

5-1-1965

The Irish Plumbing and Heating Engineer, May 1965 (complete issue)

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ENGINEER



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And she knows just where to get it. Because the hard-hitting advertising, which first sells her on the idea of installing Shell and BP Housewarming, also tells her of the superb service offered by her local Appointed Installer. The special Shell and BP Appointed Installer's sign is prominently featured in each advertisement to help her remember it.

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For Central Heating



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MAY 1965

Published by ARROW@TU Dublin, 1965
Vol. 5 No. 2

SPECIAL MONTHLY SUPPLEMENTS: NORTHERN IRELAND MONTHLY REVIEW INDUSTRIAL HEATING & VENTILATING IN IRELAND

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PRODUCT**

"THE DUBOIS PLASTIC TRAP" (Regd.)

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Provn. Pat. No. 38070/60.

**1¼" and 1½" diam. x 1½" seal "S" and "P" BLACK HIGH DENSITY
PLASTIC TRAPS**



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Smooth Bore Tubular construction.
Outlets can be turned through 220°.
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***Conditioned Warm Air in a few minutes when and
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THE MOST MODERN AUTOMATIC CONDITIONING SYSTEM FOR ANY INTERIOR.
FOR HALLS, SHOPS, SCHOOLS, GARAGES, WORKSHOPS, ETC. A NUMBER OF
VERY SUCCESSFUL SYSTEMS ALREADY INSTALLED IN IRISH REPUBLIC.

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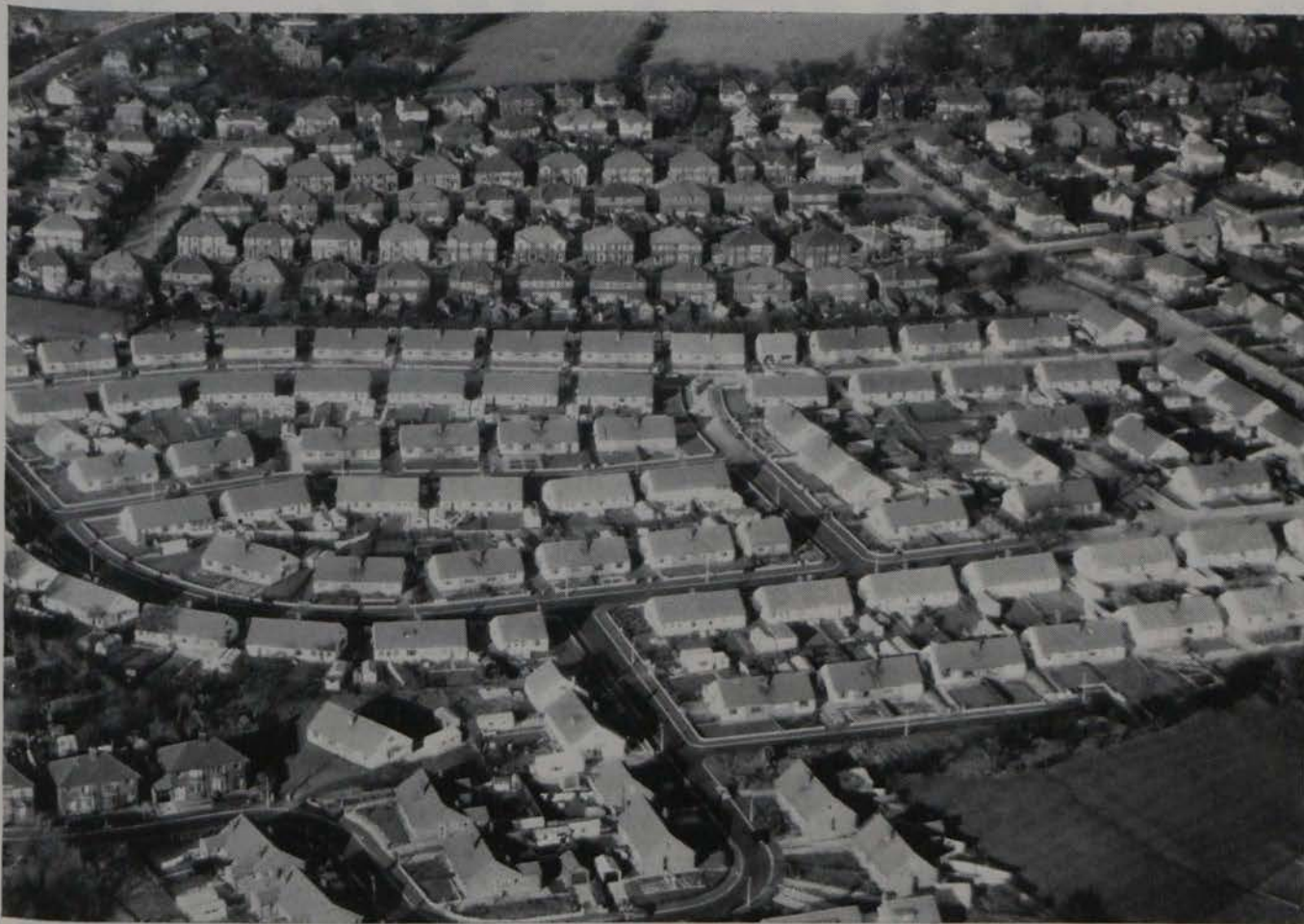
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Wherever you go, in wide-flung housing estates or stately homes, you can wager that some of the water fittings are Delta. Delta Water Fittings are always a safe bet — there wouldn't be so many if they weren't so good.



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B

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FRY'S Flowsilver: to add to the strength of their range of alloys and fluxes . . .

Fry's now offer a comprehensive range of brazing and soft soldering alloys and fluxes. The newest addition, Flowsilver, provides alloys with the characteristics of high tensile strength and up to 780°C. melting point. Twelve grades are available, including one for use on stainless steel. Whatever the specifications of your soldering or brazing job, Fry's have the specialist alloys and fluxes available.

★ A Detailed Technical Leaflet will be sent on application.

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TANDEM WORKS, MERTON ABBEY, LONDON, S.W.19. Tel. MIT 4023.
Also at MANCHESTER - GLASGOW - KIDDERMINSTER - DUBLIN.

F.S.5.

Multifluted for great strength
Multifluted for efficient draining
Multifluted for sound-deadening
Multifluted for good looks



FISHLOW multifluted sinks, made of finest British Stainless Steel, are designed to give better draining, better sound-deadening, greater strength and longer life. What's more, they look good, too.

And what a wonderful range of styles and sizes! Single or double bowl; single or double drainer; with or without work-top;

Prices? Compare them with any other make and you'll find them hard to beat.



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For Life

Model W 21" x 42" Model WW 21" x 63" Model DL 18" x 54" Model TL 18" x 72" Model N 18" x 42" Model WN 18" x 63" Model DW 21" x 63" Model TW 21" x 84"

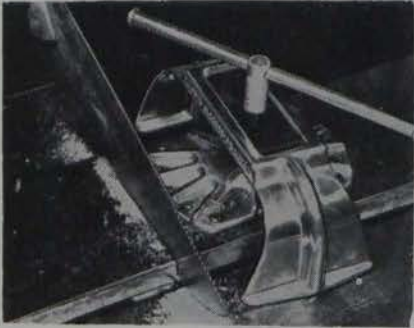


Model L 18" x 36" Model WL 18" x 54" **Overflows supplied on request** Model DN 18" x 63" Model TN 18" x 84"

FLOORBOARD LIFTING TOOLS

MAKE THE JOB EASIER, QUICKER AND CHEAPER!

Lifts up to 6 in. Boards 60/- T & G CUTTER 52/-
Lifts up to 10 in. Boards 98/-



Now available, **THE WEASEL BORER!**
Easily and accurately drills through joists, beams, metal or masonry at the turn of a handle. Will bore from 1 1/2" to 7" depth down the joist and to within 1 1/2" from wall.



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1965 DIRECTORY of MANUFACTURERS AGENTS, REPRESENTATIVES and DISTRIBUTORS

REMEMBER . . .

Next month's issue of the Irish Plumbing and Heating Engineer will contain the annual Directory of Manufacturers, Agents, Representatives and Distributors. Subscribers will receive one copy of this special issue but additional copies may be ordered in advance from the publishers.

The **MONO** AUTOMATIC PRESSURE WATER SET

has an ideal capacity range for the average household



- ★ COMPLETELY AUTOMATIC
- ★ SELF-PRIMING PUMP
- ★ STEADY PRESSURE AT ALL OUTLETS
- ★ NO OIL OR GREASING
- ★ LOW POWER CONSUMPTION
- ★ ALL EQUIPMENT ON ONE UNIT

The **MONO** pump

MONO PUMPS LIMITED (Incorporated in England)

31B CENTRAL HOTEL CHAMBERS • 7-9 DAME COURT • DUBLIN

Telephone: DUBLIN 70843

FOUR-DAY HEATING SYMPOSIUM BEING PLANNED FOR DUBLIN

SCOPE INCLUDES INDUSTRIAL, DOMESTIC HEATING

A FOUR-DAY Symposium on Industrial and Domestic Heating is to be held in Dublin in September next. The event is being organised by the Irish Heating Centre with the support of the Irish Plumbing and Heating Engineer.

The prime function of the symposium is an educational one. Its scope will not only have regard to technological advances but also the urgent need for liaison between the different undertakings in the industry.

A local committee has been formed representative of the following interests: Institute of Consulting Engineers, Architects Association, Heating Contractors, Master Plumbers, Institute of Fuel, Irish Management Institute, Institute for Industrial Research and Standards, Oil, Gas, Coal Companies, and the Electricity and Turf Boards.

While the bulk of the organisational work and the entire administration of the symposium will be the responsibility of the Heating Centre, the local Committee will decide on the following points:—

- Scope of the Symposium.
- General theme.
- Schedule.
- Panel of speakers to be invited.

Eight sessions

Regarding the scheduling of the symposium, the following broad outline has been decided upon for eight sessions:—

Day 1—

- a.m. Environmental requirements.
- p.m. Effect of heating system on design of buildings.

Day 2—

- a.m. District heating.

p.m. Aspects of installation.

Day 3—

- a.m. Research.
- p.m. Case studies (optimum application of the various fuels).

Day 4—

- a.m. Domestic installations.
- p.m. Application of marketing to heating.

Further details of this important event will be given in forthcoming issues. Meanwhile, queries may be addressed to either the Irish Heating Centre or to The Editor, Irish Plumbing and Heating Engineer.

in brief...

JOHN R. Taylor, Limited, 379-381 South Circular Road, Rialto, Dublin 8, have been appointed sole distributors of all Grayhill heating and ventilating products in the Republic. They will be pleased to supply details and prices for direct sale and trade applications.

* * *

ANDREWS - Weatherfoil (Ireland) Ltd., who have just announced the formation of their new Company, are planning to hold two symposia in Dublin in early June to introduce their contracting services to the Irish market. A programme will include slides and films illustrating various types of contracting work in the heating, ventilating and air conditioning field which the new Company will handle from their Dublin office.

* * *

THOMAS Heiton & Company, Dublin, this month held a reception at the Shelbourne Hotel, Dublin, to promote the better usage of stainless steel by Irish industrialists and fabricators. The company are agents for stainless steel produced by Samuel Fox & Co. Ltd., of Sheffield, and hold the franchise for its distribution in the Republic.

IRISH PLUMBING
& HEATING

ENGINEER

Vol. 5. No. 2. MAY, 1965

THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing and ventilation industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

This issue brings details given of a four-day symposium on Industrial and Domestic Heating which is to be held in Dublin next September.

This is the first event of its kind to be organised in this country and with its wide scope, the symposium is expected to create widespread interest throughout the industry.

