes are Hagglund cranes, each with a safe working load of 25 tons. As compared with

the Govan built vessels, the new ships will have an extra accommodation deck and because of this the wheelhouse provides a clear view over the cabs of the cranes.

The main engine is a Mitsui-B. & W-6K74EF. The engines will be fitted to Govan specification which will mean that considerable rationalisation can be effected in the matter of spare gear. Each vessel will have three generators by Diahatsu Diesels and will have fully automated U.M.S.

Accommodation

Apart from the Cadets and boys, who will share shower/toilets, each crew member will have his own cabin with shower and toilet facilities. The vessels will also be equipped with a Games Room Children's Room and Swimming Pool. The ships will be provided with the video tape system which has been in operation on vessels of the fleet for some time past. The ships' radio/telephones will give worldwide telephone facilities similar to that provided on the other vessels of our fleet.

The new vessels' vital statistics are:

Length Overall – 176.80 meters
Breadth Moulded – 25.00 meters
Depth Moulded – 14.20 meters
Draft – 10.25 meters
Deadweight – 26,900 L.T.
Gross Tonnage – 17,300 T.
Service Speed – 14.0 knots

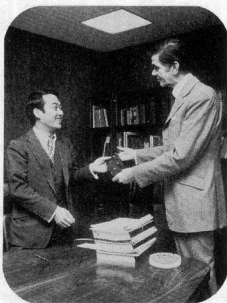
The Mitsui Organisation

The Hayashikane Shipbuilding Co. Ltd. yard at which the new ships will be built is at Shimonoseki on the southern tip of Honshu Island. Directly across the Kanmon Strait from Shinmonoseki is Moji and these two cities combined comprise the modern port of Kanmon. The cities are connected by a rail tunnel and by a frequent ferry service.

The Hayashikane Shipyard is part of the great Mitsui organisation. The Mitsui Group of companies including main line enterprises and their subsidiaries represent hundreds and covers every aspect of manufacture and business in Japan. The main companies of the Group number fortytwo. In addition to shipbuilding Mitsui are involved in transport, finance, insurance, mining, steel, chemicals, textiles, pulp and paper and many other branches of commerce. The total of the Groups assets amounts to £7 billion.

Social Welfare

Mitsui is the leading Japanese business concern in the matter of social welfare. The Group's concept of social welfare ranges from staff



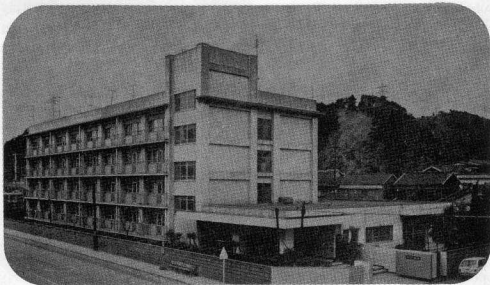
Mr. D. O'Neill, Chartering and Operations Manager, Irish Shipping (right) presenting a Company Tie to Mr. S. Tanaka, Mitsui & Co. Ltd., at the signing of the contract.

welfare programmes to major international welfare projects. In 1974 Mitsui spent £1.42 million on its expanding social welfare programmes. In 1973 a Social Relations Department was set up at the firm's Head Office to plan social welfare projects and to control funds for the implementation of the various projects.

Food fairs were organised and sponsored by the Company in various cities of Japan. The purpose of the fairs was to offer specially selected foods at substantially lower than going market prices. Mitsui

enlisted the co-operation of 263 leading retail and department stores as well as firms of the Mitsui Group and other affiliated companies. The fairs were held over a period of several months in Tokyo, Osaka, Nagoya and Sapporo. The popularity of the fairs was indicated by the fact that the total sales recorded exceeded £1.6 million.

In Australia, Thailand, Indonesia and in a number of Southeast Asian countries the Company has established foundations to promote education and training of young people. In Japan the company directly promotes educational and cultural programme in forty major cities. As long ago as 1906 Mitsui established a memorial hospital in Tokyo. Today, the Mitsui Memorial Hospital is an impressive 12-storey structure providing services of a general hospital. It has 400 beds and is operated by a staff of more than 500 and the services of the hospital are available to Mitsui employees and to the general public. In addition, the Company provides substantial funds to an artificial heart research project which is being conducted by the University of Hiroshima. International charities, public parks and library services are other important outlets for funds allocated by Mitsui in compliance with the Company's "Code of Conduct" established in May 1973 which specifies the Company's philosophy towards its social responsibilities as a private company.



The Hayashikane Apartment Block at Shimonoseki which is provided for the use of yard personnel and for representatives of owners with ships building at the yard.

Facts and Figures on New Ships

As a result of the recent public debate on the placing of orders for two ships with Mitsui of Japan some staff members have expressed concern that the implications for Irish Shipping might not be fully understood by all our colleagues. In order to ensure that all staff members, ashore and afloat, are made aware of the relative costs of purchasing the vessels from Mitsui and from Verolme Cork Dockyard these are set out hereunder.

In stating that the extra cost of placing the orders with V.C.D. would make the new vessels wholly uneconomic it must be emphasised that this is no reflection whatsoever on the Cork Yard which we have always found to be amongst the most efficient in the world.

	Mitsui	V.C.D.
Cost of Ships	£11.2 million	*£18 million
Cash	3.3 million	£18 million
Credit	£ 7.9 million	Nil

V.C.D. Annual Cost for 7 years (i.e. Depreciation and Interest @ 12½% p.a.) = £ 2,740,000 per annum

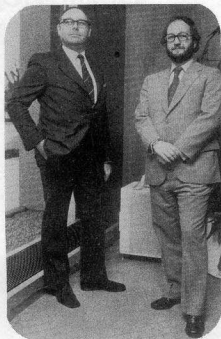
MITSUI Annual Cost for 7 years (i.e. Depreciation, Interest @ 8.75% plus provision for devaluation of the Yen) = £ 937,000 per annum

£ 1,803,000

Difference of £1,803,000 per annum = £12,621,000 for 7 years

*V.C.D. Quotation £14.4 million + Modifications £1.5 million
+ Escalation £2.1 million

Visitors to Dublin



Mr. Norman Cunningham and Mr. John Norman of Sir Wm. Reardon Smith & Sons Ltd. were present at the signing ceremony.

