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Irish H & V News plus Dockrells Supplement

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ALSO
Product Review – Instruments and Controls
Project Profile – Amdahl Factory, Dublin

INSIDE –
IHVN Pull-Out Supplement on Dockrells of Ballymount

Published by ARROW@DIT, 1978
The recently launched Irish manufacturing company, Master Air Co. Limited, have pleasure in offering a quality Airhandling unit to Consulting Engineers, Architects, Contractors and the trade in general.

Model HV 060 with fan and filter access panels removed.

ADVANTAGES

- **Buy Irish**
  - Now is an opportunity to specify and install an Airhandling unit manufactured by a wholly owned Irish manufacturing company.

- **Design**
  - Superior robust design with the main frame structure formed from 12 gauge box section steel. All panels are internally insulated and attenuated to minimise noise breakout.

- **Range**
  - Heating application units up to 50,000 m³/h. Cooling and De-humidifying units up to 40,000 m³/h.

- **Low Noise**
  - All units can be selected at maximum static efficiencies, low rpm and low noise output. All fan and motor units are mounted on an internal floating frame thus minimising vibration transmission to casing and ducts.

- **Delivery**
  - We offer a better realistic delivery to site than any other Airhandling unit manufactured outside Ireland and eliminate lengthy transportation delays.

- **Cost**
  - Because we have direct control over our own manufacturing costs, and a range of standard units selected to meet specific duties without the need to oversize, we can offer a very competitive price for any given size of unit.

For further details or price quotation please contact:

Master Air Co. Limited.

Unit 4 Connollys Industrial Estate, Cian Park, Drumcondra, Dublin 9. Tel: 280865/963643 or Quiklink 972111 Unit 721.
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CIBS Student Award
The Chartered Institute of Building Services (Irish Branch) has organised an annual student award scheme for all third level, full time students aimed at generating interest in the building services sector (page 5).

Carlyle Supply the Answer
Walker Air Conditioning Ltd provide Amdahl Ltd of Dublin Industrial Estate with the means to control the humidity and temperature levels in their factory and thereby reduce the very expensive computer downtime that can result if this problem is not properly taken care of (page 20).

Dockrells of Ballymount Pull-Out Supplement
This month's issue contains the first ever pull-out supplement in the journal's new format. It is based on the ever-increasing business interests of Dockrells of Ballymount with the main emphasis on the three major sectors - Timber, which accounts for over 50% of the annual turnover; Glass, which accounts for approximately 25%; and the Builders Providers Section, which includes seven separate departments.

Water Power Development
Dermot McGuigan examines the possibilities of developing a viable "water power" system in Ireland to suit small to medium energy requirements and concludes that the export potential for both private and public water power plants of this type are considerable (page 19).

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IHVN NEWSDESK

Report on Pollution Control

Sylvester Barrett, TD, Minister for the Environment, has announced the publication of a report on the existing arrangements for pollution control. The report was prepared by the inter-departmental committee on the environment.

The objects of the report are - (a) to provide a comprehensive statement of existing pollution controls; (b) to assess the effectiveness of the various systems; (c) to identify gaps or inadequacies, and; (d) to recommend any action necessary to secure improvements.

The Report deals with water and air pollution and with waste, noise and nuisances. It is concerned not only with the pollution problems associated with various forms of buildings and works, but also with the impacts of agricultural practice and the use of various products and chemicals which have potentially harmful effects on the environment. Special consideration is given to the implications of the EEC Action Programme on the Environment and to the problem of marine pollution.

The committee considered that, while the overall picture as regards regulatory provision for pollution control was generally satisfactory, some gaps in the control arrangement exist and improvements in working and liaison aspects are desirable. Their report identifies, in particular, a need for - (a) Clarification of Departmental responsibility for work under the EEC Action Programme, especially where considerations of public health or product control are concerned; (b) Clarification of responsibility and development of programme relating to control of hazardous chemicals, including public safety aspects, and; (c) A recognised leadership and co-ordinating responsibility in relation to this country's involvement in international efforts to control marine pollution.

The Report contains a range of information, including the material in the appendices, which the Minister hopes will make it a useful work of reference and source of information for persons concerned with environmental matters. It indicates both the complexity of the pollution problem and the extent of the efforts being made to deal with it and, accordingly, it should be an aid to public discussion about pollution in its various forms.

Mark Plumbing Closed

Heating distributors, Mark Plumbing Ltd have closed their operations in Mark Street because of high overheads and non-profitability.

All the existing stock was auctioned on Friday, 21 July, and any items remaining unsold were moved to W & L Crowe premises in Finglas for subsequent sale.

New Generating Station

The Minister for Industry, Commerce and Energy, Mr Desmond O'Malley, TD, has given his approval to an ESB proposal for provision of a major coal-fired generating station to be located on the Shannon Estuary at Moneypoint near Kilrush, Co Clare.

The station will have dual-firing capacity, that is it could be converted to oil-firing if circumstances required. The station will have an initial generating unit of 300 MW but it is very likely that a second such unit will be provided soon after, and that further units of this size will be added later, up to a probable maximum of 1200 MW.

If planning permission is granted, preliminary site works will commence early next year with employment initially for 100 people. This total will rise as construction work progresses to a maximum of about 1,200 people. The station is expected to be completed before 1985.

When the station is opened there will be, in all, permanent employment for about 200 people.

Walker Air Invite

Walker Air Conditioning Ltd, Dublin, invite all filter specifiers and end users to visit them at one of their exhibitions scheduled to take place in September.

The exhibitions which are to be held at the Silver Springs Hotel in Cork on Tuesday and Wednesday 19th and 20th September, and in Galway at the Ardilaun Hotel on 21st September, will be open from 11 am to 7 pm and refreshments will be served.

Examples on show from the wide range of Vokes filters will include bag filters, grease eliminators, panel filters, side withdrawal absolutes and a Unipac main section.

Invitations will be issued but anyone interested in attending either of these exhibitions should write to or phone Paddy Kearney at Walker Air Conditioning Limited, Dublin Industrial Estate, Finglas Road, Dublin 11, Tel: 300844, for further information.

Agents for Balston

Hall Pyke Engineering, Dublin, have appointed distributors in Ireland for Balston filter tubes and housings.

Balston Ltd, with over 40 distributors throughout the world and manufacturing plants in Maidstone, Kent, England and Massachusetts, USA, will make available their full product range through Hall Pyke Engineering.

Balston's unique

https://arrow.dit.ie/bsn/vol17/iss8/1
IhVex 79 represents a unique opportunity to promote to the entire Irish heating, ventilating, air conditioning, refrigeration and environmental trade.

With this one-stop specialised buying exhibition the third IhVex breaks new ground with a major development, for the 79 event will broaden its industrial content: special emphasis on refrigeration will greatly increase the Exhibition's significance.

Energy saving will be given special emphasis and will be reflected in the presentation of pump development, advanced insulation materials and techniques, heat recovery systems and controls for energy optimisation.

Yet again IhVex will provide the forum for the maintenance of growth and development of the industry it has served with such success.

BIGGER VENUE!
Reflecting its increased scope and significance IhVex 79 is moving to a much larger venue in Dublin's newest and most advanced exhibition complex—the Royal Dublin Society's Simmonscourt Pavilion.

Here IhVex 79 exhibitors will have a setting which will allow them to capitalise to the full on their exhibition investment.

As organisers of a number of highly successful trade and public exhibitions in this new complex, ITTEx will be bringing their wide experience to bear on IhVex 79. Not least is the high level of presentation which the modern Simmonscourt facility allows and where ITTEx employs a number of special features including a unique bar/viewing area. IhVex 79 will also have available a full-size theatre style auditorium which immediately adjoins the exhibition area and the extensive restaurant facilities for its VIP Luncheon Scheme.

VENUE
The R.D.S. Simmonscourt Exhibition Complex which allows a full choice of sites to suit every possible need. Full car-parking facilities are available.

DATES
Tuesday April 3, Wednesday April 4
Thursday April 5 and Friday April 6 '79

OPEN TIMES
Tues/Thur/Fri 11.00 hrs – 18.00 hrs
Wednesday: 11.00 hrs – 21.00 hrs

ADMISSION
Trade Visitors only.

FOR FURTHER DETAILS CONTACT: JOHN BUTTERLY

IRISH TRADE & TECHNICAL EXHIBITIONS LTD.,
11 ELY PLACE, DUBLIN 2.
Tel: (01)763385 Telex: 30840 ITEx EI.
method of filter manufacture offers high efficiency filter tubes for sterilising air and gases and ultra cleaning water, at about 2/3rds the cost of equivalent filters on the market.

Full details are available from Hall Pyke Engineering, Tel: 900376.

Watermiser to Open in Dublin?
At a recent seminar in Dublin organised by the Scottish firm of Watermiser Ltd, manufacturers of centrifugal fan cooling towers, Mr Vincent Flynn, Sales Director, told IHVN that the company was seriously considering the setting up of a separate plant in Ireland.

Watermiser Ltd have installed over 100 cooling towers in Ireland to date and, according to Mr Flynn, their sales figures for early 1978 were running at a par with their Scotland figures.

Mr Flynn believes that if the market continues to develop for Watermiser at the present rate they will have to operate some type of organisation from Dublin, “We will probably open a sales office initially”, he said, “And if our hopes are realised then we will start manufacturing as soon as we have investigated all the factors needed for the opening of a plant”.

Watermiser Ltd held two seminars in Dublin, at the Marine Hotel and the Tara Hotel. Both seminars were well attended by consultant engineers and potential purchasers. Mr Flynn expressed his delight at the response to the seminars and said it augured well for Watermiser’s future development in Ireland.