Readers are given a reminder with this issue that next month sees the publication of the 1965 Directory of Manufacturers, Agents, Representatives and Distributors. One copy of the Directory will go to all I.P.H.E. subscribers and additional copies may be ordered in advance from the publishers.

Our special review features this month deal with (i) pipes, tubing, fittings and jointings and (ii) Air conditioning and refrigeration, ventilating and ducting.

●
Editorial and advertising offices:

Callaghan Chambers, 13/15
Dame Street, Dublin 2.
Tel. 56465-6.

London: J. T. Robson &
Son Ltd., 30 Fleet Street,
London, E.C.4. Tel.: Fleet
Street 4438.

Belfast: 26 Carnamena
Ave., Belfast 6.
Phone: 643095.

trade Topics

A NEW version of their Centramatic 35 oil-fired boiler is being introduced by Redfyre Ltd.

NEW MODEL OF REDFYRE CENTRAMATIC (Thornccliffe, Seffield. This has been re-designed to simplify maintenance considerably—only two hand tools, a screw driver and a $\frac{1}{2}$ " spanner are now required for servicing. At the same time the noise level has been further minimised and the boiler's output improved.

In external appearance the new boiler shows little change, the only alterations being on the cross member between the two front panels. The principal changes are in the boiler's internal design which has been considerably simplified. The boiler's insulation is also improved.

In the lower section of the boiler the asbestos panel, which carries the fan and forms the front of the burner chamber, is set square to the front of the cabinet instead of at an angle. This both makes the fan more accessible and simplifies withdrawal of the panel for inspecting the burner pot. At the same time the water tanks connecting the tubes have been made square instead of round. The increased heat exchange area thus achieved raises the boiler's output to 38,000 B.t.u./hr.

As a final improvement the two front panels of the casing are now lined with polystyrene which again helps reduce noise level. The overall result is that the boiler is infinitely simpler to service and is quiet in operation with higher output.

* * *

THE NEWS that G.E.C. of Ireland Limited were to close their Dundalk came from its managing director, Mr. Martin F. McCourt, in a shock statement earlier this month, issued from the company's factory in Dunleer.

SHOCK GEC DUNDALK CLOSURE

The statement said that the decision was reached after a very careful and exhaustive assessment of the market potential for electrical appliances in



● At the new modern plant premises were (from left): Mr. J. J. Smith; Mrs. B. M. Bolger; Mr. P. McCabe; Mrs. Smith, and Mr. H. W. Bolger.

Foundation stone of new Modern Plant premises laid

MODERN Plant Limited, distributors of specialised engineering and industrial equipment, are to have a new office block, showrooms and warehouse in the new industrial estate at John F. Kennedy Drive, Bluebell, Naas Road.

The contract for the new buildings has been made between Modern Plant Holdings and J. J. Smith & Co. (Dublin) Ltd., the developers of the new estate.

At a ceremony on the site of the new buildings the foundation stone was laid by Mrs. B. M. Bolger, Chair-

man, in the presence of Mr. and Mrs. J. J. Smith, Mr. H. W. Bolger, Mr. McCabe of McCabe & Delaney, Consulting Engineers; Mr. McHugh, Mr. V. E. Goddard, Assistant British Trade Commissioner; Mr. J. C. Hogan, F.I.A.S.; Mr. M. P. Hall, Mr. H. Jackson, Mr. J. J. Balding, Manager, Irish Plumbing and Heating Engineer.

At a function subsequently held in the Intercontinental Hotel both parties to the contract presented cheques to Lady Goulding, Chairman of the Central Remedial Clinic, towards the cost of the new Clinic she is undertaking at Clontarf.

the U.K. and abroad for which there is currently considerable excess manufacturing capacity in the U.K. Various factors outside company control had adversely affected the situation.

The decision will not affect the production activities at the firm's Dunleer factory, which, the statement goes on, "we intend to expand, and where we expect to gradually absorb the greater proportion of the employees who will be made redundant at Dundalk."

* * *

MONSELL, Mitchell & Co. Limited are reporting a good reception for their new Vent-O-Therm air heating system which has already been successfully featured in a number of installations throughout the country.

This oil-fired system, which combines heating with efficient ventilation, is suitable for both domestic and commercial applications. The system is highly flexible. For instance, in a domestic installation the warm air is carried from the boiler through under-floor conduits using floor and wall out-

let grilles, while, for large installations, a series of small units can be used (without conduits) for efficient heating of big areas.

A comprehensive selection of units are available, including the VT 25 with a capacity of 100,000 B.t.u./hr., and the bigger VT 50. In all units the latest technological advances are incorporated. Fuel efficiency ratings are also high for these units, up to 85 per cent.

* * *

A PARTY of employees, one supervisor and three operators of Wavin Pipes Ltd., Balbriggan, visited Holland late last month as the guests of Wavin N.V. They visited the Wavin factory at Hardenberg and other places of interest.

The Rev. T. O'Brien, C.C., Balbriggan, who takes a great interest in Wavin employees, was the special guest of Mr. Ir. Keller, general manager of Wavin N.V. He celebrated a special Mass in the local parish church at Slagharen.

trade Topics

RESULTS for the past year of Shanks & Co. Limited are even better than anticipated. Profits increased by no less than 70 per cent.

SHANKS PROFIT UP 70 p.c.

over the previous year to a pre-tax level of £355,000. Net profit is more than doubled at £235,000.

The Directors are recommending a dividend of 9.1/6 per cent. instead of the forecast final dividend of 8½ per cent. This makes the equivalent of 12½ per cent. for the year on the capital as increased by the one-for-two scrip last July compared with the equivalent of 10 per cent. previously.

Such good results are due in part to the economies resulting from the merging of Southhook's sanitary fire-clay section with Shanks—a move on which the management is to be congratulated.

* * *

in brief . . .

AS announced in a special notice in our April issue, Potez Industries of Ireland Ltd. are planning to appoint agent-stockists throughout Ireland (32 counties) for their Irish manufactured heating appliances. Applications are invited, direct to the Companies' head office at Mervue, Galway.

* * *

THE well known Royal Venton plumbers specification booklet has been brought up to date and reprinted. In handy pocket-size, the booklet contains "roughing in" details for Royal Venton sanitary ware. This information helps the plumber in setting out service connections and generally facilitates installation. Royal Venton vitreous china plumbing fixtures are manufactured by John Steventon & Sons Limited (Middlewich, Cheshire).

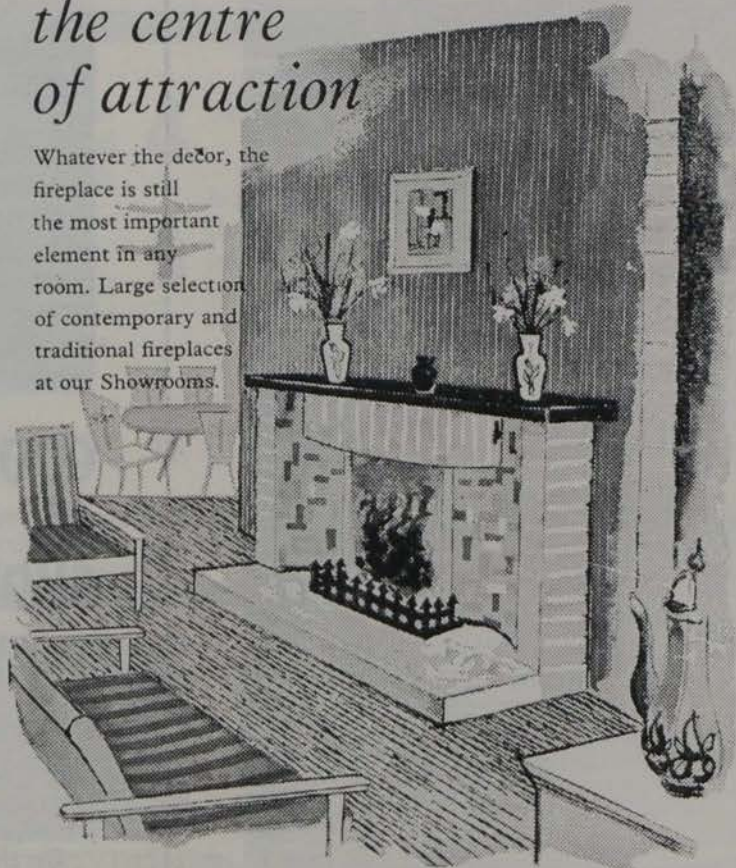


● The Wavin group which visited the parent company was led by Mr. V. G. Colgan, Advertising and Public Relations Officer, Wavin Pipes Ltd. (extreme left), included Rev. Father T. O'Brien, C.C., Balbriggan; Messrs. H. McDonnell, J. O'Reilly, J. Hammond and S. Rooney. (See report previous page)

STILL

*the centre
of attraction*

Whatever the décor, the fireplace is still the most important element in any room. Large selection of contemporary and traditional fireplaces at our Showrooms.



BROOKS THOMAS & Co. Ltd.

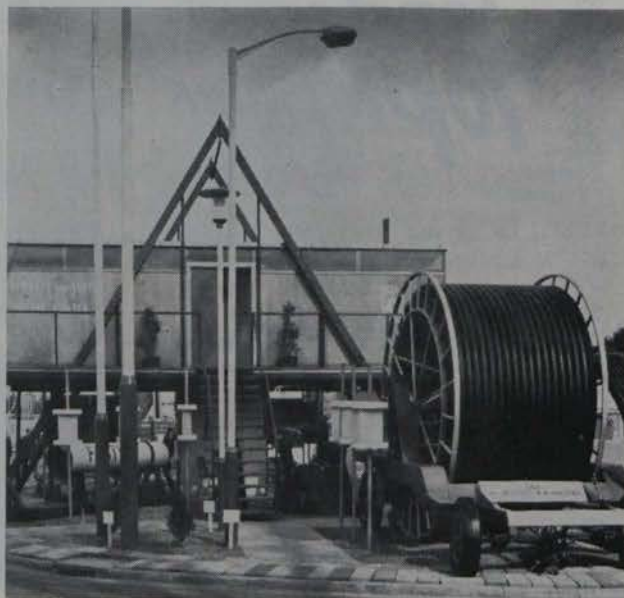
4 SACKVILLE PLACE, DUBLIN 1. TEL: 41841

Arrow.

The Irish Plumbing and Heating Engineer.

spring show 65

—in pictures



On the Stewarts and Lloyds of Ireland Ltd. stand, in addition to a display of P.V.C. pipes, was a continuous length of 3,000 ft. of 3" n.b. pipe mounted on a special trailer.



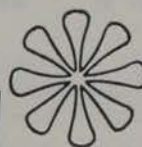
GOOD ATTENDANCE AT BALLSBRIDGE SHOWGROUNDS

WHILE attendance figures were down on last year the overall picture at the recent R.D.S. Spring Show was one of generally satisfied exhibitors.

An I.P.H.E. cameraman visited Ballsbridge and pictured (left) the Wavin Stand; the IRCO Trading Co. Ltd. exhibit and the O'Brien Plastics Ltd. Stand.

On the Sanbra Fyffe Ltd. Stand we pictured: Mr. J. F. Darcy, Secretary and General Manager, Sanbra Fyffe Ltd., Conex Works, Mr. B. C. Byrne, Sales Manager, and Mr. J. McColgan, Managing Director, J. McColgan & Co. Ltd., Buncrana, Co. Donegal.

There's a watertight case for Capital Radiators!