Late Mr. George Sugg

We very much regret to learn of the death of Mr. Albert George Sugg who served as Chief Cook on many of our vessels during and after the last war. His brother, Capt. P. C. Sugg, is a Council Member of the Maritime Institute of Ireland.

The late Mr. Sugg was well-known to many of our readers and his son Mr. Noel Sugg, also served on Irish Shipping vessels and is now a Ship's Steward with Irish Lights.

We offer our sympathy to the Sugg family on their sad loss.

Too many tankers for the next five years!

A warning that the oversupply of tankers would last until at least 1980 even under the most optimistic set of circumstances and 'inevitably bankrupt some companies', was made by Mr. Georg King, Managing Director of BP Tanker Co. at a recent conference of shipowners in Hong Kong. He said that a further string of contract cancellations was the best way of cutting into this tanker surplus.

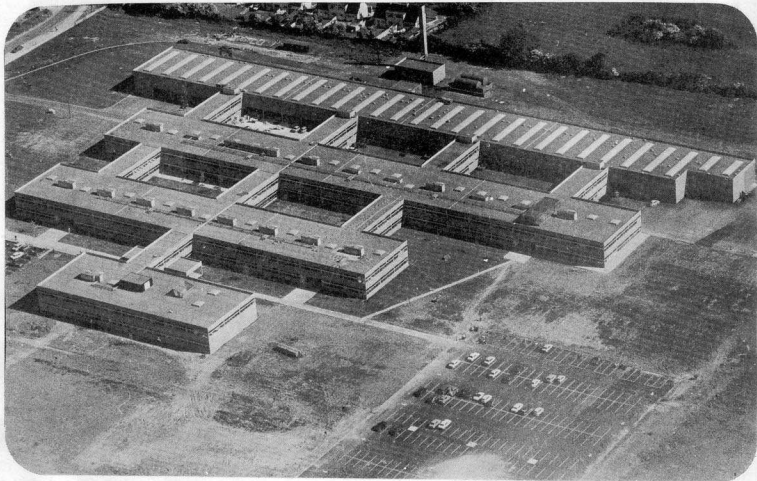
A recurring theme at the conference was the danger of the proliferation of flag preference legislation, and other measures endang-

ering free trade. It cropped up in a speech by Mr. Y. K. Pao, chairman of the World Wide Group which was read in his absence by Mr. William Lee, Deputy governing director. 'As I begin to read this speech, Mr. Pao is no doubt having his usual early morning swim in the Caribbean, and no doubt keeping his head in its customary posture, well above water', quipped Mr. Lee.

In the speech, Mr. Pao said that he deplored the trend towards protectionism that was evident even in some countries which boasted a

full devotion to free trade, but he recognised that in many instances it was pretty inevitable. On the development of shipping lines in emerging nations he said that this should not be accompanied by the introduction of a flag register. The problems which this created could often be more of a hindrance than a help. An obvious way to successfully develop a fleet was through joint ventures between emerging nations and established independent shipowners, who could provide the expertise and experience that the new shipping nations lacked.

Cork Regional Technical College



Having completed its first year of academic studies, the Cork Regional Technical College held its first conferring ceremony on 3rd November and a number of Irish Shipping Cadets were among the students who received certificates and diplomas.

The college, which is situated at Bishopstown provides a wide variety of courses and is the largest college of its kind in the country. The Department of Nautical Studies provides courses in Navigation in addition to Marine Engineering. Captain Tom Walsh, former principal of the Irish Nautical College, Dun Laoghaire, together with Mr. Ken Dixon, Mr. G. Trant and Mr. J. Archer have joined the staff as full-time lecturers.

Speaking at the conferring ceremony, Mr. J. P. Roche, Principal of the College, said that one of his biggest problems at present was the question of accommodation. The College is now full and serious consideration must be given to the question of extension. In outlining

the various courses for which certificates and diplomas were being awarded, Mr. Roche said that Cork had the largest range of courses available to any technical college.

Off-Shore Technology

The Cork College now has a diploma course in off-shore oil and gas technology, and if substantial hydrocarbon deposits are found, as is expected, it will be essential that trained Irish people will be available. This field of education is new to Ireland and the Cork College uses a Norwegian type of course as a guideline and is ready to co-operate with other agencies.

Mr. Roche said that the prospects for those taking the oil and gas course are excellent and he believed that on successful completion of the course students were likely to be in demand at home and abroad. He added that we may have to make special provisions to ensure that our people who are trained in oil and gas technology are available to the Irish oil and gas industry. He added

that it would also be necessary to ensure that equipment and personnel for the successful development of the course should be provided in good time. He said that many of the other courses available at the College would also serve the off-shore oil and gas industry.

The Director of the National Council for Education Awards, Mr. P. MacDiarmada, spoke of the happy partnership between his Council and the Regional Colleges and said the growth of these showed that they were beginning to realise the potential which had originally been envisaged for them. In the current year the total National Certificates awarded would be over one thousand and in the years since 1972/73 they had issued 2,500 certificates. That meant that the regional colleges had filled their role in helping to educate and train students for technical and middle management levels. The awards were now gaining full recognition here and abroad. Mr. MacDiarmada referred to the fact that two of the

students who received diplomas in Marine Engineering were from Nigeria and said that as Cork had a great potential in the oil and gas industry this would give the College a tremendous opportunity of becoming the leading light in Marine Education.

Irish Shipping Cadets who received the National Certificate in Marine Engineering were Francis McGarry and Dermot Murphy who passed with distinction. Passes with credit were obtained by John Cummins, Paul Gunning, Ciaran McIntyre and James O'Flaherty. Passes were obtained by Damien Mathews, Declan O'Connor and Gerard Sheehan.