New Heiton McFerran Showroom
Heiton McFerran Ltd has announced plans for the creation of one of the most modern showrooms in Britain and Ireland at their Tara House premises.

The showroom will be completed by the end of September and will feature four main areas: luxury bathrooms, exclusive kitchens, Italian wall and floor tiles and a complete heating centre which was developed through the company’s long experience of the coal business.

Announcing the development of Tara House, Mr J R B Hewat, Chief Executive of Heiton Holdings Ltd, said that the purpose of redesigning this showroom was a direct response to the fast growing demand for luxury products.

“An imaginative feature of the showroom will be the creation of house conditions,” he said, “There will be a range of fully fitted and tiled kitchens and bathrooms giving the prospective buyer an opportunity to visualise the various types and combinations of products.”

QUADRANT ENGINEERS LTD
METAL BRAIDED FLEXIBLE COUPLINGS

• Installation simplicity provides considerable savings in manpower.
• Noise attenuation (with wall-mounted water heaters, flexibles provide a noise reduction of 1 1/2 decibels below the tube installations).
• Compensation for dimensional variations or errors. Simplified dismantling and easier access to various system components.
• Facilitates removal of individual components.
• Simplifies flushing out pipes.
• Factory built equipment can be completely fitted with various piping components in order to facilitate site installation.

Other Quadrant Products
* Buderus Boilers and Radiators
* Riello Burners
* Happel Convectors

Wing and Andrews Heating Equipment
* Buderus Thermoglaze Calorifiers

For Details Contact us at:
Green St, East, Dublin 2. Tel: 771411/2. Telex: 5283
of material available."

The new 4,000 sq ft showroom, which will cost £40,000, will be fitted by O’Connor and Bailey Ltd, shopfitters and building contractors, and designed by David Morgan & Associates, Architects, specialising in this type of display. All the products on sale in Tara House will be available at a later stage in the seven country branches of Heiton McFerran Ltd.

P F Doggett (Engineering) Ltd, “Geith” Works, Grangegeeth, Slane, Co Meath, has bought the total clayware, pipe and brick manufacturing assets of Slane Brick including plant, premises, transport vehicles, land containing shale and clay deposits etc.

Production of clay, land drainage pipes, liners etc., will be continued as heretofore at this plant at Slane by the new owners who also have plans to expand the production activities into new clayware lines in the near future.

P F Doggett (Engineering) Ltd, have been major suppliers of all types of land drainage pipes including clayware, plastic, concrete and asbestos cement pipes throughout Ireland for many years. The company will of course continue to supply all these types of pipes.

Apart from Doggett’s activities, manufacturing and distributing the above goods, the company also runs a major Engineering Works at Grangegeeth, Slane where they manufacture land drainage equipment, stonepicking machinery and the “Geith” range of excavator buckets, bucket teeth, cutting edge material etc. The company exports over 80% of it’s engineering products to many countries throughout the world.

Well Plugged

Esso Exploration and Production Ireland Inc and Marathon Petroleum Ireland Ltd have plugged and abandoned their joint well – 48/22-1 – as a dry hole, after encountering minor hydrocarbons. The well was spudded on 27 April 1978 and was abandoned after drilling to total depth. The rig, “Discoverer 534”, was moved directly to Block 48/24 to drill the Esso/ Marathon 48/24-2 well.

Modular Sanitary Fittings

A draft provisional standard specification for the dimensions of modular sanitary fittings is now being distributed to departments of state, semi-state bodies, local authorities, manufacturers, specialists in relevant fields and other interested parties for their written comments or opinions.

This provisional specification is part of a series covering the dimensions of modular components suitable for use in dimensionally co-ordinated buildings. It is based on “Modular Components 4: Sanitary Fittings”, published by An Foras Forbairtha.

CIBS Student Award

The Chartered Institution of Building Services Irish Region, plans to hold an annual student competition for all third level full time students. The aim of the competition is to generate interest in building services among third level students and to encourage them to do research in this area.

The award will be made on the basis of a paper on building services or an allied subject which could be read to the Institution in a period of approximately twenty minutes to half an hour. These papers could include topics as wide apart as insulation, air distribution, air conditioning, heating, ventilation, refrigeration, lighting, electrical loads in buildings, electrical distribution in buildings, noise levels in buildings etc., to reflect the objectives of the Institution, which is to cover as wide a range as possible of building services. . . .

It is proposed that a panel of three judges will read the papers submitted and adjudicate and award a first and second place. The panel will be appointed annually by the CIBS.

A prize of £200 will be awarded for first place and a prize of £100 will be awarded for second place. The usual conditions for the actual presentation of these prizes will apply, of course, and will include the provision that a sufficient number of papers are submitted and that the standard of papers submitted is of high quality.

The authors of the two best papers will be invited to read these papers to the Institution after which the order of the awards will be announced. The time scale of the operation that is proposed will be that papers would be submitted by the fourth week in January, 1978 and will be judged by the end of February 1979 and that the two best authors will be asked to read their papers sometime before Easter.

It is hoped that the heads of the relevant departments in all third level institutions will make available projects relating to building services which their final year students will have to complete. In this way the students will not be required to do any extra project work which might hinder their work towards exams at the end of the year.

Anyone interested in receiving more information about this award should contact Michael Buckley at 308844 during office hours.
New Regulations Introduced


These regulations authorise the payment of increased grants for the installation of domestic piped water and sewerage facilities, as announced by the Government last December.

The following are details of the increased grants for work commenced on or after 1 November, 1977:

<table>
<thead>
<tr>
<th>Type of installation</th>
<th>State grant not exceeding two thirds of the cost, subject to the following maximum grants.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td></td>
</tr>
<tr>
<td>Individual house</td>
<td>£200</td>
</tr>
<tr>
<td>Group scheme</td>
<td>£300 per house</td>
</tr>
<tr>
<td>Sewerage</td>
<td></td>
</tr>
<tr>
<td>Individual house</td>
<td>£150</td>
</tr>
<tr>
<td>Group scheme</td>
<td>£250 per house</td>
</tr>
<tr>
<td>Water and Sewerage</td>
<td></td>
</tr>
<tr>
<td>Individual house</td>
<td>£350</td>
</tr>
<tr>
<td>Group scheme</td>
<td>£550 per house</td>
</tr>
</tbody>
</table>

NOTE: A Group Scheme serves two or more houses.

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DO YOU KNOW?

TARM BOILERS BURN TURF, COAL, LOGS, SAWDUST, OIL, GAS, PAPER, RUBBISH ETC.

Central Heating is still very cheap to run even with today's rising fuel prices when you have a TARM combination central heating boiler. TARM boilers are so designed that simply, opening one door and closing another you can switch from oil to solid fuel heating. The TARM has proven that you can heat your home for as little as 50p per 24 hour day, based on average 1200 sq ft house in Dublin. The TARM is completely automatic as the heat-increases the dampers close, thereby controlling the rate of burning and the amount of fuel used.

TARM have a boiler to suit everybody, from the tiny F.T.C. to the wonderful O.T. type. The F.T.C. is 34 inches high, by approx 20 inches square will fit in any boiler house or back of garage, can be put in a kitchen. One stoking lasts all night, average stoking every 6 hours.

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APPOINTMENTS

John Hamilton, who has been appointed a sales engineer with TCS Controls Ltd with responsibility for the Satchwell Sunvic range of domestic heating controls.

Robert Acheson, farm machinery, have appointed Tom Green BA, MMII, as Group Marketing Director. Previously Marketing Manager of the Group's Barlo Heating Limited subsidiary, he is also a director of that company and of the Group's UK sub-

Tom Reynolds, MIMIH has been appointed Sales Manager of Euro-Mech Storage Systems Ltd, a member of the Euro-Mech Group of companies. He now heads the sales organisation responsible for the group's manufactured products which include pallet racking and related storage equipment.

Another recent appointment has been that of Robert Acheson as Production Director of Barlo Group Ltd, Clonmel.

Barlo Group Ltd of Clonmel, manufacturers of central heating radiators and distributors of
Mrs Alice Burnison – Director of O & C (Ireland) Ltd with guests at the opening of their new offices and stores.

Honorary Treasurer: S O Hicks, OBE, C Eng, F I Mech E, S F Inst F.
Members: W Downey, B Sc, C Eng, M Inst F; W Crowther, C Eng, M I Mech E, F Inst F; D Tomb, C Eng, F Inst F; J McCracken, C Eng, M Inst F; D Meghey, C Eng, M Inst F, MCIIE; R Jordan, MBE, C Eng, M I Mech E, F Inst F; D Hinchliffe, C Eng, MI Chem E; and R Murphy, B Sc, C Eng, MI Chem E, MRIC, M Inst F.
Non corporate representatives: W McKenzie, T Eng (CEI) and D Raymond, MBIM.

We regret to announce the death of Sam Taggart, lately chairman of the Farran Group of Companies. Mr Taggart had a long experience in the building and civil engineering industry and recently retired when Farrans became a member of another group.

Full details on the symposium are available from Dr G McKay, Department of Industrial Science, Queens University, 21 Chlorine Gardens, Belfast.

Its good to see the Belfast Association of Engineers starting to move again. This body was in operation long before the professional bodies ever started sections and branches in Ulster and over the years many distinguished engineers from a wide section of industry served as Chairman.

They are one of the few bodies still running industrial visits. This session they have had a meeting at the new power station at Kilroot and now they have announced a visit to Harland & Wolff Ltd.

Interesting also, they are the only engineering body who have a lady secretary and one who is an engineer by profession.

Have you tried to obtain a quotation for a smaller heating contract? A recent experience by the writer makes one wonder what has happened to the trade. One could decide that there was either too much work or the organisation of the smaller companies requires a major overhaul?