- 1 NEW REDUCED PRICES:** International Capital Radiators are the most reasonably priced quality radiators on the market. Just check our price list.
- 2 QUALITY:** New methods of quality control ensure absolute reliability. Every Capital Radiator is individually tested and inspected.
- 3 STYLING:** Panels are slim, elegant, and feature a *seamless* rolled top.
- 4 DELIVERY:** Immediate.
- 5 SIZES:** You have a choice of 34 sizes in three heights and in single and double panels. Trebles, quads, angles and curves to order. Many distributors also offer curving.
- 6 DISCOUNTS:** Better than most. In addition, as with other International products, you enjoy a cash rebate on every radiator you install.

That, gentlemen, is the case for installing *Capital Radiators*. Absolutely watertight. So contact your supplier now. Or write or phone us for full details.



International

BOILERS AND RADIATORS LTD

PARK HOUSE 22 PARK STREET CROYDON SURREY TEL: MUNICIPAL 3581-5

SOLE AGENTS FOR THE REPUBLIC OF IRELAND — MESSRS. MONSELL, MITCHELL & CO. LTD., 67-73 TOWNSEND STREET, DUBLIN 2. ALL RETAIL PRICES ARE SUBJECT TO 5% INCREASE TO COVER CARRIAGE ETC.

the 7 deadly sins of domestic installation

CONCLUSION

THIS series would be incomplete without a final section on dealing with faults and complaints. This is possibly the most important part of the installer's work, and, more than anything else, this is what sorts out the men from the boys. No-one likes complaints, but, properly handled, they can actually enhance an installer's reputation.

And now, let's deal with our "deadly sin" right away. I believe that the worst thing to do with a complaint is to ignore it in the hope that the customer will forget the whole thing. Give a customer cause for complaint over just one item, neglect him, and you may be sure that he will find half-a-dozen other faults inside a month. On the other hand, if you call round right away, tell him how distressed you are, and generally express your willingness to jump through hoops for the man, he will usually show appreciation. Thus you will be left with a satisfied customer at rather less effort than if you had left matters to drag on.



Experience counts for a good deal in trouble-chasing. Not only does it help in the rapid location of faults, with experience one can often identify obscure equipment if the fault is a new "bug" on an old system, as often happens. However, a systematic approach may be even more valuable; Sherlock Holmes had the right idea, the trick is to eliminate the impossible; in so doing the truth, however improbable, is bound to emerge. The troubles which may arise in sick heating systems may be grouped under a series of heading, the initials of which make a useful mnemonic—SIOUX, a species of Red Indian.

Ten

Here are the headings:—

- Selection
- Installation
- Operation
- Updraught

The "X"? Well, that completes the mnemonic and it is also a reminder of the "unknown factor" that so often crops up. Trouble-chasing really is made easier if these possibilities are eliminated one by one; obviously the last heading is the most difficult.

Selection troubles are nearly always the installer's fault; choosing the wrong size boiler or pump are among the more obvious ones. Slightly less obvious ones which I have encountered included fitting a pressure jet boiler in a kitchen below the bedroom of a musician with the acute hearing associated with his profession; and the elderly, semi-crippled couple who were provided with a large solid fuel boiler, hopper fed at that! Since selection is a function of design, errors in design may be included under this heading. The list of possibilities here is endless; recently I encountered a two-pipe system with the distribution pipes by-passing the radiators which they served, thus reducing the circulating pressure available. On the same job the cold feed was connected on the opposite side of the pump from the vent; this caused a waterfall effect from the vent. This in turn aerated the water, which in turn promoted corrosion within the system. Everyone has their own stories!

Installation troubles may be anything, from leaks in soldered joints caused by cleaning the tube with

emery paper instead of steel wool, to dirty fingerprints on fresh paintwork. Either is equally the installer's fault; and one might as well admit it. Usually these are the easiest faults to locate.

Operation troubles, due to the way the system is used, may require some tactful explanation to the customer. There was the lady with a gas boiler; the thermostat dial was only calibrated down to 120 degrees F so she had marked on her own scale down to 90! That job started as a leak behind the boiler, in fact there was condensate dripping from the flue. Then there are the people who can never get the full output from a solid fuel boiler because they have never learned to clear the ash properly. The point here is this: no-one tells you about operating faults—you have to ask.

Updraught was dealt with briefly last month; maybe the commonest fault here is the appliance that is hermetically sealed from outside. A flue has two ends, top and bottom, and both must communicate with the outside air.

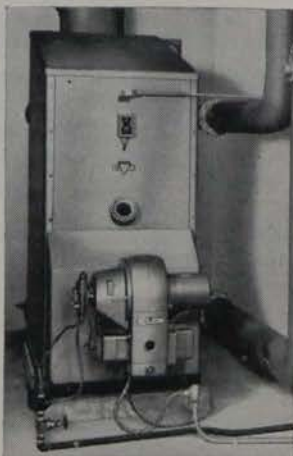


Finally there is the unknown factor. I don't really believe in leprachauns but sometimes one wonders. This is where the Sherlock Holmes approach really helps; fortunately if one works through the other four items first it is not usually necessary to go this far. There are one or two "X" factors that stick in my memory; for example there was the lady whose husband gave her a heat storage

Continued page twelve.

Upps! Last month we advised that this W.J.R. Couchman series was concluded while, in fact, his finale was still to come. So, here it is—definitely the last article in the series!

home or hotel



THERE'S A TRIANCO BOILER FOR EVERY TYPE OF BUILDING



When it comes to oil fired or solid fuel heating, Trianco are the most versatile people in the industry. A quick study of recent Trianco installations will prove the point. These installations range from homes to hotels to hospitals to multi-storey office blocks ... and all are operating automatically at peak efficiency with maximum economy and minimum labour. Trianco standards are high. Very high. No wonder Trianco

boilers are being recommended by more and more Architects, Heating Engineers and people who understand custom-built, trouble-free craftsmanship. You will want to consider Trianco for your clients, too. That's why we suggest that you send for full details and specifications.

Write to:

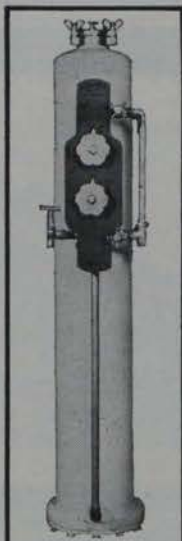
Heatovent Supply Company, 379 Sth. Circular Road, Rialto, Dublin, 8. 'Phone: 53029.
 Thomas Heiton & Co. Ltd., 18 Westmoreland Street, Dublin 2.
 Baxendale & Co. Ltd., Capel Street, P.O. Box 56, Dublin.



Trianco Boilers:
 Solid Fuel from 55,000 B.t.u. to 2 million B.t.u.
 Oil Fired from 75,000 B.t.u. to 3 million.

More and more house-owners want softened water... ...and filtered water —so specify these **BERKEFELD** models

There's a special pleasure in using soft water. The best softeners for all domestic needs are British Berkefeld Mains Softeners filled with 'Amberlite', an extremely high capacity resin, and (most important this) coated inside with plastic for protection against salt corrosion, thus making them 'long-life' models. Easy to instal and maintain. In mild steel with cream cellulose finish. Capacities 650-2,500 gals. between regenerations. Price from £50. ▶



Whenever there's the least doubt about the water supply, a Berkefeld Sterasyl filter is needed. It is the only type fitted with the unique Sterasyl candle, which not only traps water-borne disease germs, but destroys them. Pattern HN (illustrated) is in brass chromium plated, complete with taps and fittings £7.10.0. ▶



Industrial models of both water softeners and filters also available.

MODERN WATER TREATMENT CALLS FOR

BERKEFELD

British Berkefeld Filters Ltd.

Dept. 244, Cannon Lane, Tonbridge, Kent, England · Tel: 2255

In Dublin: G. Reid, 16 Fade Street, Tel: 76009.

domestic installation

from page eleven.

cooker. She did not want it, and deliberately simulated a fault—lack of hot water—so that her husband would replace it with a mink coat or whatever.

Perhaps my best "X" factor was the retired Colonel (and this is quite true) who complained that a room thermostat was "loosely fixed and waving about." This was in a dark, low corridor, lit by a hanging lamp with a patterned glass shade. The thermostat was properly fixed, but in stepping back from it I caught the lamp with my head. It swung—and a pattern of light moved over the offending fitting. I believe it was rather late in the evening when my customer noticed the original fault . . .

Of course there is often an element of humour in trouble-chasing but one can only afford to be light-hearted if the customer is equally happy. The quickest way to this end is an absolutely methodical approach, examining and rejecting possibilities one by one until the solution is reached and the problem dealt with.

And now I must thank my readers who have remained with me; may your sins grow ever less deadly!



● Mr. H. E. Hassett (pictured here), Managing Director of B.S.A. Harford Pumps Limited (Cockfosters, Herts), has been appointed Managing Director of the manufacturing unit, B.S.A. Harford Heating Limited (Sparkbrook, Birmingham). This unit, with the Cock-

fosters Company, forms the B.S.A. Group's central heating organisation.

As a result of a re-organisation within the B.S.A. Harford Pumps Sales Division, Mr. Ron Harrison, Sales Director, has assumed overall responsibility for both export and home sales.

AN CHEARD-CHOMHAIRLE
(The National Apprenticeship Board).

Vacancies For Supervisors

—GRADE II

BUILDING INDUSTRY.

VACANCIES exist for not more than six Grade II. Supervisors in the trades in the building industry.

Their main duties will be to assist the Grade I Supervisor in the implementation of the apprentice training programmes laid down under the Apprenticeship Act, 1959, for the building trades, which include the trades of Brick and Stonelayer, Carpenter and Joiner, Glazier, Painter and Decorator, Plasterer, Plumber, Slater and Roof-tiler, Stone-cutter, Wood-cutting Machinist.

ESSENTIAL QUALIFICATIONS:

- (a) At least eight years' practical experience (including a formal apprenticeship) in one of the trades mentioned).
- (b) Possession of appropriate technical qualifications.

DESIRABLE QUALIFICATIONS:

- (a) Experience in a supervisory or educational capacity in the industry.
- (b) Experience in the training of apprentices.
- (c) Possession of appropriate technological qualifications.

SALARY AND CONDITIONS:

£750 x £35 to £1,345 per annum.

The posts will be full-time and pensionable.

Entry to the salary scale may be at any point up to the maximum depending on experience and qualifications.

Supervisors will be based in Dublin City or in one of the larger provincial centres and will be required to travel extensively throughout the area assigned to them.

Candidates may be called for interview by a Selection Board.

Application Forms, etc., may be obtained from the Secretary, An Cheard-Chomhairle, 21 Fitzwilliam Square, Dublin, 2. The closing date for completed applications is 31st May, 1965.

Applications will be treated as confidential.

See **Sanbra Fyffe** first

for all requirements in plumbing and heating services

on the site Plumbers fit the first choice

CONEX-INSTANTOR



CONEXCEL ADAPTORS
For converting standard Conex-Instantor Type 'A' fittings for use with soft temper Under-ground Copper Tube to B.S. 1386.



COMPRESSION COUPLINGS
For use with Irish Domestic Copper Pipe and Polythene Tubes: Low Density to B.S. 1972, and High Density to B.S. 3284.

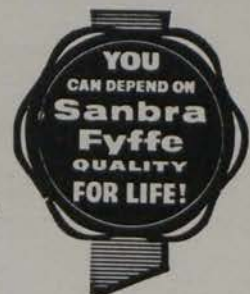


'POLYDAPTORS'
Low Density Polythene to B.S. 1972 and High Density Tube to B.S. 3284 are easily and quickly jointed by replacing the compression ring with the 'Polydaptor' and using the flanged insert appropriate to the tube being used.

SANBRA FYFFE PRODUCTS ARE APPROVED BY THE LEADING ARCHITECTS, SURVEYORS, PLUMBERS, CONTRACTORS, GOVERNMENT DEPARTMENTS, MUNICIPAL AUTHORITIES AND WATER WORKS THROUGHOUT IRELAND.