The National Diploma in Marine Engineering was obtained by Joseph Dillon, Michael Flynn, Thomas Keeling and Patrick Molloy who obtained passes with credit. Francis Brennan, Gerald O'Brien and Walter Sammon obtained passes in the diploma examination.

At Conferring Ceremony



Front Row: T. Dorney (Mobil); D. Long (P & O); Capt. M. Langran (I.S.L.); S. MacDiarmada (N.C.E.A.); J. P. Roche (Principal RTC); R. J. Jones (Mobil); F. McGarry (I.S.L.).

Middle Row: M. Okoli (N.P.A.); D. O'Connor (I.S.L.); P. Gunning (I.S.L.); J. O'Reilly (I.S.L.); D. Murphy (I.S.L.); G. Sheehan (I.S.L.); U. Bassey (N.P.A.).

Back Row: P. Comerford (B.P.); F. O'Keefe (B.P.); D. Coughlan (B.P.); D. Hogan (B.P.); C. McIntyre (I.S.L.); D. Matthews (I.S.L.); B. Kelleher (I.S.L.); D. O'Carroll (Mobil).

Deck and Engineer Officers ashore as at 1st December 1975

Masters: M. McMahon, T. Byrne, T. Hughes, B. Reilly, M. Devine.

Chief Officers: T. O'Connor, P. Kehoe, P. Murphy, G. Kyne, N. Hearne, J. Whyte.

Second Officers: J. Flanagan, M. Darcy, E. Curry, C. Graham, P. Richardson, M. Ryan.

Third Officers: P. J. Hughes, M. Purcell, M. McCarthy, M. Kirrane, C. Lawless.

Chief Engineers: G. Rowe, J. Morgan, M. Dillon, T. Murphy, D. Knott, W. McCarthy, R. Tennent, L. Sherringham.

Second Engineers: P. Dowling, J. O'Toole, M. Byrne, D. Menzies.

Third Engineers: E. Sweeney, M. Donovan, F. Mullin, J. Waters, M. McCann, P. Herlihy, P. McDonnell, J. Nangle, P. McCarthy, J. O'Keefe.

Fourth Engineers: D. O'Flaherty, M. Scully, K. Daly, M. O'Gorman, J. Denham, C. McGarrigal.

Junior Engineers: B. Geoghegan, H. Mahon, O. Mortimer, E. Tubridy, M. Tyrrell, F. Keane, J. Lynch, N.

Pearson, J. Durham, P. Molloy, M. Ryan, M. Allen.

Electrical Engineers: J. D. Murphy, H. Stears, P. O'Toole, J. Maguire, A. Kane.

Catering Officers: B. Dorgan, U. Maher, J. Clinton, P. Walsh, T. O'Connell.

Deck Cadets: J. Bourke, G. Butler, M. Butler, P. Cafferky, D. P. Coleman, D. Dignam, P. Dorgan, D. Elliott, G. Farrell, R. Fennessy, R. Finn, J. Flaherty, D. Fleming, G. Hopkins, W. Kavanagh, A. Kelly, M. Kidney, R. McCabe, F. T. McCarthy, M. McCarthy, F. McMahon, D. J. Meagher, F. O'Callaghan, F. O'Flynn, P. O'Shea, R. O'Shea.

Engineer Cadets: J. Cummins, P. Gunning, B. Kellaher, F. McGarry, O. McGarry, C. McIntyre, D. Mathews, J. Murphy, D. O'Conor, J. O'Flaherty, J. O'Reilly, G. Sheehan, J. Butler, J. Barry, T. Cambridge, F. Hetherington, A. Lydon, A. Meaney, D. O'Reilly, G. Osborne, T. Taylor, R. Tynan, P. Bowring, T. Fenelon, P. Kealy, M. Keogh, P. Laracy, B. Lester, E. O'Sullivan, D. Potter, J. White.

SAFETY FILMS

The Manpower Committee of the Irish Chamber of Shipping arranged a showing of safety films in the North Star Hotel on 19th November. The showing was attended by representatives from Irish Shipping, Irish Continental Line, Irish Lights, B & I Line, Dublin Shipping, Bord Iascaigh Mhara, Dublin Port and Docks Board and from the Department of Transport and Power as well as other interested parties.

The programme consisted of a naval film on the causes of fires aboard ship titled "Fire Raisers"; two films on life rafts and safety equipment; films on the use of distress rockets, accident prevention on board ship and the use of portable breathing apparatus.

Most of these films, together with certain others, are owned by the member companies of the Chamber and it is their intention to show these to allcomers every two to three months.

BON VOYAGE!



The crowded decks of the "Saint Patrick" as she leaves Le Havre for the return voyage to Rosslare will help to remind us that preparations for the next holiday season have already begun at Irish Continental Line and we wish them another successful year in 1976.



President at Seamen's Memorial Mass

Memorial services for merchant seamen who lost their lives while serving on Irish ships during the Second World War were held at St. Patrick's Cathedral and City Quay Church on Sunday, 9th November.

The President, An tUas. Cearbhaill O Dalaigh, who is Patron of the Maritime Institute of Ireland, is pictured here chatting with Capt. C. C. Raftery of Irish Continental Line, and Mr. N. J. Healy, who served on Irish Shipping vessels during the War and was subsequently engineer superintendent with the Company.

STEEL

The two basic ingredients of modern industry are energy and steel. The importance of energy was brought home to us in the most practical way possible over the past few years. The effects of the fuel crisis have been global and the increased price of fuel has manifested itself in increased costs in almost every sphere of human activity. The impact of the influence of steel in our lives has not been so dramatic. However, if we only consider our dependence on electricity we can immediately appreciate that steel plays a vital part in the generation and distribution of electrical power. The production of electricity is a particularly sensitive measure of industrial sophistication since it is such a convenient and flexible means of distributing energy. The electricity gap between the developed and the developing countries is very great. The United States produces about 35% of the world's electricity and Russia produces about 15%. Norway, with a population of 4 million people, produces more electricity than India with a population of 564 million people and nearly twice as much as the whole of Africa excluding South Africa. In the developing countries much of the electricity is used in the larger cities or in mining enterprises.