Four companies were asked to quote for the heating and plumbing of a small office block. After seven weeks, despite reminders, no offers had been received. Such slackness is becoming increasingly evident and does nothing to improve the image of the trade. Increasingly, complaints are coming from householders about quotations and specifications. If this practice becomes any more prevalent the good name the trade has achieved over the last few years will soon be frittered away.

The Irish Branch (Northern Centre) of the Institution of Chemical Engineers have announced a one day symposium – “The Efficient Use of Energy in Northern Ireland” to be held in the Ashby Institute on the 14 September 1978.

The speakers will include J McCullins (Department of Industrial Services); D Bushman (BP) J R Cooper (Ulster Queen’s Association); J Cummings (NCB); P Downie (NIES); A McGill (Richardsons Fertilisers); and C Holland (Queens).

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Since its foundation almost 100 years ago the Cross Group of companies has seen many changes, one of the most significant being the formation of Coolair, a company which specialises in the supply of commercial and industrial air conditioning plant. Here Jim Keating, Managing Director of the Group, details this growth up to the present day.

When Jim Keating, the present Managing Director of Cross Refrigeration (Ireland) Ltd., and his two colleagues Bill O'Driscoll and Dermot Walsh took over the running of the firm at the time of Fred Cross' death, they were ensuring a continuity of skill, experience and a reputation for top service and quality workmanship that has been part and parcel of the Cross name for nearly 90 years.

Originally, the Cross family started their business in Cork in 1880 but at that time they were far removed from the type of business that is carried out today at the company's complexes in Cork, Limerick and Dublin. Starting in the vehicle business, horse drawn carriages, cycles and funeral undertaking, they progressed to a large garage dealing with the new invention of the time "the horseless drawn carriage".

Around the early 1930's Cross became involved in domestic and commercial refrigeration and quickly established themselves as one of the best known manufacturers of equipment in Ireland. However, the last link with the Cross family, Fred, who was then Managing Director, died in 1968 and Jim Keating and his two colleagues came to an agreement with the Cross family to take over the company in March 1969.

The present Managing Director, Jim Keating, first joined the company as a cost Accountant in 1961, became the Sales Manager in 1966 and was appointed a Director in 1968. Bill O'Driscoll, who has been in the business some 30 years, was appointed a Technical Director in 1963 and

Dermot Walsh was the Senior Sales representative at the time of the take over.

There was never any doubt that the new team would continue to trade under the name of Cross as, Jim explains, "Cross was a widely accepted name within the trade and the reputation of their workforce was second to none. We employed our own planning and design team and this made us unique in some ways in that we had the capacity to carry through our projects from the initial drawing stage to the final commissioning. Our manufacturing and assembly facilities ensure control over the quality of work and materials employed in projects requiring these services".

Totally believing in their own high reputation and wanting to maintain these standards Cross has been expanding its operations by establishing further offices and service centres in most of the major industrial areas. "This coverage ensures that we can provide a fast and effective sales and service support to new and existing customers", Jim says.

"Furthermore," he continues, "we can support our claims of a 24 hour service operation with stocks of spare parts readily available from our warehouse in Cork and Limerick, and since 1975, from Dublin. When the move to Dublin took place in 1975 Denis O'Brien was appointed as a Director and General Manager responsible for the development of the refrigeration market in the greater Dublin area. The move came as a natural extension of the company's development. "We were covering most of the Republic at that time with the exception of the Dublin area" states Jim "and we felt that we had to get a leg into the heart of industrial Ireland".

There is no doubt but that this has been achieved - witness some of the major contracts they have been awarded recently, which include Bord Na Mona, British Home Stores, Dunnes Stores, 3-Guys and Roches Stores.

To further augment the refrigeration side of the business a new company called Traco was set up in 1975 and Jim explains that this was in order to fulfill a need in the refrigeration business in Ireland for the supply of ranges of refrigeration equipment to the trade in general and not just the larger contracting side.
A 'Downflow Unit' for computer room installation from the range of Airdale Air Conditioning systems distributed by Coolair.

However, probably the biggest development for the company was the creation of Coolair Ltd in 1970 which specialises in the supply of commercial and industrial air conditioning plants. Initially the intention was to develop the market in the Cork area but in 1974, with the appointment of John Lawlor as Technical Director, it was decided to cease contracting and concentrate on opening a Dublin office for the supply of air conditioning plant by their own commissioning and design staff.

Jim Keating, Dermot Walsh and Bill 'ODriscoll were appointed as Directors along with John Lawlor, and a further addition was Tony O'Leary as the installation and service director.

Coolair Ltd, according to Jim, boasts a team widely experienced in international design and operating procedures and this, together with their detailed knowledge of local conditions, enables them to offer a reliable and comprehensive service to both industrial and non-industrial clients. "Our engineers have experience of all aspect of air conditioning having worked on many of Ireland's leading contracts, including Dublin's GPO; E I Shannon; Pfizer; Chemicals, Cork; and the Ardmore Film Studios.

AGENCIES

Coolair: Daikin range of air cooling plant; Prestcold Searle air heating units; Barber Coleman grills; and the Airdale range of products.

Cross: The Frigidair range of compressors; Bitzer range of compressors; Grasso range of compressors; Prestcold Searle evaporators and condensers; The Foster range of refrigeration, catering, medical and bakery cabinets; and Craig-Nicol supermarket display cabinets.

The move to the Cookstown Industrial Estate took place three years ago. Prior to that, Coolair operated out of Fitzwilliam Street, moving on to Lower Pembroke Street and then to their present location. The total work force now stands at 75. In 1970 there were 25 employees.

With the growth and development of the Cross Group of companies over the past ten years, Jim believes that they have reached the situation whereby they are now recognised within the country as being among the major operators. Their interests now extend throughout the country with the processing of food and the processing of food in a short time and this in turn will lead to the development of the refrigeration and air cooling industry to an even greater extent. At present the company is developing new products for different aspects of the trade and one particular new development that Jim is very enthusiastic about is the Cross Coolstream beer-chilling. This is being specifically produced at the moment for the pub business and it is a type of beer dispenser which will ensure a certain temperature which is apparently not always available through the existing beer dispensers. At present there have been some pilot operations of the new dispenser in the Cork area and, according to Jim, it has proved quite successful. "My expectations for this new product are very high", he said, "and we are hoping that by this time next year we will have converted many of the larger bars to this system."

Over the past couple of years the company has paid great attention to ensuring that all staff members take part in different aspects of company training and, to this end, Jim believes that they are now at a stage, particularly in the Dublin area, to market all their ranges of equipment and services which, he claims are second to none within the trade. "We now have a sound market knowledge backed up by excellent after-sales service team and it is now up to our marketing people to develop the enormous sales potential that is obviously to be found within Dublin and the provinces" he concluded.

Published by ARROW@DIT, 1978

HVN, July 1978 19
** ETA 3000 SPECIFICATION **

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity range</td>
<td>0 to 3000 ft/min, 0 to 15 m/s (dual scaled)</td>
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<tr>
<td>Air temperature limits</td>
<td>0 to 70°C</td>
</tr>
<tr>
<td>Accuracy at 20°C</td>
<td>Below 200 ft/min = ±</td>
</tr>
<tr>
<td></td>
<td>10 ft/min</td>
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<tr>
<td></td>
<td>Above 200 ft/min = ± 5% of reading</td>
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<tr>
<td>Sensing element</td>
<td>Constant 150°C</td>
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<tr>
<td>temperature</td>
<td>1 mA taut-brand 75 mm scale</td>
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<tr>
<td>Indicating meter</td>
<td>170 x 12.7 mm (8 mm measuring orifice)</td>
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<td>Probe dimensions</td>
<td>Self-coiling, max length 1.8 metres</td>
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<td>Probe cable</td>
<td>4 off 170 x 12 mm</td>
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<tr>
<td>Extension rods</td>
<td>170 x 90 x 40 mm</td>
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<tr>
<td>Instrument dimensions</td>
<td>700g</td>
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<td>Instrument weight</td>
<td>190 x 140 x 60 mm</td>
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<td>Batteries</td>
<td>4 x PP3</td>
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** AM 5000 SPECIFICATION **

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<tr>
<th>Specification</th>
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<td>Head Diameter</td>
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</tr>
<tr>
<td>Velocity range</td>
<td>0.2 m/s to 25 m/s (imperial version 40 to 5000 ft/min)</td>
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<tr>
<td>Air temperature limits</td>
<td>-20 to + 70°C</td>
</tr>
<tr>
<td>F.S.D. ranges</td>
<td>1.0, 2.5, 10, 25 m/s</td>
</tr>
<tr>
<td>Extension rods</td>
<td>6 off 200 x 12 mm</td>
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<tr>
<td>Head/cable length</td>
<td>3 metres standard 100 metres max</td>
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<tr>
<td>Weight complete</td>
<td>1.1 kg</td>
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<tr>
<td>Case dimensions</td>
<td>290 x 210 x 140 mm</td>
</tr>
<tr>
<td>Output signal Batteries</td>
<td>+ 0.1 mA into 5 k ohm max 12 x U 11</td>
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<tr>
<td>NOTE: An Imperial version ranged 40 - 50 ft/min is available.</td>
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</table>

** ETA 3000 SPECIFICATION **

<table>
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<th>Description</th>
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<tr>
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</table>
Danfoss Upgrade
the VLT 5

All the experience gathered with the 1st generation VLT 5 has been utilised in the design of the 2nd generation. The fundamental operating principle of the 2nd generation VLT 5 is still the same, and the exterior of the converter shows that it is still an oil-cooled device. But apart from this, almost every detail has been studied and further improved.