SANBRA FYFFE LIMITED, CONEX WORKS, SANTRY AVENUE, DUBLIN 9.

Telephone: Dublin 375131 (5 lines) Telegrams: Sanbra, Dublin. Telex. 5325.





for complete dependability

Use **GF** malleable iron tube fittings always with complete confidence. Perfect threads, true malleability and great strength mean time saved in installation and long, reliable life.

GF fittings are good for your goodwill; better to begin with; best in the long run.



There are over 1,000 patterns and sizes from $\frac{1}{8}$ " to 6", black or galvanised, and every fitting is individually tested to 360 lb. p.s.i.



From your local stockist or from

LE BAS TUBE COMPANY LIMITED

24, Donegall Square Mews, Belfast.

Telephone: Belfast 22129.

In this equipment review
we take a look at new
developments in the fields
covered by this month's
special review. (All claims are
those of the manufacturers).

THE Du Bois Co. Ltd. (Britannia Street, Kings Cross, London) hope to be able to offer early next month their Black H.D. plastic trap, with outlet to take 1½" light, normal, or heavy gauge plastic waste.

The outlet will have a double socket, the lower part of which takes the two light gauges and the upper the heavy gauge. The joint is on the compression principle as for copper. Also about the same time the Company will be able to offer 1½" traps with 3" seal. Work is progressing on similar additions to the company's 1½" range, but this may take another two months or so.

* * *

A NEW pipe insulation, consisting of glass-fibre cover with flame retardant and vapour-proof jackets, is now available from Owens Corning Fibreglass International of Brussels. It can be supplied to pipes working at any temperature from minus 120 degrees F. to plus 450 degrees F., including domestic and industrial hot and cold water systems, chilled water lines in hospitals and laboratories, refrigerant lines in cold stores, and pipes carrying liquids and gases of all kinds in the chemical processing industries.

The insulation, known as Fibreglass SSL, is supplied in 3-foot lengths and in wall thicknesses of ½", ¾", 1", 1½" and 2" for IPS pipe sizes from ½" to 12 inches. It is also made available in the four smaller wall thicknesses for copper tubing sizes from ½" to 6". From Van den Bosch Ltd.

* * *

HYDRODARE tubing, the flexible polythene tubing in sizes ¼" to 2", which was introduced to this country by Unidare Limited, complies with B.S. 1972/61, as amended.

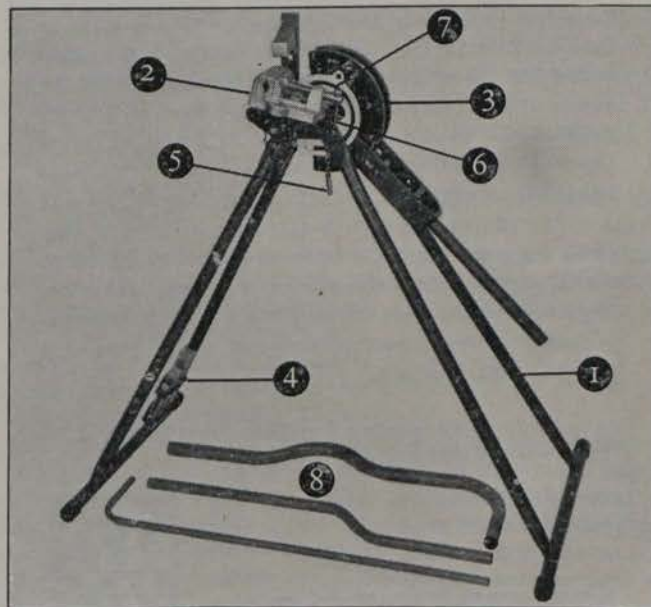
The prime use for Hydrodare is cold water service; it is excellent for distribution lines to urban dwellings and for such rural applications as water supplies to farm dwellings, outhouses and mobile troughs used with strip grazing, etc., where full advantage may be taken of the light-

Continued overleaf

check these features -

1. Robust portable stand folds up for easy transport.
2. Vice for cutting off, fitting unions, etc.
3. Precision machined Formers in high grade Mechanite.
4. Extruded alloy Guides housed in carrier to prevent damage and loss.
5. Safety Pin prevents accidents by securing Bending Lever in upright position when removing bends from machine.
6. Locating Bosses retain Bending Lever in position when changing Formers.
7. Adjustable degree of bend quadrant for repetition bending.
8. Produces good quality sets, double sets, saddle bends, etc., all to pre-determined measurements.

Only a Hilmor Machine has them all and they add up to Britain's best and biggest selling portable bender.



CAPACITY: GL.2B (illustrated) ½" to 1" BS.659 tube.
GL.3B ½" to 1½" BS.659 tube.

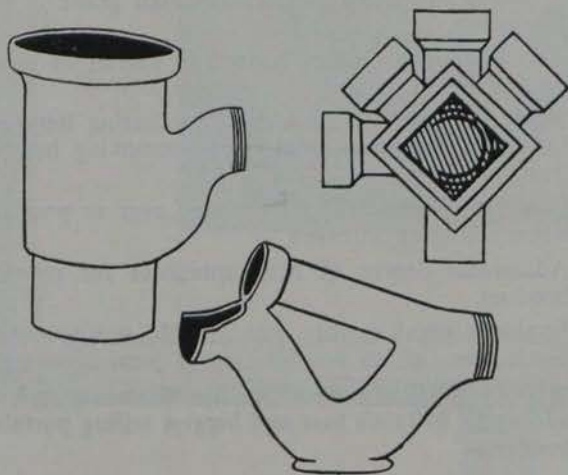
Machines with standard tools suitable for bending light gauge steel tube with same o.d. as BS.659 copper.

HILMOR LTD.
(Sales & Service)
Caxton Way,
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HILMOR
TUBE BENDING MACHINERY

time proved pipe

and fittings



Time has proved that vitrified clay is the one material that will retain its properties indefinitely. Many alternatives have been tested and have failed. But over the years vitrified clay pipe and fittings have unfailingly resisted the effects of sulphuric acid and all other chemical, corrosive and abrasive attacks. It is unsurpassed for mechanical strength. At our factory there is a long tradition in the manufacturing of vitrified clay sewer pipe and fittings, a tradition which has helped to supply top quality materials for Sewerage schemes, large or small, all over Ireland. We are the only manufacturers of the complete range of sewer pipe and fittings in the Republic.

Available at all leading Builders Providers and Hardware Merchants.

Write to-day for our catalogue and price list.



FLEMINGS' FIRECLAYS LTD.

Manufacturers of Vitrified Clay Sewer Pipe and Fittings
The Swan, Athy, Co. Kildare. Telephone: Wolfhill 3.

WILSON HARTNELL

PRODUCT REVIEW

from previous page

ness, flexibility and ease of installation of the material.

It is also used very widely on building sites throughout the country for the transit of water. An interesting innovation here is the introduction of the Polydaptor fitting, which allows normal gauge Hydrodare to be used where previously heavy gauge would have been compulsory.

* * *

THE nickel chrome cobalt tensioner on the latest Jayroc Ball Knuckle swivel joint is under even pressure during the 20/30° self-aligning movement. The complete Ball Knuckle design enables fitters to easily dismantle and reassemble the joint.

Available in sizes from ½" to 3" bore in four styles, temperature range from -°C to 230°C for standard joints, special higher temperature series to 460°C, the main components are machined from various materials including gunmetal, nodular iron, stainless steel, etc., according to the specific application. From J.R.H. Products & Co. Ltd. (Vale Road, Windsor, Berks).

* * *

An improved version of their field hand tooling lathe for use with pitch fibre pipes for underground and stack drainage systems has been introduced by the Key Engineering Co. Ltd. (Larkfield, Kent).

In addition to design modifications the price has been cut. The main feature of the new model is a special cadmium plated finish which gives protection against rust. In addition the spindle has been modified to safeguard the leading threads from possible stripping or burring.

The tool will machine sleeve, or with the addition of a special cutting block, spigot and socket (rebated) joints, on all sizes of pitch fibre pipe and conduit.

* * *

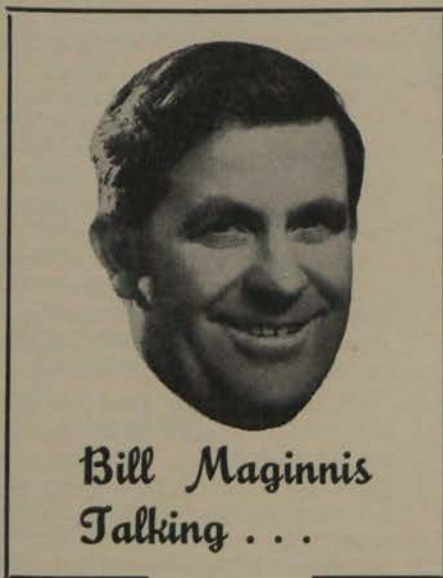
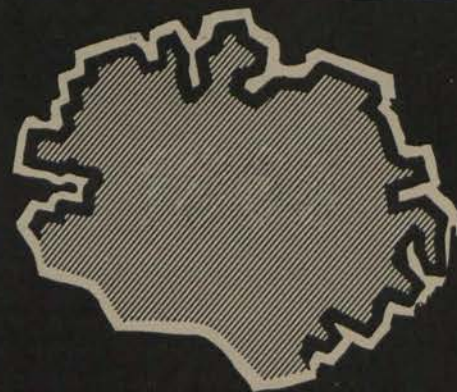
SANBRA FYFFE Limited have recently extended their range of Conex-Instantor compression couplings to include slow bends and fittings incorporating ¼" air cocks which were designed especially for use on small bore forced circulating heating systems.

A new catalogue (reference num-

SPECIAL REVIEW

Continued page twenty-five

Northern Ireland monthly review



**Bill Maginnis
Talking . . .**

IN last month's issue I was congratulating Philip Johnston on breaking into the site development business for Lobitos. Now it looks as if he will have to start all over again, as Philip has just been appointed the sales representative for Ireland, by International Boilers and Radiators Ltd. This means, of course, I shall be meeting him now as a competitor but nevertheless still as a good friend, and I wish him well in his new position.

Belfast Corporation last month officially opened new blocks of flats with warm air heating by gas and, from what I have heard of it, there seems no doubt that more of it will be used in the future, especially by the Corporation.

We all here in the North were very sad to hear the news of Musgrave & Co., as not only is it a blow to

the employment situation, but the name of Musgrave here had become a legend in the heating trade. Indeed, practically everyone employed in the trade in Northern Ireland came through the Musgrave School at some time. At the time of writing these notes, a last minute call has been made to the Government to have the payoffs suspended, and let us hope that it is successful.

The Right Hon. Lord Robens, Chairman of the National Coal Board, made one of his now frequent visits to Belfast on Tuesday, May 11, and after a quick drive to Newry to inspect the unloading facilities, etc., at the docks there, he arrived back to give a very comprehensive and interesting talk to members of the Institute of Fuel on solid fuel and the Clean Air Act. A vote of thanks to His Lordship was proposed by Mr. J. S. Kennedy, Managing Director of John Kelly Ltd., and Deputy Chairman of N.I.C.A.

The following day, at the Windsor Hotel, Belfast, Lord Robens, on the same theme, gave just as interesting a talk, when addressing members of the medical profession and local authority engineers on the Clean Air Act in Northern Ireland. I was especially interested in the fact that, until I attended this meeting, I did not know there were so many different types and grades of smokeless solid fuel available. There is no doubt that this augurs well for the future, as it will make the competition a lot livelier.