Production

Steel is now produced in commercial quantities in about 45 countries but nearly eighty per cent comes from the top seven producers, namely America, Russia, Japan, West Germany, United Kingdom, France and Italy. The two main ingredients in steel-making are coking coal and iron ore although other sources of energy may be used. While Russia has some iron ore for export, and France is self-sufficient, the other five largest producers now obtain most of their iron ore, usually of high iron content, from a large number of suppliers, including Canada, Sweden, Australia, Brazil, Venezuela and India. About 150 million tons of ore are now carried by sea annually and this commodity as well as the finished steel is frequently carried in vessels of the Irish Shipping fleet.

To understand what steel is, it is important to know something of iron because steel is, in fact, iron which has been refined and had carefully measured amounts of other elements added to it. Iron is common in the earth's crust and occurs in many forms but we need only consider where it occurs in large quantities usually as iron oxide in rocks and this we call iron ore.

The modern world's great demand for steel has meant an increasing need for large quantities of rich, high quality ore and this only occurs in sufficiently large quantities, reasonably accessible, in a few scattered areas of the world, mainly in Scandinavia, the Americas, Australia, North Africa and Russia.



Coiled steel plate loaded on 100-tonne rail wagons, ready for despatch.

From these orefields the ore is brought by sea to harbours close to the steelworks where it is unloaded and stored in the ore stockyard. The ore is graded and crushed and some of the finer ore is taken to what is called the sinter plant where it is mixed with coke and sometimes, limestone, and heated to form an iron-rich clinker

which is known as sinter. This sinter is fed into the top of the blastfurnace together with more iron ore, coke and limestone in controlled proportions and the whole is fired. Great heat is generated and fanned to white hot intensity by blasts of superheated air from which the furnace derives its name. The iron in the sinter and the ore melts

to form a pool of molten metal at the foot of the furnace. The limestone combines with impurities in the iron ore, forming a liquid "slag" which, being lighter than the metal, floats on top of it.

The process in the blastfurnace is continuous. As the slag builds up on the surface of the molten iron, it is periodically tapped off. Similarly as a sufficient quantity of molten iron accumulates beneath the slag, it, too, is tapped off ready for the steel furnaces. Meanwhile, the raw materials, sinter, ore, coke and limestone, are continually poured into the top of the furnace and heated air is blasted in at the bottom. This process goes on continuously, often for two years or more, before the heat resistant brick lining of the furnace begins to deteriorate. After tapping, the molten iron is left which is 90 to 95 per cent pure and is known simply as "hot metal". This hot metal has some impurities which will vary according to the quality of the original iron ore but usually the most important of these, from our point of view, are carbon, sulphur, phosphorus, manganese and silicon.

Three Main Processes

In the production of steel either the hot metal from the blastfurnace, or scrap metal – iron or steel – or a mixture of both is the basic raw material for any steel furnace. The amounts of material used vary according to the process and the type of steel required.

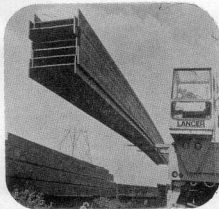
Steel is not so easy to describe as iron because there are many forms of it each with its own specific chemical analysis to meet the various needs of the hundreds of different applications. There are soft steels, hard steels, springy steels, special electrical steel and a host of alloys where iron is mixed with other metals to form a wide range of special and stainless steel.

During this century, the technique of steel-making has undergone vast changes in scale and new processes have been developed continually to meet the demands of speed, quantity and quality. However, today there remain only three

major steel-making processes namely Open Hearth, Electric Arc and Basic Oxygen. Of these the Basic Oxygen method is the most recently developed and is the one now most widely used.

The Open Hearth is so called because molten iron, scrap and limestone is charged into the shallow steelmaking area known as the Hearth and is exposed, or open, to the sweep of flames. Firstly boxes of scrap and limestone are charged through the furnace door. This solid charge is partially melted by the flame of burning fuel, such as oil and gas; then the molten iron is poured into the furnace. High temperature reactions cause unwanted elements to oxidise and combine with the limestone to form slag, which separates from the metal. The process is assisted by the injection of oxygen into the furnace through water-cooled lances.

Samples of the metal are taken, and selected elements are added to get the required standard of steel. Further samples are analysed and when they are found satisfactory,



Universal Beam being loaded

the tap hole in the furnace is opened and both slag and steel runs into a ladle below. The slag, being lighter than the steel, rises to the top of the ladle and overflows into a small slag ladle alongside it. Because the Open Hearth process is slow it is gradually disappearing in favour of the other two processes.

The Electric Arc process uses only cold scrap metal; hot metal plays no part. The process was originally used solely for making steel of special high qualities as it gave more precise control over the composition

of the steel and, today, it is used mainly for making large tonnages of more widely used steels. At the start of the process, three carbon electrodes are lowered through the roof of the furnace and a powerful electric current is passed through the scrap, an arc is struck and the heat generated melts the scrap. The addition of lime, fluorspar and iron oxide are made and these combine with impurities in the metal to form liquid slag. From time to time throughout the process samples of the steel are taken and analysed to check composition. Once the correct composition has been achieved, the temperature of the steel is measured and, where necessary, raised or lowered to correct casting temperature. The slag containing the impurities is then either raked or poured off the surface of the molten metal into slag ladles or pits. The furnace is then tilted and the steel is tapped from the furnace into a teeming ladle suspended from an overhead crane. Large electric arc furnaces produce 150 tonnes of steel in four hours.

The Basic Oxygen process is fast becoming the major method of making steel. Modern furnaces will take a charge of 350 tonnes or more at a time and convert it into steel in 40 minutes. Hot metal is the principal material used in the Basic Oxygen process. The furnace is tilted and charged first with scrap and then with the molten iron and then returned to the upright position. The molten iron accounts for about 70 per cent of the charge and the scrap 30 per cent.