To begin from the outside, the previous welded mild steel case with the tail cover has now been replaced by a pressure die-cast light metal case with a plain cover fixed by four screws. The case is bonded together by two side members, two end members and a base with two flanges screwed on. The flanges act as carrying handles, and one of them also acts as a holder for the four Pg 16 20 mm screwed cable entries.

Inside there is still an oil-tight intermediate cover, but now it rests on a flange inside the case and is fixed by eight Unbrako screws. Undoing these screws makes it possible to lift out the complete electronic equipment in the form of an insert, and to place it — by means of automatically unfolding supports — on top of the case so that the oil drains into the case.

Unscrewing a couple of screws makes it possible to open up the two large printed circuit boards — the voltage regulator and the inverter — and hence practically all the components are accessible.

To facilitate servicing, all the power semi-conductors are placed on the printed circuit boards by the use of plugs, and they can be removed together with the associated cooling plates. All parts are marked so that it is clear to see where they belong.

The components have been standardised so that the power unit incorporates only two thyristor types and one type of diode as well as a bridge rectifier. The control electronics, the adjustment card, fuses and connections are located over the intermediate cover with the oil-tight lead-ins.

The control electronics are still divided into a dc print card, containing the voltage and current regulation circuits, and an ac print card containing the inverter control.

Radial changes have been made to the connections which are now in the form of a multiplug, adapted so that it can be withdrawn through the aperture which appears when the cable entry flange is removed. Connection is by first mounting the loose flange on the cable followed by the multiplug, then the plug can be positioned and the flange fixed.

Of course, this principle also facilitates any replacement which can be achieved in a few minutes.

On the plug proper, a number of measuring points are marked off which, together with a number of measuring points on the intermediate plate terminal block, facilitate fault location. Assistance to servicing is further supported by a manual which contains a detailed service plan with associated fault location diagrams.

The total effect of these changes provides the designer and the end user with a flexible system which in a simple way combines modern electronics with the features of the sturdy standard squirrel cage motor.

Further information is available from J J Sampson & Son Ltd, 12a Wexford Street, Dublin 2, (Tel: 752317).

Midas Concentrate
on Service

Midas Safety Systems Ltd is a recently formed, totally Irish owned company. Its primary function is the design, sale, installation and servicing of instruments for the detection of explosive and toxic gases. It can also supply instruments for minute leak detection such as the ‘Leakfinder’ which is used for quality control of freezers etc.

One of its latest additions is the ‘Halo-teck’, which is designed as a service engineer’s instrument and has the advantage of being adjustable to ignore ‘background’ and is not affected by draughts etc.

Midas operates a consultancy service available without commitment to engineers etc, involved with the science of gas detection, and offers a selection of the most suitable equipment for a particular application.

The service department of Midas is, in their opinion, the most important aspect of the company. They are fully equipped to repair and service their complete range of equipment at their offices which eliminates the necessity of returning instruments to the manufacturer which increases the down time of instruments considerably.

Further information is available from Midas Safety Systems Ltd, 10 Tivoli Terrace North, Dun Laoghaire, (Tel: 805521).
Airflow Developments' ETA 3000 is the latest concept in general-purpose portable anemometers and, since its introduction, it has satisfied the needs of a broad range of users. The exceptionally wide velocity range, the slim measuring head, and the almost instant response combine to make the instrument equally at home studying air flow conditions around prototypes in an industrial development laboratory or checking the discharge velocity at an air conditioning grille.

Based on the well known heat loss principle, the velocity-sensitive element is a tiny electrically heated thermistor bead, McKenna Introduces ETA 3000 and TA 6000

Airflow Developments' ETA 3000 is the latest concept in general-purpose portable anemometers and, since its introduction, it has satisfied the needs of a broad range of users. The exceptionally wide velocity range, the slim measuring head, and the almost instant response combine to make the instrument equally at home studying air flow conditions around prototypes in an industrial development laboratory or checking the discharge velocity at an air conditioning grille.

Based on the well known heat loss principle, the velocity-sensitive element is a tiny electrically heated thermistor bead,
and the air velocity is measured by metering the amount of electrical energy required to maintain the bead at a constant 150°C.

Early anemometers using this principle were extremely sensitive to variations in air-stream temperatures, and this problem is ingeniously overcome in the ETA 3000 by incorporating a second, unheated, thermistor in the measuring probe.

The electrical resistance of this thermistor is dependent upon the air temperature, and the instrument circuitry measures this offset against the output from the velocity-sensing thermistor. The result is an instrument with characteristics vastly superior to uncompensated types.

Current drain from the PP3 batteries is only about 15 mA, the hold-for-ON operating button ensuring months of use from a single set. A battery check facility lets the user keep an eye on the condition of the batteries.

The body of the instrument is injection moulded from self coloured ABS and the taut-band moving coil meter is fronted with a heavy gauge acrylic moulding. This ruggedness is carried through to the nylon reinforced probe cable and the solid aluminium extension rods. When not in use, the outfit packs neatly into a leather carrying case with an adjustable shoulder strap.

A high velocity version of the ETA 3000 (called TA6000) is now available to special order. Physically similar to ETA 3000, the new instrument is concentrically scaled 0–6000 ft/min, 0–30 m/s.

Further information is available from McKenna Ireland Ltd, Ardee House, Blanchardstown, Co Dublin (Tel: 383337).

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**Freon Leaks.....**

It does and always will..... but, you can keep them to a minimum with the **HALOTECK**

**SPECIFICATION**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>Better than 1/10th oz per year R12</td>
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<tr>
<td>Responds to</td>
<td>Halogenated hydrocarbons</td>
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<tr>
<td>Response time</td>
<td>0.1 sec to 1oz/year leak</td>
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<tr>
<td>Battery</td>
<td>9 volt alkaline PP3 size</td>
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<tr>
<td>Battery life</td>
<td>30 hours normal use</td>
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<tr>
<td>Duty cycle</td>
<td>Continuous</td>
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<tr>
<td>Operating temperature</td>
<td>0 to 40°C</td>
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<tr>
<td>Check leak</td>
<td>Nominally ½ oz/year</td>
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<tr>
<td>Weight</td>
<td>325 gms (11.5 oz)</td>
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<tr>
<td>Spares supplied</td>
<td>1 spare sensor</td>
</tr>
<tr>
<td></td>
<td>1 pack filters</td>
</tr>
<tr>
<td></td>
<td>1 check leak</td>
</tr>
</tbody>
</table>

For all your Gas Detection needs Contact

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**Industrial Instruments—the Instrument People**

This year has been a milestone in the history of Industrial Instruments Ltd, the instrument people of Herbert Place.

After twenty years of unbroken service to Irish industry they have now set up a branch office/workshop at Little Island, Cork. Under the management of Aidan Howard their resident Munster instrument engineer, they hope to considerably improve the service in that area.

I I L have also in the past years assumed responsibility for the Fischer and Porter...
company in Ireland. Best known as the world leaders in flow measurement, it is not so well known that they are the third biggest instrument company in the world.

Wika claimed to be the most purchased pressure gauge in Europe, is stocked at the Dublin premises and also by Southern Engineering Co of Cork. This is a most extensive range of products as their recently issued short form catalogue reveals.

Pollution control has always been a strong point with I I L and their full range of chemical analysers are well known. A complimentary range of gas analysers is also available.

Finally, 1978 saw the emergence of 'Readout', the I I L newsheet after an absence of two years. The present issue deals with a new Avo Meter, Fischer and Porter, the new Irish section of the Instrument Society of America and the revolutionary BAD probe from ElL.

The new Ava Meter - Model No 10 - was designed to ensure overload protection, reliability, accuracy and safety.

The Model 10 is a robust general purpose multimeter for fault-finding, installation and laboratory work in the electrical and electronic industries and trades. Basic features are as follows: - electronically controlled overload protection and fuse protection means that repair bills and embarrassing delays will be reduced drastically; large easy to read mirror scale; very robust case designed to withstand the metre drop test; designed to withstand 250 V on any range; single range selector switch; and case and PCBs made of self-extinguishing materials. Further information is available from Industrial Instruments Ltd, 6 Herbert Place, Dublin 2, (Tel: 761691).

Sauter
Electronic Controllers from Dwell

Sauter Automation Ltd, the Slough based controls company, recently showed their full range of controls at Hevac 1978. On show for the first time were the new range of electronic controllers for heating, ventilating and air conditioning; Flexotron 100 electronic controllers for proportional and proportional plus integral control and the new range of pressure switches and thermostats. The other new product on show was the new range of miniature time switches. Type ZKY and ZKR that are available with and without the spring reserve.

For further information on all these products contact Dwell Controls (NI) Ltd, 16 High Street, Antrim, Belfast BT41 4NN; and Dwell Controls Ltd, Cookstown Industrial Estate, Belgard Road, Tallaght, Co Dublin, (Tel: 511144).

New '100' Series from Randall

Building on the success of the 102 and 103 models in the GP 100 Series, Randall Electronics have extended this versatile and popular range by re-introducing the 151 model and introducing two new versions, the 105 and 106 designs.

Model 151 is a basic time switch, which is suitable for controlling all electrical loads up to 15 amps (3kW), one of its many applications being for electric immersion heater control.

Of the two new models, the 105 has been developed as a mini-programmer to provide a control for the new ACL mid-position valve. The control facilities offered are similar to those of the 102 model but the internal wiring has been modified to enable it to control this new valve.

Model 106, the other new time switch, has an optional priority feature, enabling it to control already well-established 'priority' systems such as the Honeywell W and Satchwell K plans. This model will eventually replace the 3022 unit giving similar control functions at a more competitive price.