The platform party at the Windsor Hotel event included R. Cameron, Manager, N.C.B., Belfast Office; Lord Robens, Chairman N.C.B.; Sir

William Scott, Chairman, N.I.C.A.; F. Wilkinson, Marketing Director, N.C.B.; J. S. Kennedy, Deputy Chairman, N.I.C.A.

* * *

AN interesting order for a special low silhouette cross draught cooling tower has been received

**SPECIALLY
DESIGNED
TOWER** by Carter Thermal Engineering Limited (Redhill Road, Birmingham, 25) from the Pipework Engineering Division of Stewarts & Lloyds, Glasgow.

The tower, which will operate on refrigeration plant to be used by the Northern Ireland Hospital Authority at the Ulster Hospital, Dundonald, is to be of unobtrusive appearance and noise level. It will also incorporate the Durapack low pressure loss, plastic packing.

The order necessitates a specially engineered twin cell tower to meet both stringent duty requirements and certain space limitations. The Consulting Engineers are Murland & Partners, Belfast.

* * *

● **THE organisers of HEVAC 1966 report that some four months before the closing date more than 60 firms have booked exhibition space, and the space taken shows a very gratifying 15 per cent. increase on that used in 1964. HEVAC is now officially recognised by Eurovent, the European federation of air handling, treatment, conditioning and ventilation trade associations, which has approved it for 1966 and 1968.**

Show flat opens in all-gas tower block

TWO 15-storey towerblocks designed and built by the Northern Ireland Housing Trust at Woodland Drive, Rushpark, Newtownabbey, are the first multi-storey public authority housing in Northern Ireland to have an all-gas service (IPHE, Aug., '64). A show flat sponsored by the Belfast Corporation Gas Department was opened last month by Councillor R. Hart, Chairman of Newtownabbey Urban District Council.

Total square footage per floor is 3,064, allowing four flats of 600 sq. ft. area each. This has been utilised to provide a living room of 154 sq. ft., a kitchen of 70 sq. ft., and two bedrooms of 109 and 107 sq. ft., all rooms opening off an L-shaped hall.

Demonstrating their suitability in overcoming problems of fuel storage, and the disposal of combustion products in high buildings, gas space and water heating have been specified throughout. Each flat is fitted, as standard equipment, with a 23,000 B.t.u./hr. Ductair G2303 warm air central heating unit by Radiation Central Heating Ltd., and a C28SD Circulyn storage multi-point water heater by Ascot Gas Water Heaters Ltd.

The appliances are connected to common SE-Ducts passing down through each block. Increasingly employed to meet the problem of fluing in multi-storey structures, the SE-Duct reduces installation costs, increases usable floor space and allows these specially designed appliances to operate at high efficiencies. The SE-Duct also permits them to be room-sealed since combustion air is entrained, and products of combustion discharged into the one flue.

MATTHEWS & Yates Ltd. (Swin-ton, Manchester) have announced the publication of a catalogue giving full details of their new range of Cyclone air heaters for use with hot water and steam. The 38-page illustrated catalogue carries SfB and UDC classification and is of A4 size.



One of the Newtownabbey tower blocks.

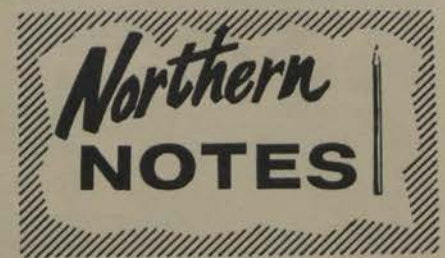
Fuel Institute appointments

MR. J. M. Dow, M.Inst.Gas E., M. Inst.F., Engineer and Manager, Belfast Corporation Gas Department, has been elected chairman of the Northern Ireland Group of the Institute of Fuel. He succeeds Mr. Savell O. Hicks, O.B.E., M.I. Mech.E., M.I.P.E., M.Inst.F., Services Director of Davidson & Company Limited, Sirocco Engineering Works, Belfast.

Other appointments were: Vice-chairman, Mr. T. S. Green, Esso Petroleum Ltd.; hon. secretary, Mr. F. R. M'Bride, John Kelly Ltd.; hon. treasurer, Mr. H. Browne, Northern Ireland Fuel Efficiency Service. Committee: Messrs. S. Hamilton (Oscar Faber & Partners), H. Harris (Hospitals Authority), R. R. Browne (British Enkalon), J. S. Kennedy (John Kelly), and S. O. Hicks (Davidson & Co.).

The special guest at the meeting was Dr. Ross, Belfast College of Technology, who announced that classes in fuel technology would commence in Belfast in September.

WHITE-RODGERS Limited (75, South Western Road, Twickenham, Middlesex) have introduced surface mounting versions of the IA65 and IA66 Electric Heat thermostats. These thermostats were originally designed for semi-flush mounting, using a conduit-box which was too deep for new construction installations where the practice has been to use plaster depth boxes.



WATER WASTAGE SOLVED IN A FLUSH!

A NEW device which will save a quarter of the domestic water consumed in cistern flushing has been launched by Valor Cisterns Ltd. (Addingham, Ikley, Yorks).

Using the device, a cistern will flush one or two gallons of water—one gallon if the handle or chain is simply depressed or two gallons if it is held down for a few seconds.

The device is incorporated in the new all-plastics Valor Super Viking Dual-Flo cistern. It will also be sold as a simple conversion kit for adapting any existing type of cistern.

The Super Viking Dual-Flo cistern is identical in appearance and costs no more than the big-selling Valor Super Viking all-plastics cistern which has been on the market for over a year. The conversions kit will retail for about £1. The Dual-Flo has been approved by the British Waterworks Association.

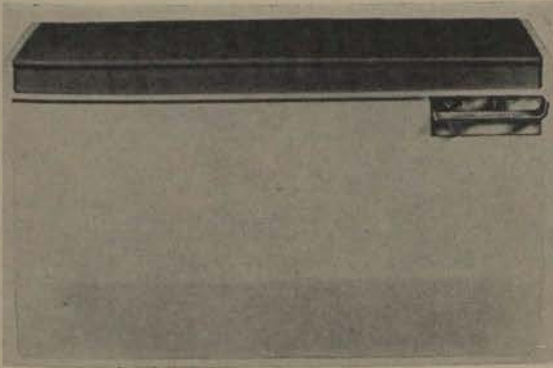
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EXPANDITE Limited, a member of the Castrol Group of Companies, and

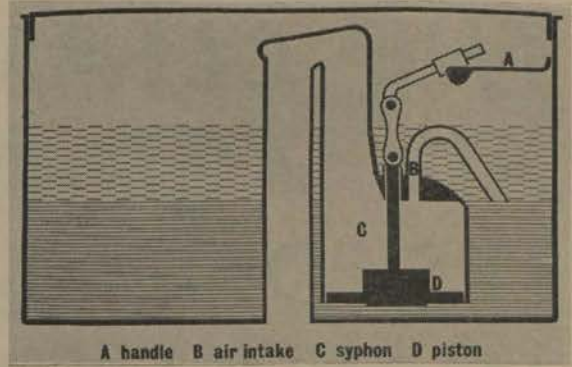
Britain's leading manufacturers of joint sealants and allied products for the building and civil engineering industries, have opened a Northern Ireland branch at 167 Antrim Road, Belfast 15.

The new branch will handle the products of Expandite Ltd., Secomas-tic Ltd., Philplug Ltd., and Expandite Glazing Compounds Ltd., all members of the Expandite Group. The products of these companies, which have been available in Northern Ireland for many years through various distributors, will continue to be available, where appropriate, through builders' merchants.

Continued opposite page



● Here is the new Valor Super Viking Dual-Flo cistern (see previous page). At right can be seen how the Dual-Flo device is designed and operated.



A handle B air intake C syphon D piston

Grayhill agents appointed

GRAYHILL Engineering Company Limited have announced the following appointments as distributors and agents:— Northern Ireland, **P. & D. MacFarlane Limited**, 53, Ridgeway Street, Belfast, 9. Republic agents, **J. R. Taylor Limited**, 379-381, South Circular Road, Rialto, Dublin, 8.

These companies are now to supply details and prices of all Grayhill Heating and Ventilating products both for direct sale and trade applications.

In 1964 orders booked at £6.2m. lifted the order book to over £10m., but a larger proportion of these orders is for long-term projects maturing in 1968, 1969 and 1970. Works output last year increased to £3.5m.

“Out put clearly should be higher than for 1964,” Mr. Maguire says, “But, because of long-term contracts, sales invoiced are unlikely to reach last year’s value of £3.2m.”

* * *

THE Universal Asbestos Manufacturing Co. Ltd. (Watford, Hertfordshire) have announced a 5 per cent. cut in the price of Aspect plastics cisterns. U.A.M. state

CISTERN PRICES REDUCED

that increasing demand for these domestic cisterns has made the reduction possible.

The polythene cold water cistern of 50 gallons actual capacity now has a list price of £6 3s.; the 25-gallon cold water cistern, £3 10s.; and the 4-gallon polypropylene expansion cistern, £1 19s. PVC lids are available at £1 15s. for the larger cold water cistern, and £1 8s. for the 25-gallon cistern.

● **MR. J. F. GEORGE** has been appointed Managing Director of **Thomas Potterton Limited**. Mr. George joined Thomas Potterton Limited as Marketing Manager at the end of 1960, and was appointed to the Board in April, 1962, as Marketing Director.

from previous page

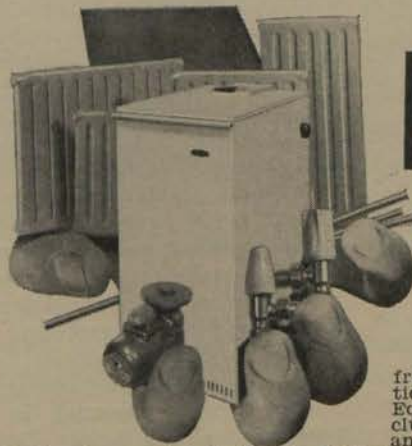
The principal advantage of the new branch will be the fact that Expandite’s own technical salesmen, backed up by the Company’s Technical Service Department, will be at the service of architects, engineers, contractors and merchants.

The manager of the new branch is **R. J. D. Crawford**. Educated at **Cole-raine A.I.**, Mr. Crawford graduated in Civil Engineering at **Queen’s University, Belfast**, and has followed for some years a career closely connected with the Building and Civil Engineering industries.

* * *

THE Davidson & Co. Chairman, **Mr. E. D. Maguire**, in his annual review reports that

DAVIDSON HAVE £10M. IN ORDERS although the orders booked during 1965 are not expected to reach the record figures of the past two years, it is anticipated that they will match the value of works output, so maintaining the order book at its present level.



can supply

from **BELFAST**, a vast selection of Central Heating Equipment and Spares, including: Oil Fired, Gas Fired and Solid Fuel Boilers, Boiler Accessories, Radiators, Radiator Valves, Tanks, Circulating Pumps, Mixing Valves, Copper and Steel Tubing, Fittings, Fire Valves, Thermostats, Time Switches, etc.

Amongst leading makes stocked are **POTTERTON BOILERS AND RADIATORS, IDEAL AND CRANE SOLID FUEL BOILERS, STELRAD RADIATORS, SATCHWELL AND DANFOSS CONTROLS, SANGAMO TIME SWITCHES, ETC.**

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Telephone: **Droitwich 2551.**

Nineteen

THE CLEAN AIR ACT AND ITS DOMESTIC IMPLICATIONS



IT is understood that the Clean Air Act (Northern Ireland) will soon be brought into operation. Under the Act, which is basically the same as the Great Britain Clean Air Act, 1956, local authorities will be empowered with the consent of the Ministry of Health and Local Government to declare Smoke Controlled Areas. In these areas it is necessary to burn authorised fuels—which are prescribed by the Ministry.