A water cooled oxygen lance is lowered into the furnace and high purity oxygen is blown on to the metal at very great speed. The oxygen combines with carbon and other unwanted elements, thus eliminating these impurities from the molten charge. During the "blow" lime is added to help carry off the oxidised impurities as a floating layer of slag. After steel has been refined, it is tapped out into a ladle and when all the steel has been tapped, the converter is turned upsidedown and the residual slag is tipped into a waiting slag ladle for removal to a slag pool.

Casting

After molten steel has been poured or tapped from the furnaces it is casted into ingots, special castings or directly into slabs and blooms by a continuous casting process. Continuous casting is a technique in which the molten steel is channelled down to a water-cooled mould. The metal which had begun to solidify on the outside is led to water sprays and between rolls to be cut into lengths as slabs or blooms.

Ingots are a convenient form in which to handle steel and the molten steel is released through the base of a ladle into moulds. When the metal has solidified, the mould is removed. Each ingot is of carefully pre-arranged dimensions and weight from which articles of required size can be rolled or forged. In the rolling process, red hot ingots are passed between heavy rolls and shaped into slabs, blooms or heavy sections. In forging, the ingots are pressed or hammered into shape.

Steel castings vary in size from small precision parts for general engineering purposes to Forging Press Cylinders, Turbine Casings or Stern Frames for large ships. The molten steel is teemed or poured into sand moulds which are broken up when the steel has solidified to remove the casting.

Transport

Iron ore and the associated raw materials for ironmaking are heavy and bulky commodities. As a result of this, the major problems of Britain's steel industry has always been transport.

In the earliest days of the Industrial Revolution, limited transport facilities led to the industry springing up in areas where rich iron ore or hematite, charcoal and limestone were locally available.

Transport facilities improved with the advent of the railways and, as the demand for steel grew, charcoal gave way to coal as a fuel in the furnaces and the industry moved into areas where coal and larger sedimentary deposits of ironstone were available. Although this ore was generally lower grade, about 23 to 45 per cent iron, there were

unlimited stocks and large plants were built on the orefields in Northamptonshire and Lincolnshire.

However recent technical developments in the international steel industry call for a larger supply of iron ore. This ore is of a higher quality than the British deposits can supply. A new type of ore-carrier, a ship freighter capable of transporting up to 300,000 tonnes, has made grade deposits of iron ore all over the world available to Britain's steel-making industry. New ore terminals, therefore, are being built to accommodate the super-freighter but inland transport has to be kept to a minimum. As a result, new steelmaking developments are being built in large existing plants near the coastal ore terminals in Scotland, South Wales, Lincolnshire and Teesside.

The present world economic situation has reduced demand for

steel and, therefore, for ships to transport steel and the raw materials used in making steel. The population of the world doubled in the past fifty years and will have trebled by the end of the present century if present estimates are correct. It is reasonable, therefore, to assume that not only will demand for steel and iron ore be renewed but will increase very considerably. In our own sphere of shipping we would hope to participate as fully as possible in the movement of both these precious commodities along the trade routes of the world.

James Scott & Co. (Cork) Ltd.

As from 1st December, 1975,
James Scott & Co. (Cork) Ltd.,
have moved to their new offices
at Glanmire House, Lower Road,
Cork.

Telephone: 54200 Telex: 6120



DUSTY OIL

Television screens around the world recently carried pictures of one of the strangest attempted invasions in modern history. The "Green March" on the Spanish Sahara by thousands of Moroccans was organised by King Hassan in an effort to gain control of the phosphate mines of BuCraa. These phosphates are called "dusty oil" by the Spaniard and, indeed, the simile is well chosen. Morocco is the world's largest producer, after the United States and Russia, and by far the largest exporter of phosphate rock which is one of the three major fertilisers. Demand for phosphate in the first half of 1975 slumped rapidly. Exports from Morocco fell by 1.2 million tonnes compared with the same period last year. However, she has not, so far, been hit by the slump in world phosphate rock deliveries. Exports from Tunisia were nearly halved over the same period. If Morocco were to add to its own exports those of BuCraa she would find herself controlling close on 80 per cent of the world's trade. The Office Cherifien des Phosphates, the state phosphate monopoly, would rival OPEC as one of the world great monopolies and would be able to impose its will on the developed countries, irrespective of slump or boom. This would appear to be the reasoning of the Moroccan King. However, the position is not so



Engineer Cadets selected this year and now studying at Cork Regional Technical College. Front Row (L. to R.) D. Potter, P. Kealy, B. Lester and M. Keogh. Back Row (L. to R.) T. Fenelon, J. White, P. Bowring, P. Laracy and E. O'Sullivan.

clear cut. Morocco increased the price of phosphate rock in three stages between 1973 and January 1975, from \$15 to \$65 per tonne but in June last it failed to push the price up further as was its declared intention. This was expected to keep the price in line with the rise in the price of imported goods from the West. However, it is reported that Morocco has engaged in negotiations with buyers for de-

livery of phosphate at below \$65 in the new year. Indications are that she has succeeded in maintaining the price of deliveries to Eastern Europe. However, demand for phosphate dropped because of a build up of stocks which took place up to the end of 1974 and the efforts of manufacturers to reduce stocks in order to ease their financial problems. Added to this was the agricultural theory that there was generally over-use of fertilisers which caused a big drop in demand from farmers.

Directly affecting Morocco was the availability of cheaper phosphate rock from Syria and Tunisia. America also offered supplies at \$56 per tonne. All of these factors have prevented Morocco from exercising the same control over phosphate supplies as the oil producers have done in their sphere of influence.

We, in Irish Shipping, have been much involved in the phosphate trade from Morocco to Ireland ever since the "Irish Cedar" began the shipment of phosphate rock from Casablanca to Dublin and Cork for Gouldings in 1967. This service was suspended last summer when the import of phosphates ceased.