Randall also claims to have made a breakthrough for heating installers and servicemen by means of a fool-proof wiring system and guide to heating electrics.

The Randall Wiring Centre provides the heating engineer or electrician with a simple, standardised method of wiring-in any combination of matching domestic heating controls and appliances - boilers, room and cylinder thermostats, zone valve and time controls - which greatly reduces installation time and the possibility of making incorrect connections.

It includes an in-built 'information system' which ensures that only matching components are utilised together. Wiring of all electrical components is precisely indicated on a terminal-to-terminal basis, for more than 10,000 component combinations.

In addition, because the Centre provides a permanent record of the connection details of the control system and components installed, it offers an invaluable aid for subsequent service calls. It can be used to verify the correct use and wiring-up of all electrical components, isolate suspect and faulty components, and identify alternatives...
If your contribution to the national SAVE IT campaign has just been to insulate your building and tell people to switch off the lights, the chances are that in reality you are still operating a WASTE IT policy.

For, important as insulation is, there is a further step you can take to make a dramatic reduction in your heating costs — more sophisticated control of your heating system.

In this field, Satchwell are the acknowledged experts — indeed have an Energy Management Department devoted solely to helping occupiers of buildings, both large and small, to save heat: and in doing so, to save money.

Get in touch with us at once to learn how to really SAVE IT without getting involved in too much SPEND IT!

Heating and Air Conditioning Control around the World

Satchwell

Energy Management Department
Satchwell Control Systems Limited
P.O. Box 57, Farnham Road, Slough, Berkshire SL1 4UH. Telephone Slough 23961

Please clip and return the coupon for full details.

Name  Company/Address

IHVN, July 1978 15
The information system readily accommodates equipment from leading control manufacturers as well as the majority of current automatic boiler appliances. Any control devices not listed can still be wired in by matching the wiring diagrams on the scheme card with those on the component literature.

The Wiring Centre consists of a pre-connected set of screw terminals in a neat robust plastics housing suitable for surface or conduit box mounting. Overall housing dimensions are 9.6 in (243 mm) wide x 5.2 in (131 mm) high x 1.6 in (40 mm) deep. It can be located on a wall by normal wall-screw fixings.

The screw terminals are suitable for the normal connecting leads and cables used in domestic central heating schemes. The cables may be surface-laid or from a standard double conduit box. The Wiring Centre is suitable for 240V a.c. mains, up to 3 amps current. Wiring-in the various components is extremely simple by following the step-by-step instructions.

Further information is available from Electrical Industrial Agencies Ltd, 107 Cork Street, Dublin 8, (Tel: 682510).

Duoflow System from Satchwell

Satchwell Sunvic of Motherwell, Britain's largest manufacturer of domestic central heating controls, are extending their range of 3-port valve control systems. The new "Plug-In Duoflow System", designed for

**LISTED BELOW ARE SOME OF THE TIME CONTROLS AND PROGRAMMERS STOCKED BY EIA IN DUBLIN**

- **102 Mini Programmer with Water Only/Off/Water & Heating Selection.**
- **103 General Purpose Time Switch with Timed/Off Constant selection.**
- **4033 Programmer for Independent Time and Temperature Control for both services.**
- **WC/2 Wiring Centre complete with 2nd Edition of Installation Data.**
- **R504D Room Thermostat 16amp, 250V resistive c/o contacts °C/°F Scale.**

**FOR FURTHER INFORMATION CONTACT**

**ELECTRICAL INDUSTRIAL AGENCIES LTD.**

107 CORK ST. DUBLIN 8 TELEPHONE 682510 TELEX 30239
Solenoid valves in sizes from 1/8” to 4” B.S.P. suitable for water, oil, air, steam and refrigerant gases.

Danfoss RT Thermostats and Pressure Controls.

Contactors, Motor Starters, Automatic Star-Delta Starters and Control Relays.

For Further Information Contact: Sole Irish Agent.

J.J. Sampson & Son Ltd.

Static frequency converters, for speed control of motors — range 1 to 20 H.P.

Thermostatically operated valves for water and steam.

Pressure, temperature and flow transmitters.
Installation employing a common pump to serve both heating circuit and hot water requirements, is launched as an addition to their existing Duoflow System.

The system uses a 3-port valve with separate 3-position actuator and the plug-in duo-flow wiring centre (duoplug) comprises a printed circuit board incorporating a 5-amp cartridge fuse and plug-in relay. This wiring centre provides connections for all electrical components in the system.

Both cylinder thermostat and actuator are completely pre-wired with socket connections. Cable lengths are 1.5 m and 1 m on the cylinder thermostat and actuator respectively.

Installation is similar to that for the duoflow system except that the cylinder thermostat and actuator connections are inserted in their respective sockets in the duoplug. The two plugs have a different number of pins, one in each is off-set, thereby eliminating the possibility of incorrect insertion.

The standard plug-in Duoflow system comprises the cylinder thermostat, actuator and duoplug (relay wiring centre). Installation is completed by utilising the appropriate valve body and Satchwell Sunvic TLX room thermostat.

The system offers four main installation advantages: a plug in facility reduces wiring costs; fused printed circuit boards protect all electrical components; the system leads to a reduction in maintenance time and costs; it involves standard wiring installation.

Further information is available from Temperature Control Services Ltd, Airton Close, Airton Road, Tallaght, Co Dublin, (Tel: 512634).
Water Power Development

Ireland is unique among EEC countries in having very large renewable energy resources, particularly wave and wind energy. This successful development, combined with a sensible conservation policy, could ensure adequate energy resources for the future, create thousands of jobs in the construction and maintenance of structures and equipment and develop engineering skills in Ireland which are both appropriate and needed in many developing countries.

The Solar Energy Society of Ireland recently organised a conference on wind and wave energy in conjunction with the Institute for Industrial Research and Standards and the Industrial Development Authority. The meeting examined the quantity and quality parameters of Irish wind, wave and water resources, the progress being made in other countries in the development of similar resources, and the economic and employment potential of such renewable energy sources.

Papers presented included the following on the possibilities of developing a viable "water power" system to suit small to medium energy requirements. The author is Dermot McGuigan who regards "small" as being under 200 kW and medium under 1mW.

An abundance of fossil fuel and the national grid brought an end to the use of small water power in the early 20th century. Grid electricity was so cheap that the cost of maintaining dams and mechanical equipment could no longer be justified. What finally killed all but a few private hydro systems was that local utilities would not connect houses unless the water agreed to abandon his turbine.

Times have changed and so have fuel prices. But most important are the recent changes in the technology of small water power. The most expensive element in old water turbines was the mechanical flow governor which regulated the electrical output by governing the inflow of water. Now, and only very recently, have electronic load governors been introduced. These regulate the output by governing the flow of electricity and not the flow of water. The capital cost reduction is considerable. The system works simply by diverting excess output to and from a ballast circuit. Unlike the complicated mechanical flow governor, the electronic governor requires no maintenance.

A CHANGE FOR THE BETTER

New small scale water turbine systems will not utilise dams or reservoirs. These are expensive to build and costly to maintain. Instead run-of-the-river schemes will be used. This depends upon the flow of the river providing the required power. To avoid peak loading problems electronic load priority channels can be incorporated into the governor.

Small turbines, complete and mounted on base frames, are easy to install on concrete foundations. If a small dam or weir is not present then building one to accommodate the trash rack and PVC pipe poses no great problem. In most cases where a farmer, landowner or businessman wants to install a water turbine he can use his own workmen during otherwise slack periods.

The production of a standardised range of turbines with electronic governing and ease of installation by local labour makes for a considerable change in the development of small water power, a change for the better. If manufactured in Ireland, then the economics of such systems work out remarkably good. In fact a conservative estimate has shown that they can generate electricity at under 0.5p a kW hour. At such prices the development of water power becomes more than attractive.

The existence of an Irish Turbine Co. could benefit the ESB. For example the 600kW turbine currently being installed on the Shannon by the Board need not have been imported from the US but could have been manufactured at home thus helping the economy and the employment situation.

One thing I noticed about the recent electrification of the isolated Black Valley community in Kerry was the river flowing through the town. While I don't know the cost of installing the six to seven miles of electricity poles which brought power to the valley, I can hazard a good guess that a medium sized turbine would not have cost a great deal more. With a life of at least thirty years such a turbine could have produced very cheap electricity for the residents of the Black Valley.

There are many other medium sized rivers in Ireland which could be tapped to drive induction generators giving a base load feed-in to the national grid. Again such installations would not require expensive dams or reservoirs. Moreover they would represent a useful saving on imported oils and coal.

The export potential for private and public water power plant in the small to medium capacities is considerable, especially with this new water turbine system. International competition is virtually non-existent. It has been estimated that 84% of the worlds remaining hydro resources remain undeveloped. This estimation does not mean that the small streams and rivers suitable for private and village power supply. For instance, the US data on feasible hydro potential does not include sites under 5 mW in size — rough estimates indicate that this could be as much as 15 to 20 per cent of the undeveloped potential.

The only countries actively developing small hydropower are Papua New Guinea and China. The Papua New Guinea Electricity Commission is budgeting £2.25m for a Provincial Mini-Hydropower Project which involves the construction of small hydro stations, and associated 22kv transmission lines. The most active development has been in China where they have, within the last 20 years, built 60,000 small hydropower plants with an average output of 15 kW per station, thus having an aggregate power output of 2,100 mW.

Ireland could develop her own small and considerable hydropower resources in a similar way, creating jobs and becoming a world leader in the export of small to medium water turbine systems. A strong Irish market backed by the ESB would be a great help to any future Irish manufacturer.