When an order for a Smoke Controlled Area is confirmed in Great Britain, there is a waiting period of six months (minimum) before the order comes into operation. During this time conversions must be made to appliances capable of burning the authorised smokeless fuels. It is anticipated that the Northern Ireland Act will be operated on similar lines.

The cost of the adaptations, which are "reasonably incurred" is recovered by the householder in part from the local authorities, and this equals 7/10ths of the conversion. (In some cases of hardship, 10/10ths is obtainable). The local authorities in turn obtain 4/7ths of their costs from the Ministry.

A breakdown of two typical examples is as follows:—

- (a) One continuous burning fire costs £7. Of this, the householder pays £2 2s. 0d., the local authorities £2 2s. 0d., and the Ministry £2 16s. 0d.
- (b) One room heater costs £40. The householder pays £12, the local authorities £12 0s. 0d., and the Ministry £16.

These are approximate costs taken from the White Paper on Clean Air Policy, December, 1963.

Adaptations to avoid contravention are as follows:—

- (a) Adapting or converting any fireplace, or
- (b) Replacing any fireplace by
 - (i) Another fireplace, or
 - (ii) Some other means of heating and cooking, or
- (c) Altering any flue or chimney which serves any fireplace, or
- (d) Providing gas or electric ignition,
- (e) Any incidental operation.

All being works which are reasonably necessary.

There will be a reasonable choice of appliances burning different fuels—but where it is considered the appliance is unsuitable because of its consumption of fuel—or it will impose undue strain on the fuel resources, then a grant will not be available.

The operation of the Act in Northern Ireland is still largely a matter of conjecture.

Gas coke suitable for open fires is still not readily available and it cannot be regarded as the main replacement for coal.

Premium open fire smokeless fuels (Coalite and Rexco) are being manufactured in larger quantities. These are excellent open fire fuels, and there is a very heavy demand in Great Britain in existing Smoke Controlled Areas. Local supplies are unlikely to increase significantly in the immediate future.

The output of the new National Coal Board open fire smokeless fuels

—"Homefire" and "Roomheat"—is rising, but once again the possibility of supplies being readily available for new local Smoke Controlled Areas is uncertain. On the other hand, there are abundant supplies of hard coke (Sunbrite) and other smokeless fuels (Anthracite, Phurnacite and coke) suitable for room heaters and closed appliances—but not suitable for open fires.

In the short term, therefore, it is reasonable to assume that Northern Ireland may well be a "Hard Coke Area" and that costs "reasonably incurred" will include room heaters, underfloor draught fires, fixed gas, fixed oil heaters and electric storage heaters.

THE costs involved have been estimated in the Ministry of Power White Paper in the table below. (These assume that all appliances provide about the same amount of room heat as 70 cwts. per year of coal burnt in an old open fire, and include hot water).

One result is certain—in all smoke controlled areas, there has been a considerable increase in business for appliance distributors, heating engineers and plumbers. It is important that this increased demand is met promptly and skilfully. The trade must be well prepared for the effects of the new Act.

Fuel.	Conversion Capital Cost.	Total Cost per week.
Open fire gas coke in continuous burning fire	.. £7 approx.	12/10
Hard Coke in room heater	.. £40	10/6
Gas Radiant Convector Fire and Circulator	.. £49	16/8
Electricity—2 block storage heaters and Immersion	.. £71	17/4
Paraffin—Fixed flue heater + Gas Circulator	.. £47	13/8

Kosangas

serves all industries with best
quality lowest priced bottled gas



Steam Cleaner



Kosangas Tanker



Roofing Equipment

- *Kosangas* service aids productivity and effects economy not only in plumbing and heating, but in numerous other industrial and domestic applications.
- *Kosangas* is widely known as Ireland's most versatile industrial fuel: a modern, clean-burning, fumeless gas of high calorific value, leaving no deposits.
- *Kosangas* service has earned a high reputation for promptness and efficiency. Skilled technicians and fitters are available.
- *Kosangas* Propane is supplied in 73 lb., 24 lb., and 11 lb. cylinders. *Kosangas* can also be delivered in bulk into customer's own storage.
- *Kosangas* technicians can provide guidance on any industrial fuel problem without obligation.
- *Kosangas* offer a HIRE SERVICE for certain equipment.

If you would like a copy of our new Leaflet of Kosangas Industrial Applications please telephone our Technical Department: Belfast 33221 or Dublin 74774/5/6/7

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McMULLANS KOSANGAS LIMITED, O'CONNELL BRIDGE HOUSE, DUBLIN 2. TELEPHONE: DUBLIN 74774/5/6/7

By



F. R. McBRIDE, A.M.I.Mech.E., M.Inst.F.

New solid fuel steam boilers

FOR some five years now steam boiler design has been more or less stabilised, particularly in the range of oil fired units. Manufacturers seem to have reached a stage in development whereby their boilers are reasonably reliable, operating at high efficiencies and their prices competitive, and the only alterations or modifications which have taken place have been things like improving accessibility to the burner for overhaul, or changes in pumps or controls.

Much must be said for this settled state of affairs because it has given us a wonderful opportunity to assess the merits of the different makes, and I think that most people will agree that at least among the major manufacturers there is little to choose between them.

During the period under review oil fired boilers have more or less become standard as package or package type. In some cases units, including the boilers, pumps, fans, etc., were completely re-designed and produced as integral units while in others the standard economic boiler was set on a cradle which also carried the ancillary equipment required for steaming.

IN carrying out the development as above there was a tendency to devote most attention to the use of fuel oil, and as a result solid fuel boilers became cumbersome in comparison. In addition many of the package boilers were just not suitable for conversion to solid fuel even if the client so desired. One or two companies did offer a solid fuel boiler as an alternative but this usually entailed buying a larger boiler than its oil fired equivalent with a corresponding increase in price.

The last couple of years have seen a change in this policy which has probably stemmed from the intense activity of the National Coal Board.

Lord Robens, the distinguished Chairman of the Board, let it be known that they intended to fight for every bit of business, both existing and new. To this end the Coal Board asked for the co-operation of the manufacturers to produce boilers which would be as efficient, easy to install, and competitive in price to those being produced for use on oil fuel.

The Coal Board engineers, in company with the development departments of the boiler manufacturers, scoured the Continent and America for ideas; the results of these visits plus those of their own research, are now bearing fruit and within the last year true solid fuel package units have started to appear and the early working installations indicate that a major breakthrough has taken place. It is proposed in this article to give a brief review of some of the solid fuel boilers which are now available.

Let us first consider the Vekos Powermaster Boiler manufactured by G.W.B. Furnaces, Ltd., of Dudley, Wores. This boiler was practically the first solid fuel fully automatic package boiler on the British market. The boiler is of three pass design with a modulation of 4 to 1. Not only does the cradle support the boiler but also the forced draught fan, feed water tank, control cabinet; at the same time a grit arrestor is incorporated within the boiler shell.

The unusual feature of the Vekos is the method of fuel intake and the grate. Fuel is drawn from a bunker by a screw conveyor, which is an integral part of the boiler and it is then deposited on the grate through a tube running through the shell and furnace crown from the top of the boiler. The manufacturers claim that the boiler can be operated for twelve hours without any attention; this we would expect is due to the retort design of the grate.

The grit which is collected drops into the tertiary air supply from where it is delivered to the combustion chamber for re-firing.

The Vekos Powermaster boiler is available both as a steam and hot water boiler over the more or less normal steam ranges. Tests have proved over a wide range of fuels and steaming capacities that efficiencies exceeding 80 per cent. are obtainable.

The John Thompson Ltd. range of Multipac oil fired boilers are well known through the length and breadth of Ireland.

TO this range has now been added a new wet back three pass modulating boiler fired by coal and yet still incorporating all the well known virtues of the better known oil fired Multipac.

The method used for firing the Coalmaster, as this boiler has been named, is the Triumph chain grate stoker manufactured also by the Thompson Group. The boiler is despatched from the works assembled on a cradle complete with stoker, control panel, fans, feed pumps, etc.

The reader must, of course, be asking what is so different between this boiler and its more traditional counterparts and the answer is to be found that for the first time the question of ash removal has been seriously approached by a boilermaker.

With the approval of the insurance companies a tube has been inserted through the shell, the waterway and into the furnace tube immediately at the rear of the grate.

Adopting this form of design has meant that the ashes drop off the rear of the stoker into a container which is sealed and which just has to be disconnected and taken to the ashpit; this eliminates handling of the ash within the boiler house.

The present range of boilers is between 2,000 and 21,000 lb./hour and

Continued page twenty-four

Twenty-two

PLUMBERS occasionally need guidance on how to install lead safes for urinals. These safes are specified when urinal stalls are fixed in positions where structural movement is expected to take place and where the seepage that may result could be both a nuisance and a possible danger to health. Where this risk exists, the provision of a lead safe may in fact be a requirement of the local authority.

When single stalls are used, instead of wall slabs, the height of the lead safe needs only to be 1ft. 6ins. from the floor level instead of up to the level of the sparge pipe.

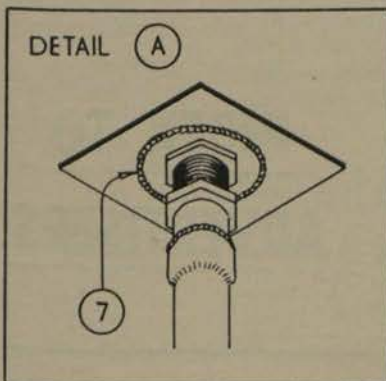
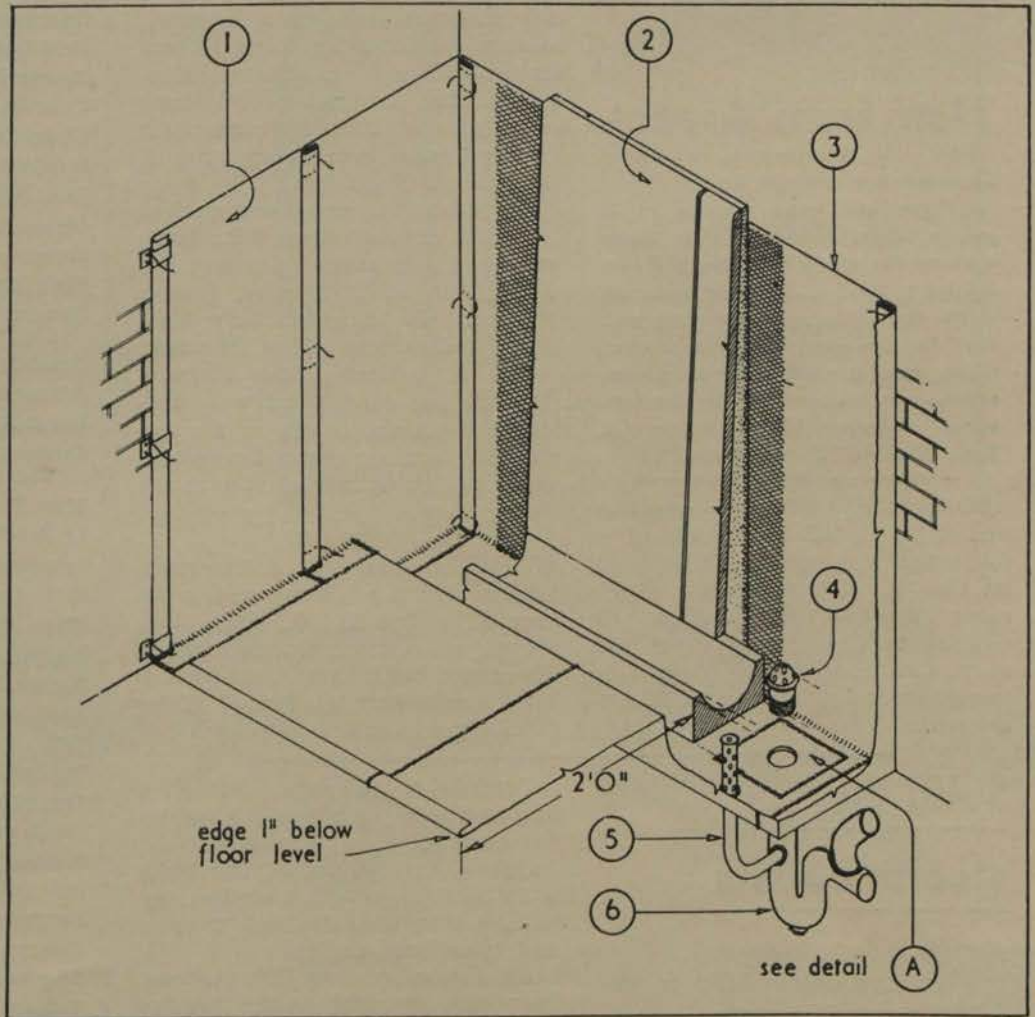
KEY TO ILLUSTRATION.