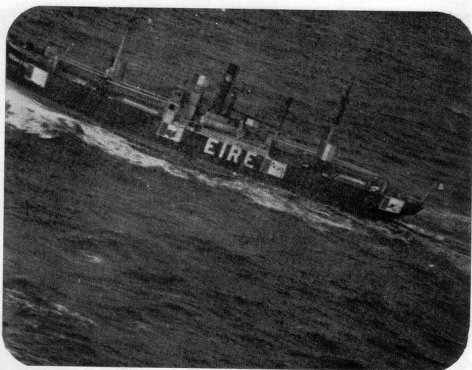
Teaching staff and their wives who have transferred from the Irish Nautical College, Dun Laoghaire to the new Regional College at Cork (L. to R.) Mr. G. Trant, Mrs. Trant, Mr. K. Dixon, Mrs. Walsh, Capt. T. Walsh, Mrs. Archer, Mr. J. Archer and Mrs. Dixon.

The Brave Little Ships

The photographs on this page have been supplied by Mr. Frank Robbins, former Director of Irish Shipping Limited, and recall the exploits of the war-time fleet.

The picture of the "Irish Fir", with her special markings, was taken from the air by a pilot in the Royal Canadian Airforce. The pilot, Mr. W. A. Richardson, was on dawn patrol along the Atlantic Coast of Canada when he sighted this small vessel which, in his own words, "was lighted from stem to stern ploughing its way through the dangerous waters of the Atlantic. It was so very different from the many merchant ships sailing in convoy and all bunched together like frightened rabbits".

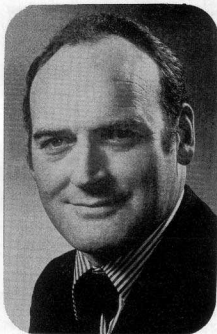
Many years after the end of the war Mr. Richardson came to Ireland as a member of a group of mining representatives for discussions with the Board of Directors of Mianraí Teoranta, the state mining company, which has since gone into liquidation. Mr. Robbins was a Director of the Company and obtained the



photograph from Mr. Richardson. The second picture was taken during the visit to Avoca of the Canadian mining representatives and Directors of Mianraí Teoranta. Mr. Richardson is crouched at front, wearing jacket, and at front to his left is Mr. Robbins.

The first "Irish Fir" was a vessel of 2,030 tons dead-weight and was built in 1920. She was purchased from the Chilean Government in October 1941. She was previously named "Margara" and she was sold to Dublin and Sillioth Steamship Company in March 1949 after which she was renamed "Delgany".

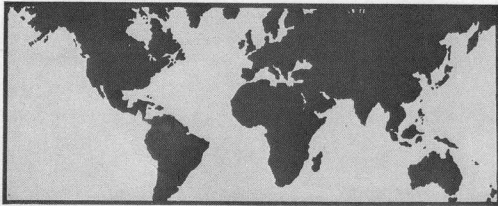
New Catering Manager



Mr. Austin Cody, who has been appointed Catering Manager with Irish Continental Line. He will be responsible for all aspects of catering and passenger services on board the car ferry "Saint Patrick".

Mr. Cody was formerly Hotels Manager for the Ryan Tourist Group which controls four Ryan Hotels in Ireland and one in London. He is a graduate in Hotel Management from the College of Catering, Dublin. Previous appointments within the hotel industry include positions with the Grosvenor House, Cumberland and Regent Palace, London and The Strand Hotel, Rosslare. Mr. Cody took up duty in his new position last October.





FLEET NEWS

"Maple" sights empty Trimaran

In the early hours of Friday, 21st November, Second Officer, Mr. J. Hickey sighted a peculiar looking object in the waters of the Pacific while on passage from Kashima, Japan to Balboa in the Panama Canal Zone. Two days previously the vessel was radioed by the U.S. Coastguard at Balboa to keep a sharp lookout for a single mast fibreglass trimaran, 31 feet long and named 'Rose'. The yacht had one person on board and had left Balboa on 24th October for Glofita, Costa Rica. On closer inspection the object sighted by Mr. Hickey proved to be the missing yacht. After manoeuvring alongside it was seen that the vessel had turned over on its side and there was a bundle lying across the keel. A man was put on board the yacht to see if there was anyone inside the keel but there was no occupant found. It appeared from observation that the yacht capsized while the occupant was in the cabin. He then drilled his way out through the keel. The letters "S.O.S." and "HELP" were scratched on the keel and two mirrors were fixed on each side of it. In fact it was the reflection of the moon from one of the mirrors which first attracted Mr. Hickey's attention. The bundle on the keel was a rubber dinghy and a makeshift mast had also been rigged with a piece of cloth to attract attention. A flat platform had been constructed on top of the keel to lie on and there was food and some sauce bottles on a shelf inside the keel. As Capt. O'Dwyer of the 'Maple' remarked "the unfortunate man

certainly made a gallant effort to stay alive". Full details were reported to the Coastguard at Balboa.

The vessel passed through Panama on 24th November and is expected at Bilbao, Spain, on 8th December where she will discharge her cargo of steel from Nagoya and Kashima. It is estimated that she will complete unloading about 18th December.

"Larch" on Oriental Voyage

The first visit by an Irish Shipping vessel to the port of Shanghai will take place on 11th December when the "Irish Larch" is expected at the Chinese port.

This vessel sailed from Port Kembla, south of Sydney, Australia, on 15th November with a cargo of pig iron for Manila and Hong Kong. She was delayed at Port Kembla due to a port strike staged as a result of the present political controversy in Australia. While the vessel was at Newcastle, Captain J. Caird took over command from Captain M. Devine. Chief Officer Mr. B. Hearne was relieved by Mr. J. Darcy at Manila on 26th November.

The ship is expected to sail from Manila on 2nd December and will complete discharge at Hong Kong about 8th December. She will then proceed to Shanghai where she will load ore and will complete her cargo of ore at Japanese ports for discharge in Australia.