INFLATION-PROOF POWER

Hydropower is a continually renewable resource. Its supply is reasonably dependable. Whereas fossil and nuclear fuel produce polluting by-products, hydraulic energy does not. Water power is inflation proof and the equipment usually has a life of 30 to 50 years. But in the final analysis it is costs that really count. While detailed figures are not yet available, it is my contention that an Irish turbine manufacturer could supply plant to the home and export market at a cost comparable to or competitive with fossil and nuclear power stations — that is assuming the manufacturer utilises the recent innovations in water power technology and specialises in the production of a standard range of turbines.

References
Back in Dublin this month, project profile examines the problems of another computer complex – that of Amdahl on the Dublin Industrial Estate – where Walker Air were entrusted with providing the suitable solution.

Today's sophisticated computer will only function satisfactorily in a precisely controlled environment. Without the provision of closely controlled humidity and temperature levels to remove the excess heat generated by the computers, very expensive computer downtime will result.

It also makes sense that computers are tested under these ideal working conditions by the manufacturer. To achieve these optimum conditions, three Carlyle 50DD packaged cooling units and six Carlyle 39M air handling units have been installed at the new Amdahl Ltd plant on Dublin Industrial Estate. Amdahl manufacture the sophisticated 470 V/6 computer.

Computers valued at between £1 million and £2 million are now being produced at the newly opened plant. The first system, a 470V/6, is destined for I/S Data Controlen 2 in Denmark.

The close temperature control that is required within Amdahl's Unit Test and Systems test Area, the heart of the production facility, is achieved by means of the three roof mounted packaged air conditioning units. Each of these units has a total cooling capacity of 408,000 Btu/h and a sensible cooling capacity of 400,000 Btu/h when handling 14,000 cfm at an entering evaporator air temperature of 62°F wb in an ambient temperature condition of 85°F db. Each unit has been fitted with a factory installed economiser which utilises cool outdoor air to cool the test areas automatically. A 30kW electric heater battery, power exhaust, suction pressure unloaders, and a bag filter to provide filtration of 50% MBS dust spot test have also been fitted to each unit.

Conditioned air from the units is ducted to a builders' work plenum at one end of the systems test area, and from there to an underfloor ducting system. Air is distributed up through grilles in the floor beneath the computers under test. Return air finds its own way back through air handling light fittings into the ceiling void and back to the units.

Ventilation for the remainder of the 20,000 sq ft production facility is provided by six modular air handling units. Two
Carlyle 39M 124/504 air handling units are positioned on the roof of the generator room and each handles 7,000 cfm. These air handling units comprise a fan section complete with motor and drive mounted on a sub base, isolated from the main fan casing, and a bag filter section similar to that installed in the units in the test areas.

Air discharge from these units is ducted down the inside wall of the room to grilles mounted 10 in off the floor along one wall. Return air is allowed back into the atmosphere through a pressure relief damper mounted high up in the wall. A small quantity of air from one of these air handling units has been ducted off to similarly mounted grilles in the transformer room and exhaust air is allowed back to the atmosphere through louved doors.

The stores and shipping areas are served by a Carlyle 39M 093/333 air handling unit and two identical units also provide ventilation for the canteen and assembly areas. These units comprise a mixing box, bag filter section and a fan section. The 30kW heater battery is divided into six steps of control and the fan has a nominal capacity of 3,760 cfm against 0.5" wg external.

Supply air is distributed to each area via ceiling and duct mounted grilles and return air is allowed to find its own way back to the return air connection on the air handling units. In the wall between the shipping and receiving areas, grilles are mounted to allow the air to return from the shipping area into the receiving area above ceiling height. The control of this unit is achieved by a return air thermostat controlling a step controller which in turn controls the stages of heating required.

The sixth air handling unit, a 69M 063/253, provides ventilation for the office area. This unit has a capacity of 1,642 cfm and the electric heater battery has a capacity of 13kW in six steps of 3kW each.

With the continuing expansion of the computer industry, installations of this nature are providing the perfect solution to the cooling needs of these sophisticated pieces of hardware.

All Carlyle equipment was supplied by Walker Air Conditioning Ltd, authorised distributors for Carlyle air conditioning and refrigeration equipment. Mercury Engineering Ltd were the mechanical and electrical contractors on this project.
NEW PRODUCTS

ANOTHER ENERGY SAVER FROM HITACHI

Following on from Hitachi's Thermoexcel development for water chillers, Hitachi's continuing research programme has produced major energy savings on packaged air conditioning units. Even on a small 10,000 Btu/hr split package unit, the energy efficiency ratio has increased from 1.82 to 2.28 or 25.3% improvement. This means less watts in for the same output.

The new development is called Slit-Fin and can be applied to evaporator and condenser. Extensive field testing over two years has established consistent performance of the new evaporator/condenser block in all conditions of normal operation, ie wet and dirty.

In conventional finned blocks either a simple plain plate fin or some type of formed fin is used, the latter to enhance the heat transfer coefficient. Various so called air turbulence shapes are used, such as corrugations, protrusions etc. Hitachi's new Slit-Fin has increased air side heat transfer coefficient by 160% to give an overall heat transfer coefficient increase from refrigerant to air of 1.3.

The secret of Slit-Fin is the reduction of the air boundary layer around the edge of the slit which reduces the heat transfer resistance and increases the air side temperature difference, where otherwise the boundary layer would thicken, especially towards the air outlet side of the finned block. An important side effect is a reduction in physical size and weight of individual units using Slit-Fin with subsequent installation cost savings.

Further information is available from Atmos Ltd, Klima House, Mill Lane, Dublin 20, (Tel: 366576).

Folding Shower Door

In a major attack on the shower market, Flair has introduced a new folding door to sell with its popular C8/3 cubicle.

The door is easily and quickly fitted by the average householder whether as part of an original installation or as a replacement for the curtain on an existing Flair cubicle.

Trouble-free, the door doesn't leak, doesn't jam and closes firmly at both ends by means of fasteners concealed on the top runner. The design is already proven in the United States where the product has been installed in hundreds of thousands of homes.

The Flair door when closed gives maximum in-shower space and has a unique panel arrangement which smoothly folds back to a mere 102mm (4”) when not in use. Built to last in strong Starlite polystyrene, the off-white panels have an attractive silver-grey fleck finish and the complete door is guaranteed for twelve months.

Further information is available from Midland International Ltd, Bailieborough, Co Cavan, (Tel: Bailieborough 83).

The new folding door introduced by Flair to compliment their C8/3 shower cubicle.
Air Blowers from ACI

Air Control Installations (Chard) Ltd have introduced two new high-output centrifugal blowers, driven by TEFC 2-pole electric motors, for use with single-phase or three-phase supplies, rated at 1.5 and 2.5 hp.

The larger of the two units, the VBW9/225/114, delivers 1820 cfm in free air, and has a peak pressure of 6 in swg. Typical duty point is 1500 cfm at 3.5 in swg. The VBW200/102 delivers 1050 cfm in free air, and has a peak pressure of 4.0 in swg. Typical duty point is 600 cfm at 3.5 in swg.

As with all of ACI's products, these compact units achieve substantially higher outputs than other direct-drive fan units, size for size. The units are manufactured with LM6 cast housings, and have a strong curved forward impeller with a high standard of corrosion-protective finish.

Applications include grain and granule drying, electrical and electronic equipment cooling, light/medium industrial uses, and pressurising inflatable coverings and buildings. Further information is available direct from Air Control Installations (Chard) Ltd, Boden Street, Chard, Somerset, TA20 2AE, (Tel: Chard 2095/2403).

New Venquip Air Handling Units

A new range of single module air handling units has been introduced by Venquip of London. Called Vepac, the units have been designed to meet requirements for up to 2.36m³/sec. (5000 cfm) for heating, cooling and filtration or, if required, for all three functions in one single unit.

The simplicity of the Vepac range minimises site installation costs by eliminating the need to bolt-up units together. They are also ideally suitable for installation where space is limited and can be supplied for vertical as well as horizontal locations. If required, additional discharge plenums with outlet grilles can be supplied for free-standing units.

Provision is also made for recirculation and fresh air dampers and spigots built-in for automatic or manual controls. Vepac units are totally enclosed in casings fabricated from the Venquip Fastbuild System. This unique method of construction, which utilises self-locating corner pressings and multi-angle frames, provides a rigid galvanised mild steel assembly. All panels are double skinned to reduce noise emission and are provided with quick release retaining clips.

All components used in the Vepac range are of matching high quality and have been selected to offer long efficient life with minimum maintenance. Vepac variants can be provided with electric and steam as well as hot water heating coils. Cooling coils can be either chilled water or direct expansion.

Negotiations are presently underway with regard to the appointment of an Irish agent but for the moment details can be obtained direct from Venquip Ventilation Equipment & Conditioning Ltd, 316-322 Latimer Road, London W10 6QR (Tel: 031 969 7553).
Supervisor Wanted:
Salary: £1250 Per Annum!

AN CHEARD-COMHAIRLE
(NATIONAL APPRENTICESHIP BOARD)
Vacancy for Supervisor (Engineering and Metal Trades)

A N Cheard Chomhairle proposes to appoint a Supervisor under the Apprenticeship Act, 1959, to assist in the development of a sound system of apprentice training for the trades in the ENGINEERING and METAL INDUSTRIES. The post will be whole time and the main duties will be to advise in the preparation of progressive programmes for the recruitment and training of apprentices and to secure, in co-operation with employers, trade unions and vocational education authorities, the implementation of the programmes decided upon.

Further particulars of the duties involved can be obtained from An Cheard Chomhailte on request.

The trades to be dealt with include fitter, turner, toolmaker, brassfinisher, boilermaker, sheet metal worker, coppersmith, blacksmith, moulders, pattern-maker and coremaker.