1. Lead safe formed with 5lb. lead sheet. Vertical area fixed with copper clips incorporated in double welts. Copper wire fixed with clips as fixing for expanded metal. Base fully supported, except at point of access to connect the trap, and jointed by leadburning. Surface of lead coming in contact with fresh cement rendering or concrete to be coated with bitumen.
2. Glazed urinal slabs bedded not less than 1½in. off the vertical, and 1in. from the wall at the top to allow space for plugging the bedding. Glazed fire-clay channel laid with distinct fall to outlet. End of slab to be returned.
3. Lead safe extended up wall to height of sparge pipe.

INSTALLATION OF LEAD SAFE MADE EASY

4. Outlet screwed in when trap is in position with mastic between the tray and the channel.
5. Overflow pipe to lead safe not less

- than 1in. internal diameter. Upstand in safe to be packed around with hard stone chips finishing 2in. below floor level.
6. Deep seal trap minimum 2½in. internal diameter and 3in. seal. Trap ventilating pipe, minimum 2in. internal diameter, connected at not less than 3in. nor more than 12in. from crown of trap. Joints leadburned or wiped-soldered.
7. Jam nut of outlet leadburned to piece of 5lb. lead sheet, which is then leadburned to bottom of safe.



1965 DIRECTORY OF MANUFACTURERS, AGENTS, REPRESENTATIVES AND DISTRIBUTORS

NEXT MONTH the I.P.H.E. publishes its 1965 Directory of Manufacturers, Agents, Representatives and Distributors. This unique Directory will go to all Northern Ireland I.P.H.E. subscribers. Additional copies may be ordered in advance from the publishers: Irish Trade and Technical Publications Ltd., 13-15 Dame Street, Dublin 2.



New from Aspect

PVC lids incorporating a central dome are now available for the Aspect polythene cold water cisterns of 50 gallons actual capacity. The dome obviates the possibility, when a cistern is fitted with a 7 in. diameter ball cock, of the float coming into contact with the lid. The range of Aspect cisterns, which includes a polypropylene expansion cistern, are marketed by the Universal Asbestos Manufacturing Co. Ltd., Watford, Hertfordshire.

JOHN STEVENTON & Sons Limited of Middlewich have produced an interesting new catalogue (No. 0165) on their Royal Venton range of vitreous china bathroom fixtures. In addition to illustrations of the products, the new catalogue contains specifications and dimensions relating to each.

Solid fuel steam boilers

from page twenty-two.

they are available as fully or semi-automatic boilers.

Finally we come to the boiler which has been developed by the Steam and Power Development Co. Ltd. known as the Stempo.

The all welded steel construction of this boiler combines the advantages of the better known magazine boiler.

Within the boiler is stored twelve hours supply of fuel which is distributed by an automatic feed unit on to a stepped grate. Ash falling off the grate is drawn by a screw into a container which is large enough to carry a week's ash.

Twenty-four

A PARTY of engineers from various parts of Northern Ireland this month visited the Wavin

NORTHERNERS VISIT WAVIN FACTORY

factory at Balbriggan. From Lisburn came Mr. R. M. Catherwood, Assistant Engineer to the Rural District Council. Dungannon was represented by the Council's Engineer and Assistant Engineer, as was Irvinestown, who were joined by their chairmen. The Coleraine and Portrush Joint Water Board were also represented by their Engineer and Deputy Engineer, as were the following Rural District Councils: Omagh, Enniskillen, Magherafelt and Strabane. From Derry came Mr. McMullan, Engineer to the County Council, who brought five of his colleagues with him.

On arrival the party was received by Mr. T. F. MacMahon, B.E., Chairman and Managing Director of Wavin; Mr. T. E. Murphy, Factory Manager; Mr. M. J. McCarthy, Marketing and General Sales Manager; Mr. S. A. Kennedy, Sales Manager (Ireland), and other executives. Following lunch and a tour of the factory the engineers were the special guests of Wavin on a visit to the Spring Show.

* * *

● THREE Marshall & Anderson Limited boilers are being used in the huge £1 million G.P.O. office block project at Victoria Square, Belfast. The entire boilerhouse installation is being carried out by Richard Finlay (Whitehouse) Limited.

Combustion air passes through a heat exchanger, thus ensuring smokeless combustion.

One of the features of this boiler is the wide range of fuels which are suitable from small dry slack to cokes and bituminous singles.

Efficiencies of over 80 per cent. have been obtained on the test bed and in commercial operation.

There have been many more advances in addition to those mentioned among the solid fuel boilers, but the three which we have examined are among the more recent.

Research continues and no doubt the next few years will see new developments and most likely there will be a cheap method using pulverised fuel, and the writer believes that if this could be done it would open up a whole new field of opportunity for solid fuel.

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SPECIAL REVIEW

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ber C.C.1) has been published which includes illustrations of the new fittings.

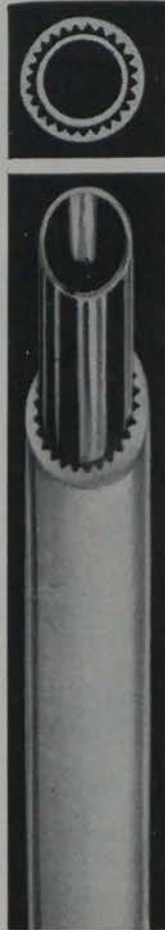
To cater for the water drive which is in full swing all over Ireland, they are now manufacturing gunmetal water main ferrules to Dublin Corporation Specification which are included in the Department of Local Government's Schedule for use on water supplies throughout the country. Low density polythene tubes in the size range $\frac{1}{2}$ " to 2" used on such schemes can be jointed without the necessity of pre-heating by using standard Conex-Instantor compression couplings and Polydaptors.

There is also a full range of Con-excel Adaptors available for jointing soft underground copper tubes to B.S. 1386/1947.

* * *

THE new Grevak Monitor patent anti-siphon trap in Hostalen (Polyethylene) is an important addition to the extensive range of Grevak traps renowned for their hygienic design and efficiency in maintaining a permanent safeguard against unsealing.

Continued overleaf



WICU TUBING

under double guard!

Doubly guarded WICU tubing is high quality copper barrel with an extruded ivory PVC ventilated sheath. See the many advanced and practical advantages that WICU tubing gives you!

- WICU tubing is doubly insulated with PVC to cut heat loss.
- It's more economical than separate pipe and lagging.
- The chemical inertness of PVC means it can be buried anywhere.
- Because WICU tubing is soft drawn, it is very easy to install.
- When WICU is concealed in walls only a break-through is required.
- WICU tubing will eliminate condensation, protect water from frost and avoid convection stains.

BE DOUBLY SURE OF DOUBLE PROTECTION WITH WICU TUBING!

For literature which gives full information write to:

L. R. WOOD, LTD.

174 PEARSE ST., DUBLIN, 2.

Quick automatic change

FROM HALF-CUT TO FULL-CUT



"48" PATTERN PATENT ADJUSTABLE RATCHET TYPE CHASER DIE STOCK

"48" Pattern Chaser Die Stock $1\frac{1}{4}$ ", 2" and 4" B.S.P. Quick automatic change from half-cut to full-cut enables threads to be formed, when required, in two operations on 2" and 4" sizes (Patented).

THOMAS CHATWIN & CO.

Victoria Works, Great Tindal Street, Birmingham, 16.

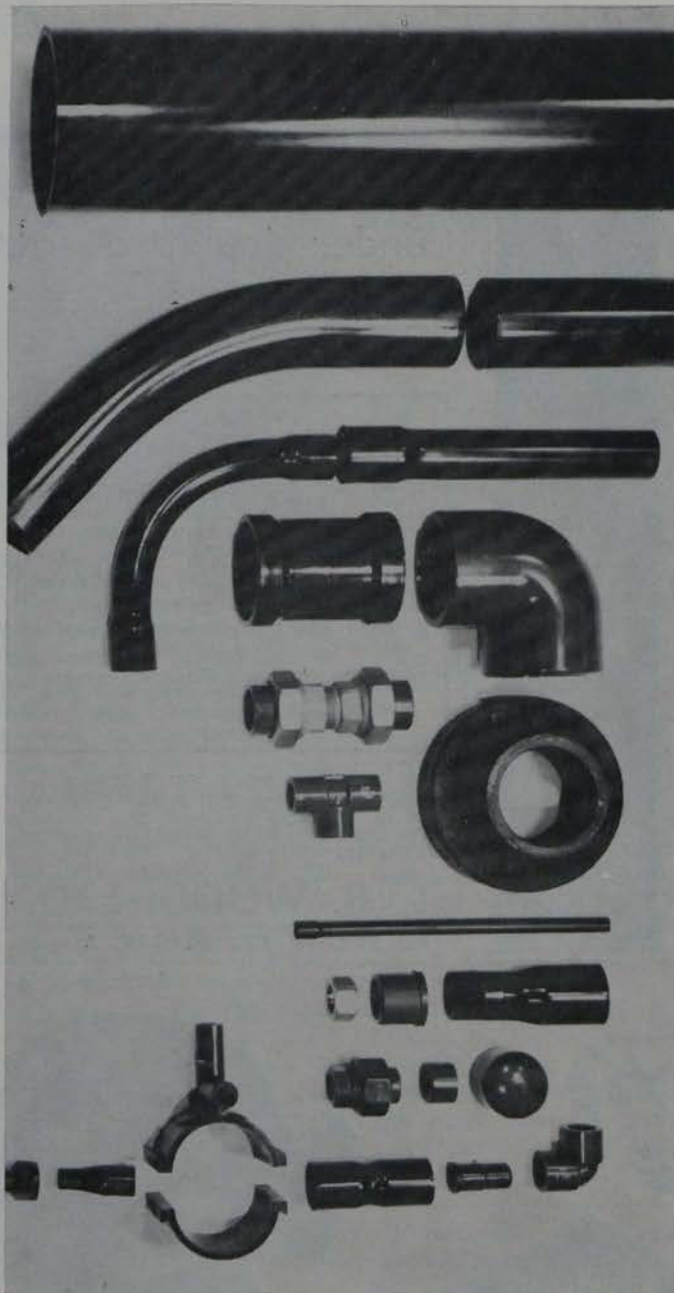
Telephone: Edgbaston 3521-3.