"Irish Oak"

After completing discharge of her grain cargo at Leningrad, the "Irish Oak" sailed in ballast for Rosario and Buenos Aires, Argentina. On her

outward passage she called at Kiel to take on stores and she is expected to arrive at her loading port on 7th December. She will then load grain for the Black Sea.

"Pine" for India

While this vessel was in Japan, Captain J. Walsh relieved Captain T. Byrne and Chief Engineer Mr. M. J. Byrne relieved Mr. G. Rowe.

The vessel loaded a cargo of steel at Chiba, Japan for Bilbao and is expected to arrive at her discharge port about 3rd December. It is estimated that she will complete discharge about 13th December and will then sail in ballast to Tampa, Florida where she will load a cargo of Phosphate for Vizagapatnam in India. The "Pine" will be due at Tampa about Christmas Day and she will call at Durban for bunkers on her way to India.

"Irish Elm"

This vessel loaded Japanese motor cars at Yokosuka for Newark, New Jersey. She is expected to transit the Panama Canal on 28th November and should arrive at Newark about 4th December. After discharging part of her cargo she will complete discharge at Norfolk, Virginia about 9th December.

While the vessel was in Japan, Captain W. D. Garvey relieved Captain M. McMahon. When she sails from Norfolk the "Elm" will go in ballast to the Gulf of Mexico where she will load coal for discharge at Japanese ports.

"Irish Stardust"

Captain J. Kelly was relieved at Oakland by Captain B. Reilly after the vessel had arrived there with containers from Kushiro, Japan. It is expected that the vessel will complete discharge on 6th December and will then sail in ballast to British Columbia where she will load lumber for discharge at North European Ports.

"Irish Star"

This vessel is due to arrive at Tampa, Florida on 30th November after coming in ballast from La Pallice, France. She will load phosphate at Tampa for British Columbia and is expected to complete loading

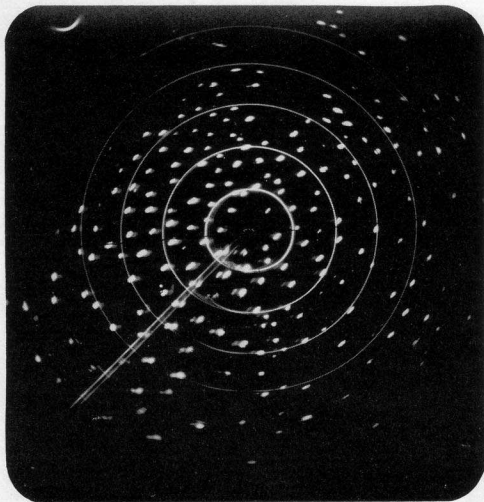
on 2nd December. She should transit the Panama Canal on 6th December and should arrive at her first discharge port on 18th December. It is estimated that she will complete discharge of her cargo of phosphate on 21st December and will then commence loading lumber at Eureka on 22nd December. She also loads at Portland, Crofton, Port Mellon and Squamish for Japan. It is expected that she will complete loading about 2nd January.

"Irish Plane"

This vessel was delayed for two and a half days at Montreal on her outward passage as a result of a work-to-rule by pilots. She was sailing in ballast for Duluth/Superior where she loaded a cargo of Soya Pellets and sailed on 25th November. She is due at Montreal on 30th November. This will be her final voyage of the season from the Great Lakes as the closing date for



The 15,670 d.w.t. "Irish Cedar", built at Verolme United Shipyards, Heusden, Holland, in 1962 and which has been sold to Lezina Shipping Co. S. A., Panama.



This is a picture of a Radar Screen on board a Finnish ship anchored at Apapa, Lagos, Nigeria, showing the ships awaiting berths at this very congested Port. In our last issue, we described the effects of ship delays on the price of imported goods to the people of Lagos.

(Courtesy Finnish Seamen's Service)

shipping in the Lakes is 11th December at Saulte Ste. Marie.

The "Plane" will discharge her cargo of grain at a European Continental port in the Rotterdam/Antwerp area. She is due to arrive at her first discharge port on 11th December and should complete discharge in two days.

Final Voyage of "Cedar"

The "Irish Cedar" has completed her final voyage for the Company and is at present completing discharge of her grain cargo at Trieste, Italy. She loaded at Rio Grande de Sul and discharged part of her cargo at Genoa where she arrived on 17th November. She is expected to complete at Trieste on 30th November. She will then go into dry-dock before being handed over to her new owners.

The Master on her final voyage was Captain M. Carey and Mr. J. Mooney was her Chief Engineer.

SYMPATHY

We extend sympathy to Mr. P. McDonnell, Third Engineer, on the death of his mother which took place on 20th November. We also offer our condolence to Capt. Colm Lawless, Harbour Master at Dublin and formerly with our Company, on the death of his mother recently.

Fleet Personnel



Deck and Engineer Officers in Order of Rank as at 1st December, 1975

m.v. 'Irish Pine' – Captain J. J. Walsh; Deck Officers: E. Greevy, D. Hopkins, H. McGowan; Deck Cadets: F. Britton, D. Barry; Engineer Officers: M. J. Byrne, A. Bolster, J. Smyth, F. Flynn, D. Walsh, J. Kavanagh; Engineer Cadets: G. O'Brien, W. Sammon; Electrical Engineer: P. Fitzgerald; Catering Officer: P. Farrelly; Radio Officer: D. Jackson; Deck Department: P. Harris, D. O'Sullivan, T. Norris, P. Bradshaw, D. Hunt, J. White, P. Naughton, S. Doyle, L. Stowe, S. Ebbs; Catering Department: G. McGovern, M. Carpendale, E. Byrne, J. Kane, P. Lumsdon, H. McClenahan, D. Browne.