Essential Qualifications:
(a) At least 10 years' practical experience in the engineering and/or metal industries (preferably including a formal apprenticeship in one of the trades mentioned above).
(b) Experience in a supervisory, managerial or educational capacity in the industry.
(c) Possession of a relevant professional or technical qualification.

Desirable Qualification:
Experience in the organisation of apprentice training schemes.

The salary, which will be attractive, will depend on the qualifications and experience of the selected candidate and will be agreed with him before his appointment. The man being sought would probably be earning not less than £1,250 a year in his present position. The man being sought would probably be earning not less than £1,250 a year in his present position.

**TABLE 1: CO-ORDINATING SIZES FOR SANITARY FITTINGS**

<table>
<thead>
<tr>
<th>FITTINGS</th>
<th>Length M</th>
<th>Width M</th>
<th>Height M</th>
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<tbody>
<tr>
<td>Bath (rectangular)</td>
<td>17</td>
<td>7</td>
<td>nM</td>
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<tr>
<td>Bath (square)</td>
<td>9</td>
<td>9</td>
<td>5</td>
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<tr>
<td>Shower tray</td>
<td>9</td>
<td>8</td>
<td>4</td>
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<tr>
<td>Shower cubicle</td>
<td>9</td>
<td>8</td>
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<tr>
<td>Stainless steel sinks</td>
<td>12</td>
<td>5</td>
<td>N/A</td>
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<td></td>
<td>15</td>
<td>6</td>
<td>N/A</td>
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n = an integer

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Provisional Draft Standard for the Dimension of Modular Sanitary Fittings

This specification is one of a series covering the dimensions of modular components, which are suitable for use in dimensionally co-ordinated buildings. It is based on “Modular Components 4, Sanitary Fittings” published by An Foras Forbartha.

The necessity for co-ordinating the dimensions of some sanitary fittings is greater than that of others. A bath, for instance is commonly fitted into a recess and so its dimensions are obviously of significance from the point of view of modular planning.

If a building is designed on a modular basis, there is a distinct advantage in choosing a bath having modular co-ordinating dimensions. Shower trays and cubicles are other items the co-ordinating dimensions of which are closely related to adjoining walls and/or partitions.

The co-ordinating sizes of sinks are related to those of kitchen units which in turn are related to room sizes and should, therefore, be modular. Manufacturers offer various arrangements of bowl(s) and drainer(s) to suit the co-ordinating sizes. In selecting a particular model it is advisable to check the manufacturers’ detailed dimensions to ensure that these are compatible with any proposed arrangement of presses underneath.

While there may be more freedom in the positioning of vanity units, nevertheless it is desirable that their co-ordinating dimensions should also be modular and related to those of rigid flat sheet materials.

Dimensionally co-ordinated sanitary fittings are not yet generally available in Ireland. It is hoped that this specification will encourage the use of these components.

This provisional specification covers the co-ordinating sizes for sanitary fittings, that is baths, shower trays and shower cubicles, sinks and vanity units.

Basic Module * - The unit (of length) of modular co-ordination, the size of which is selected in order to achieve a dimensional co-ordination of building elements of general purpose building components with the maximum flexibility and convenience.

The basic module is represented by the letter M and the international standardised value of the basic module is 1M = 100 mm.

Co-ordinating dimension ** - A dimension of a co-ordinating space, which defines the relative positions of two or more components in an assembly, according to the characteristics of the components which are relevant to the assembly.

Co-ordinating size ** - The size of a co-ordinating dimension.

* As defined in ISO 1006: 1973 “Modular Co-ordination - the basic module”
** As defined in ISO 1803: 1973 “Tolerances for building - Vocabulary”

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### Table: Co-ordinating Sizes for Sanitary Fittings

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1. We supply Carlyle equipment, the air conditioning and refrigeration world leader both in product and system choice as well as quality.
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Dockrolls of Ballymount Supplement, July 1978

DOI: 10.21427/D77M5V
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Published by ARROW@DIT, 1978
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DOCKRELLS
OF BALLYMOUNT

The headquarters of the Dockrell Group of companies is situated on a 12-acre, custom-built site in suburban Dublin, with ample car parking space. This extensive complex, just off the main Dublin – Cork road, houses the administration, general office buildings, timber, glass and builders’ providers sections.

The timber department is mainly divided into two sections, ie, softwoods and hardwoods. In the softwood section is carried all the different types of wood required for all building purposes. The hardwood department handles a large variety of species mainly from West Africa – both air dried and kiln dried. For example, Iroko, Mahogany, Cedar, Red American Oak, Maple Flooring and many other timbers. Large quantities are air dried in a modern battery of kilns and a specialist representative is available to advise on specifications etc.

The modern well-laid-out mill is capable of machining all types of timber and in all sizes, which are stocked in the extensive sheds, and these are serviced by the most sophisticated machinery available – eg, travelling overhead cranes, forklifts etc., all assisting in maintaining a greater degree of safety and efficiency in operations. The softwoods can be supplied treated by the modern Protim plant.

An interesting and important part of the timber section is the roof truss...
making department, supplying top grade trusses to specification throughout Ireland.

For fast and efficient service Dockrells opened “Timberland” to try and facilitate customers in selecting machined timber of all kinds, doors, windows, sheet materials—panelling, dowels, mouldings and mosaic flooring etc. At present this department is being further expanded to improve service.

Interest in this area is further generated by the extensive stocks of timber and aluminium ladders from Stephens and Carter. Included in the timber range are domestic, painters' and builders' step ladders; pole and combination ladders and two- and three-part extension ladders up to 63 feet. The aluminium range goes from step ladder to extension ladders. An important feature of the range of products by Stephens and Carter is the timber batten staging, which provides a safe alternative to scaffold boards and is in increasing use by all major contractors, and, of course, their existing loft ladder is known throughout the country.

Softwoods contacts - E Boyle or D Burrows.
Hardwoods contacts - N Condell or R Guy.
Ladders contact - L Blennerhasset.

It would be no idle boast to say that the glass plant at Dockrells is the most modern one of its kind in Ireland, fully geared to deal with a comprehensive range of float, sheet and figured glass and mirrors.

An expert staff of cutters and glaziers is always available and a specialist delivery service comprising two articulated trucks with their own cranes makes off-loading of the product simpler when it arrives at its destination.

An interesting feature of this section of Dockrells is the use of suction equipment including an air flotation table and a tilting glass table which enables a few men to handle the large sheets of glass with safety and efficiency.

Two travelling cranes are installed within the plant to speed up loading. In addition, there are other trucks designed specifically to transport glass.

A recent addition to the range carried is the new anti-bandit and bullet resistant glass now being installed by many jewellers and banks.

Specially trained staff are available to handle and install this fast growing section and Dockrells are building a reputation for expertise and efficiency in this field.

Well known for generations for their craftsmanship in glass, Dockrells are carrying on the tradition for...
Building Materials and Drainage Department

The combined building materials and drainage department supplies traditional earthenware and the modern plastic drain and sewerage goods together with a range of rainwater gutters, pipes and fittings plus asbestos goods in pipe and sheet form. Allied to these products are PVC sheets and, of course, the necessary cast iron goods, ie, manhole covers, shores, traps and gulleys needed for general building requirements. This department also stocks cement, plaster board, plaster, corrugated sheeting, insulation and the full range of modern additives for cement.

Constantly aware of changing trends and public demands, Dockrells have recognised the growing need for an adequate wall and floor
tile section and to cater for the varied tastes in decor, they now carry a huge range of English and Continental tiles and co-related products such as trims, adhesives, grouts and, of course, tile cutting tools.

The intriguing display of tiles on panels, in booths, bathrooms and kitchens, makes choosing a pleasure. Building Materials and Drainage contacts – T Sheehan or P Carolan.

Building Materials and Drainage – Tiles by Cristal; Marazzi and Ducale; Bridge-Sunday natural slates; Feb products.

Ironmongery Department

One of the most interesting and one might say, complicated departments in a builders’ providers is the ironmongery section where a vast range of goods is available to meet all requirements. This is particularly true in the case of Dockrells ironmongery department where the stocks range from nails, bolts, nuts, locks, hinges, door and window fittings, door closers – sliding door gear, electric hand and garden tools, greenhouses, garden furniture, and shelving and a host of miscellaneous items.

Dockrells are equipped in this area to supply fittings for the standard building as well as the most sophisticated and have developed an enviable reputation for supplying from the best available. They are main agents for Modric door furniture, Abloy locks, Spur shelving, Halfen channeling, Bat fittings and Ramsay ladders. Main distributors for: Duraflex greenhouses and draught excluders; Rothley brass door furniture; Albion crystal cut door furniture; and door furniture by Heatherly; Lilly and Showell. Locks by: Union; Yale; Basta; Gibbons and Chubb. Door closers by: Briton; Dorma; P.J. 63 and Perko. Henderson doors and gear; Birmid Qualcast mowers; Atco mowers and Suffolk mowers; Rawlplug products; Stanley tools; and power tools by: Black & Decker; Skil and Shopmate.

Plumbing Department

Dockrells can be justifiably proud of their reputation for supplying quality plumbing materials and equally so of their newly-extended showrooms in this section. It is a source of pleasure, and indeed many ideas too, to walk around the intriguing bathroom and kitchen lay-outs. Here are Ideal Standard Penthouse Suites with gold plated fittings and the Mamara basin; the Serie Tifeo Italian Suite; which is a very exclusive unit, and a variety of other bathroom suites, of which there are 11 in all including Doulton and Armitage Shanks and, of course, the mundane choice as well as the exotic.