m.v. 'Irish Maple' – Captain M. O'Dwyer; Deck Officers: P. Farnan, J. Hickey, L. Foley; Deck Cadet: T. Sarsfield; Engineer Officers: P. Collins, D. Gabriel, P. McGlade, M. McAneny, B. McGinley, P. M. Duffy, M. Tracy; Engineer Cadet: M. O'Leary; Electrical Engineer: M. English; Catering Officer: H. Bond; Radio Officer: J. Farrell; Deck Department: H. Hannon, E. Frampton, J. Farrelly, J. O'Neill, N. Byrne, J. O'Donnell, T. Lynch, D. Sheridan, B. Coogan, E. Nicholson, A. Pike, P. Fury; Catering Department: D. Meagher, J. Kenneally, J. Maguire, J. Byrne, J. Cooney, A. Reilly, P. Williams.

m.v. 'Irish Larch' – Captain J. Caird; Deck Officers: J. Darcy, J. Murphy, P. Miley; Engineer Officers: M. Curley, J. Reilly, E. Keacy, D. Kelly, D. Gerety, P. O'Mahony, J. Garvey; Engineer Cadets: P. Molloy, M. Flynn; Electrical Engineer: E. Walsh; Catering Officer: N. Hartigan; Radio Officer: P. A. Kinsella; Deck Department: V. Murphy, T. Hughes, A. Byrne, F. McCarthy, A. Caffrey, J. Bonnie, P. O'Brien, S. Boylan, G. McGuinness, J. Wickham, R. Fawsitt; Catering Department: T.

Mason, C. Murphy, J. Roche, J. Cooney, J. McCloot, G. Humphries, F. Browne.

m.v. 'Irish Elm' – Captain W. D. Garvey; Deck Officers: M. Doyle, D. Mundow, M. Kinsella; Deck Cadets: D. Devenney, F. Mongey; Engineer Officers: P. Bardon, T. Hanrahan, R. Broderick, D. O'Loughlin, A. Curran, T. Ryan, V. Hetherington; Electrical Engineer: J. Dunn; Catering Officer: L. Fanning; Radio Officer: B. M. Gallagher; Deck Department: P. Duffy, M. McElligott, P. Fitzmartin, V. Lotti, T. Breslin, P. Murphy, E. McKenna, J. McDonough, M. Cristie, L. Heapes, P. Taffee, G. Kinlan, D. O'Connor, G. Clery, T. Ebbs, L. Bajaj, P. McKenna, C. Lewis, J. Clancy, E. Donnery, M. French.

m.v. 'Irish Stardust' – Captain J. Kelly; Deck Officers: B. Kehoe, B. Coburn, P. Smyth; Deck Cadets: B. Kinch, N. Myles, L. McCall; Engineer Officers: T. Kenny, M. Egan; D. Power, J. Keane, K. Vekins, D. Purcell, L. Byrne; Electrical Engineer: J. Grace; Catering Officer: J. Rogan; Radio Officer: Miss M. Stockwell; Deck Department: J. Maloney, K. O'Malley, J. Kelly, S. Smith, W. Farrell, J. Beggs, P. Collins, T. Ryan, B. O'Reilly, B. Goyvaerts, M. Murphy, D. Doyle; J. Burns; Catering Dept: T. Doyle, J. Kelly, E. Mulready, M. Gowan, D. Coleman, P. Garry, N. Duggan.

m.v. 'Irish Oak' – Captain H. Fiddler; Deck Officers: J. Ryder, P. Murphy, J. Whelan; Deck Cadets: N. Devlin, R. Mullins; Engineer Officers: B. Larkin, J. O'Connor, C. Corcoran, P. Morris, T. Lanigan, C. O'Brien, M. Boland; Engineer Cadet: J. Dillon; Electrical Engineer: P. Clarke; Catering Officer: P. Murphy; Radio Officer: J. J. McCarthy; Deck Department: J. Tallow, V.

Beech; M. Byrne, D. McDonnell, N. Leonard, B. Freeneay, J. Cole, J. Delany, H. Austin, M. Byrne, J. Maloney, T. Kelly, F. O'Keefe; Catering Department: E. Byrne, J. Moynihan, B. Osborne, R. Pullen, P. Quilty, T. Barry, J. Graham.

m.v. 'Irish Star' – Captain J. A. Gleeson; Deck Officers: D. Kavanagh, L. Gavin, M. Purcell; Deck Cadet: G. O'Connor; Engineer Officers: J. Reynolds, D. O'Brien, J. Hughes, W. A. Kells, G. O'Toole, F. Murphy, M. Egan; Engineer Cadet: F. Brennan; Electrical Engineers: D. Niall, E. Perry; Catering Officer: J. Doran; Radio Officer: M. C. Murphy; Deck Department: K. Maher, R. Nugent, N. Mullally, P. Cullen, P. O'Neill, P. Byrne, F. Sweeney, J. Kelleher, P. Shanahan, J. O'Connor, G. O'Connor, M. Devlin; Catering Department: A. Rourke, F. Gavin, M. Coleman, K. Stenson, S. Coyle, E. O'Reilly, P. Foley.

m.v. 'Irish Plane' – Captain J. S. Kerr; Deck Officers: J. Moynihan, M. A. O'Callaghan, F. Traynor; Deck Cadets: G. Burns, J. W. Hobbs, D. Scanlon; Chief Engineer: G. Cunningham, P. Caffrey, M. Hayes, T. Farrell, N. Brick, D. Horan, F. O'Leary; Engineer Cadet: I. E. Gyman; Electrical Engineer: F. Cremin; Catering Officer: J. Dillon; Radio Officer: T. A. Byrne; Radio Officer Trainee: J. G. Aherne; Deck Department: D. Healy, L. King, J. Griffin, K. O'Neill, F. Galvin, H. Gaines, C. Kelly, E. O'Reilly, K. Kelly, P. O'Sullivan; Engine Dept: M. Manson, H. Cantwell, J. Gaffney, G. Roche; Catering: J. McGrath, S. Paige, P. Kelly, R. O'Keefe, D. Coombes, D. Muldoon, A. Gavin.

COVER PICTURE

The German Sail Training Vessel, Gorch Fock, pictured at night during a recent visit to Cork.

(Courtesy Cork Examiner)