Chloride Shires have on display the new Allegro Suite in two new eye-catching colours – Harmony Brown and Harmony Green. They manufacture a modern range of quality-designed products and presently have five acrylic baths in their range. The full range of their sanitary ware, shower trays and cubicles, together with thermoplastic and composite cisterns are on display.

Another central point in the showroom is the Shower Centre which consists of a complete display of
Mira thermostatic and non-thermostatic showers, instantaneous water heaters, Topliss shower fittings, Triton showers, booster pumps and the entire range of Flair bathroom accessories and shower cubicles, augmented by a full, range of shower curtains, rails etc.

Complementing the bathroom displays there is a wonderful selection of taps, mixers, bath panels, splashbacks, bathroom cabinets and bathroom accessories in a modern range of designs and colours. A particular feature is the complete range of Allibert luxury bathroom products designed to enhance any bathroom.

In all there are five fitted kitchens on show — Arco, O’Connor, Fairline, Temple and the Harmony self-assembly kitchen, which is Dockrells’ own product. Dockrells also have plans to complement this wide choice with the addition of the complete range from Murray self-assembly kitchens. They have also recently extended activities into the fast growing area of kitchen design by employing a qualified kitchen consultant. They realise that this is a wide open market and are making a particularly strong effort to become leaders in this field.

Plumbing contacts — M Usher or O’Crilly.

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Wish to Congratulate
The Dockrell Group of Companies
ders, Veha radiators and Satchwell and Danfoss controls.

In addition, Dockrells offer an attractive selection of fireplaces and a range of brass and copper canopies which will appeal to the most fastidious.

The heating department of Dockrells was the originator of the solid fuel central heating package deal and this has proved immensely successful. They basically will provide all the necessary equipment for the installation of a four-radiator system, including the boiler, slow burning grate, pump, cylinder tank, radiators, valves, etc., for a minimum cost and the success of the deal can be judged by the number of installations carried out over the past three years.

Heating contacts—D Spendlove or J Sinclair.

Wallpapering Department

The name Dockrells has always been synonymous with wallpaper and wallcoverings and today the firm carries on the tradition as experts in this trade.

The extensive showrooms stimulate interest immediately on entry as colourful panels display the genius of the world's best wallpaper designers. There is a selection of wallpapers, vinyl wallcoverings, hessian and other materials to please and satisfy the most demanding tastes and at any time one can see interior decorators, architects and contractors perusing patterns and pattern books.

"The World's Finest Wallpapers" is an advertising maxim used by Dockrells for many years past and the claim is justified as one can see in the showroom wallpapers from Ireland, Britain and France, and even Japanese silks and grass are available.

The wallpaper department is spacious and comfortable and one can browse through the pattern books at ease and, if expert advice and efficient service is required — there's plenty of that too!

Wallpaper contacts—J Leahy or L Boyd.
Wallcovering — Shand Kydd; Sanderson; Crown; Mayfair; Vymura; Decorene; Harlequin; Coles; ‘Muraweave’ hessian; Fablon; Storeys quilting. Pastes: Beeline; Metylan; Procea; ‘Adams’ mouldings and decorations.

Paint Department

Dockrells are distributors of all the main brands of paint including Crown, Berger, Harrington & Goodlass Wall. They also carry the complete range of Polycell products and Aquaseal sealants which comprise a wide range of sealants for damp-proofing both interior and exterior walls and also for repairing leaks in roofs and gutters.

Other brand names stocked on the paint department shelves include Expandite, Sandtex and Snowcem exterior wall paints with paint brushes by Fleetwood and Mark Marketing.

Among the fast moving lines on display is Polybond universal adhesive, sealer and concrete additive. This was specially designed for use with practically every type of building material as a safe and easy-to-use adhesive, as an efficient and speedy sealer, and as a cement additive ensuring concretes of quite exceptional quality. Polybond is non-inflammable and non-toxic and almost odourless.

The well stocked shelves in the showrooms offer a comprehensive choice of paints and ancillary lines with expert and efficient advice always on hand.

Paint contact — B O’Hara.

Electrical Department

Light fittings play a very important part in planning a home, hotel, lounge bar or office and even in industry where the lighting is vital. There can be little difficulty in completing any decor with the appropriate lighting from the large range available at Dockrells.

Glistening crystal fittings for elegance, decorative Spanish brass chandeliers for dignity and contemporary lights for a futuristic atmosphere... they are all here with matching wall lights... standard and table lamps too!

The range of cookers, washing machines, water heaters and refrigerators is part of the comprehensive selection of household appliances that includes carpet cleaners, clocks, irons, kettles, toasters, food mixers, grinders, percolators, fans and all those electrical appliances that help to make life easier.

The contractor will be interested in the range of cables, flexes and a complete selection of accessories such as switches, plugs, fuses, lamp holders etc.

A new innovation which has proved very popular with the customer is the “Gift Boutique” which is stocked according to seasonal requirements and makes it easier to select the most appropriate gift for any occasion.

Electrical Department contacts — G Glanville or T Boxwell.
Electrical: Tricity cookers; Bendix washing machines; Kenwood domestic appliances. EDI washing machines, dishwashers, refrigerators and cleaners. Creda cookers; Bosch appliances; Thor appliances; Russell Hobbs kettles; Proctor Silex toasters; SEB and Prestige pressure cookers; cleaners by Nilfisk, Hoover and Siemens; Hotpoint refrigerators and washing machines. Morphy Richards irons and toasters; Xpelair fans; Santon heaters. Irish Driver Harris cable; Ashley accessories; MK accessories; Crabtree accessories; Metamec clocks. Lamps by Philips; Thorn; Solus and Goblin. Ward & Goldstone accessories and CPI meter boxes.

The newly-opened “Gift Boutique” in the electrical department.

SERVING THE COUNTRY

The Dockrell Group of companies plays a very important part in the life of the community by providing services and materials for a number of professions and trades. It is a unique and complete service and involves a range of products mainly of interest to the builder and homemaker but yet, so diversified as to prove of appeal to the housewife, farmer, electrician, carpenter, decorator, plumber, interior consultant and DIY enthusiast.

The many facets and activities of the business carried on at Ballymount Road and the following brief resume will give some idea of the activities of other companies within the Group.

Dockrells Sth, Gt. Georges St.

This store is the major retail outlet for the Dockrell Group, and houses several departments which have become increasingly popular with the public for such items as carpets, light fittings, bathroom suites, fitted kitchens, paints, wallpapers, tools, DIY materials, car accessories, garden supplies, fireplaces, electrical appliances, electrical fittings, Hi-Fi, radios and TV. Dockrells of Georges Street have a reputation for friendly, courteous, efficient service and expert advice is available for the asking.

Dockrells Dun Laoghaire.

A real home centre within the Dun Laoghaire Shopping Complex and providing a selection of goods to Dockrells of Sth Great Georges St. Open daily 9 to 5.30 pm including Saturday, the store has a late night closing each Friday at 9 pm. Customers are assured of a friendly welcome coupled with the Dockrell tradition for service.

Dockrells Kyrl’s Quay, Cork.

A new venture in the Dockrell Group to bring the Dockrell service to Cork and surrounding district. All the building supplies and home improvement services available throughout the Dockrell Group of Companies can be obtained at Kyrl’s Quay and the public are assured of the Dockrell reputation for service and reliability.


The largest builders’ providers in the south east of Ireland. Stockists of builders’ ironmongery, plumbing goods, glass, mirrors, wallpapers, paints, electrical appliances and fittings, floor coverings, household goods, floor and wall tiling, fitted kitchens, bathrooms, drainage supplies and cement. Graves are also timber importers and have been trading for over a century. The New Ross location of Graves in addition to its builders’ providers and hardware operations are well known for the erection of farm buildings.

The Dublin Plywood & Veneer Co. Ltd.

Importers and distributors of plywood, marine plywood, blockboard, laminated plastics, chipboard, louvre doors, etc. The Dublin Plywood & Veneer Co. Ltd, carries a wide range of ironmongery and cabinet makers’ supplies and their...
showrooms in Little Britain Street (off Capel Street) are well worth a visit by the craftsman and the DIY enthusiast. In addition the "D.P.V." are substantial suppliers to the furniture manufacturing and building trades.

Instabond Ltd,
Specialists in the manufacture of doors, weather flush, panel, solid, semi-solid, fire resistant, veneered or laminated as well as carved or lead-lined doors. Doors are manufactured to standard or off-standard specifications as required.

Instabond are also manufacturers of fire resistant partition panels and will bond any sheet material such as aluminium, laminates or any veneer to any core. Customers' materials can also be bonded, advice given on any queries for the application of Instabond products and estimates are free.

McCarthy's, Castle St., Cork.
The most popular store in Cork for wallpaper, wallcoverings, paints, tiling, electric light fittings and lamps. A wonderful range of electrical appliances is also available, making it an easy task to select gifts for any occasion.

Established over 140 years, Dockrells have developed a reputation for reliability and service down through the years, but realise the necessity for continual examination in all areas and will never be satisfied with their own performance and are constantly trying to improve.

Employing several hundreds in their organisation, the firm is still carrying on the tradition of keeping abreast of the times. When gas was first operated in Dublin, Dockrells provided the gas mantles for lighting. When the Shannon scheme was started Dockrells opened an electrical department. When television came to Ireland, Dockrells provided a TV service and sales department. Today, computers are in the forefront and Dockrells have installed a Honeywell computer in an endeavour to give greater control and efficiency in utilisation of people and stocks.

Dockrells' representatives cover the entire country calling on all trades and professions and providing specialist services to the architect, builders' merchant and contractor. Their huge, modern transport fleet covers the country with a speedy delivery service and their indoor staff are friendly and efficient.
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