CHATWIN also manufacture

Stocks and Dies (Angular and Square Pattern) Pipe Cutters Stillson Pattern Pipe Wrenches Screwing Machines up to 2" (Pipe and Bolt) Stocks, Taps, Dies, Tap Wrenches in polished wooden cases

ONE OF THE **BROCKHOUSE** COMPANIES

Twenty-five



And how much would these save you?

Just a few items from Wavin's cold-water systems in Hard PVC. In all bores from 1/2 inch upwards (to 12 inches, if you need!) Lighter and cheaper than copper. Full range of precision-made couplings, bends, joints, inlets and what-have-you. All fit together in seconds with a dab of cement.

Full details from your local stockist or Wavin Pipes Limited



Wavin Pipes Ltd., Balbriggan, Co. Dublin. Tel. 212260 (5 lines)

WAVIN Hard PVC Piping / for cold water plumbing!

PRODUCT REVIEW

from previous page

Ideal for installation on every type of plumbing system, the Grevak Monitor is a high density, lightweight and attractively designed plastic trap which has undergone rigorous tests by independent inspecting and testing engineers. It incorporates maximum bore throughout and allows full cleansing discharge through the trap and waste pipe. Manufacturers are Greenwood & Hughes Ltd. (Regal House, Twickenham, Middlesex).

* * *

CARPENTER & Paterson Limited, of Welshpool and London, have announced that the complete range of pipe supporting equipment is now readily available in this country. The recent appointed representative and stockist is Thermal (Ireland) Ltd. (85 Lower Baggot Street, Dublin, 2).

Carpenter & Paterson offer three very comprehensive ranges of pipe supporting equipment comprising:
1. Fixed pipe clips "U" bolts, eyerods, rolls/chairs, etc., including malleable castings, mild steel clips, brackets and rods, also solid forged clavises, etc.
2. Variable spring hangers in travel ranges 1 1/2", 3" and 6", each range including twenty-one sizes covering ranged loads between 69lbs. and 22,325 lbs.
3. Constant supporting hangers, for use where pipe movement exists and where no variation in the supporting force is permissible, covering loads between 142 lbs. and 57,500 lbs. and travels from 1% to 16".

A complete design and drafting service is also offered covering all aspects of pipe line construction.

* * *

THE increasing use of concrete floors has posed many problems to the plumber when designing drainage systems. Traditionally rectangular baths have been fixed at different heights to accommodate different seals of traps. Where luxury baths have been installed at a low height to suit the enamelled iron panels, the trap has had to be let into the floor.

The introduction of low-height module baths has made the problem more pressing, particularly as 3" seal traps are invariably needed. It is not generally known that Bendz Ltd. have for some time had available a two-piece pattern copper trap with an elongated U inlet bend so as to permit the outlet arm to clear the end of the bath, even when fitted with combined overflow pipes.

* * *

THE R.D.S. Spring Show provided



The latest Jayroc Ball Knuckle swivel joint by J. R. H. Products & Co. Ltd. (See Review).

from previous page

an excellent "shop window" for the Stewarts & Lloyds of Ireland Ltd. range of P.V.C. pipes manufactured to the new Irish Standard IS. 123.

This display was complemented by an extensive range of flexible plastic pipes manufactured in High Density Polyethylene to B.S. 3284, Table 1—a special feature being a continuous length of 3,000 feet of 3" n.b. pipe carried on a steel drum and mounted on a four-wheeled, specially-designed trailer.

* * *

STADIUM Limited (30-36 Queensway, Enfield, Middlesex) have introduced a range of plastic balloon guards which features specially designed "tongue" legs which make them virtually impossible to be accidentally removed by birds or strong winds. Three sizes are available to fit 2½ in., 3½ in., and 4 in. diameter pipes.

The Grevak Monitor Trap in brass. (See Review).



How much is this costing you?

In time? In labour costs? In trouble and mess? Maybe you didn't know that you can replace the whole shebang with a hacksaw and a tin of Wavin cement—making a greater profit in the process? Take a look at the opposite page.

wavin

WAVIN Hard PVC Piping / for progressive plumbers



Tests Result seen in Dublin exhibit

OVER a period of years Walker, Crossweller & Co. Ltd. have, together with Ascot Gas Water Heaters Limited, received a large number of enquiries regarding the use of Leonard valves with Ascot Heaters to serve showers.

The two companies, in co-operation with several Gas Boards, have carried out extensive and prolonged tests with various types of Ascot heaters and Leonard valves. These tests proved, without any doubt, that the Leonard 3M/3 mixing valve will operate most efficiently with a wide range of Ascot heaters, and can be used to serve a single shower, or a group of two or three showers, providing the conditions laid down are adhered to.

These tests also proved that if a smaller size mixing valve is put forward for this type of application, e.g., Leonard 72 mixing valve, it will, when the temperature of the blended water delivered by the mixing valve is reduced by the partial closing of the hot water ports, tend to close the automatic valve on the gas heater and extinguish the main burner. With the Leonard 3M/3 mixing valve this back pressure is, to a great extent, eliminated, and on test a Leonard 3M/3 mixing valve, operating with an Ascot heater, had a temperature range from 118°F down to 62°F before the gas supply was closed down.

Full details of the tests are available here through Modern Plant Ltd. (Crumlin Road, Dublin 2), while an excellent opportunity of viewing a typical installation is offered in the exhibit at the Dublin Gas Company's showrooms in D'Olier Street (pictured here).

THE PARKES BRAND

MALLEABLE IRON TUBE-FITTINGS

For Gas, Oil, Water, Air and Steam Systems

G.B. PARKES Ltd.

Crown Works, Halesowen, Nr. Birmingham, England.

Individually Tested By Air Pressure Under Water and Stocked For Immediate Delivery In All Standard Sizes— $\frac{1}{8}$ "-6" inclusive

- In Black or Galvanised finish.
- A large number of reducing sizes are made for the heating trade, which eliminates the need for bushes.
- Enquiries also welcomed for M.I. Step Irons and other castings.

Agents in Republic of Ireland:

W. Finucane & Co.

5, Upper Pembroke St., Dublin, 2.

Telephone: 63634.

" 100 Years of Experience 1865 - 1965 "

Kosangas for the up-to-date plumber

Kosangas is ideal for soldering and brazing, and for making capillary joints.

JUST LOOK AT ITS ADVANTAGES

- * Kosangas is a clean burning fuel with precise control. No mess, no fuss, no pre-heating.
- * A wide range of torches are available with different size interchangeable heads: soldering heads, paint stripping heads, all with trigger control for economical operation. Gas-air torches for high temperature work are also available.
- * Versatility of equipment — fires etc. can be connected to the same cylinder.
- * Equipment changed in a moment without use of spanners due to unique Kosangas click-on safety regulator.
- * A picnic burner is available for a quick brew-up.
- * Supplies are available *everywhere* through Kosangas dealer network.
- * And the price is so economical. Normal retail prices of Kosangas are only: 73 lb. Propane . . . 45/-d; 24 lb. Propane . . . 17/-d; 11 lb. Propane . . . 11/-d. Why pay more than you need to?

industrial heating & ventilating

IN IRELAND

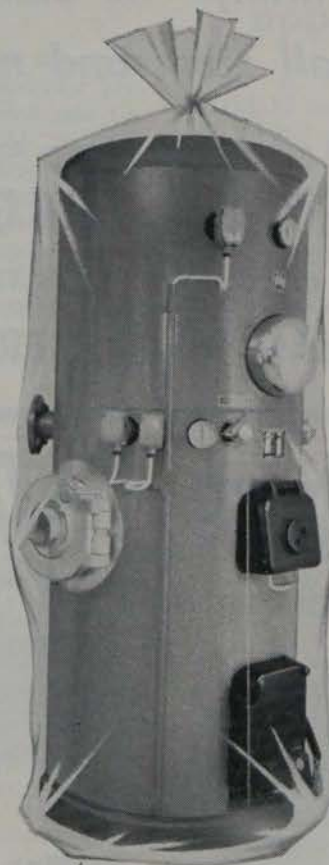


A REVOLUTIONARY system of welding which may save industry thousands a year has been invented and patented by S. & L. Stewart & Lloyds, the steel tube manufacturers.

The new method uses a flexible weld backing member the function of which is to contain the pool of molten metal and leave the reverse side of the weld smooth and free from either cavities or protrusions. This eliminates a number of costly finishing operations.

The system, evolved by the Hitchin section of the company's New Product Development Department, is known as Serbex—system for the elimination of root-bead—and its basis is a weld backing member placed behind the parts to be welded and capable of resisting the intense heat of the welding process.

Mr. G. B. Stewart, who has personally directed the research which led to the new method, said: "This is something that the engineer and the welder have been looking for for many years and marks a big step forward." Details of the Serbex system are available here from Stewarts & Lloyds of Ireland Ltd. (East Wall Road, Dublin 3).



Package deal

Hoval send complete boiler installation—you fit it and forget it!

From the moment of delivery Hoval make boiler installation fast and easy for you. All fittings arrive together, from one maker—Hoval. So there's only one set of paperwork to deal with. The calorifier is contained within the boiler! Installation can take as little as one day! Hoval guarantee all parts of their boilers, and once you've fitted a Hoval, you forget it. Your customers will soon be asking about the Hoval's 20% saving or more in running costs and greater heat capacity. Why not anticipate them?

There are 2 ranges of Hoval Boilers.

TKS (80,000—2,000,000 BTU's/hr) which can burn oil or gas—also solid fuel or combustible waste in an emergency.

TKD (400,000—4,000,000 BTU's/hr) with pressurised combustion and high efficiency. All boilers are of welded steel and compact for their capacity, actually contain the calorifier and are offered with fully automatic controls. Heating only boilers are also available. Fast delivery of all models.

Our technical advisory service is ready to assist you. Send for illustrated literature to:-

JAMES J. GLEESON,
79, O'Connell Street, Limerick.
Telephone: Limerick 45573

All boilers are manufactured at:

Hoval

The Farrar Boilerworks Limited,
Newark-on-Trent, Notts.

Twenty-nine

Thanks for Asking...



Yes, we have almost every size of cast iron heating boiler you need . . . in stock . . .

and STEEL COLUMN RADIATORS, too

(phone Jimmy – he can maybe get them out same day) in all sizes and number of sections.

Telephone 693940 and 693943. Telegrams Quadrant Dublin.

QUADRANT ENGINEERS

167 STRAND ROAD, MERRION GATES, SANDYMOUNT, DUBLIN 4.



Sole Agents for BUDERUS Boilers and Radiators

CLYDE

LIGHT OIL BURNERS



Clyde Fuel Systems manufacture a wide range of light oil burners for converting boilers from solid fuel. Illustrated is model 'Junior' which can be easily and quickly installed.

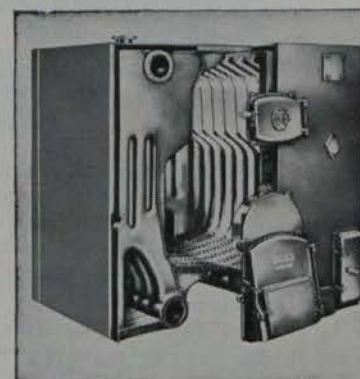
6 BRANCHES THROUGHOUT IRELAND



You can now take advantage of six service branches in Ireland. Another addition to the extensive after sales network throughout Ireland.

CLYDE tasso

CAST IRON SECTIONAL BOILERS



Clyde "TASSO" cast-iron sectional boilers are available for solid fuel, oil, or mechanical stoker firing with operating efficiencies of approximately 80%. Suitable for central heating and hot water systems with ratings from 60,000 to 2,575,000 B.T.U.'s per hour.

CLYDE FUEL SYSTEMS LTD.
80 Holywood Road, Belfast. Tel.: Belfast 65365/6.
Branch at Londonderry.

CLYDE FUEL SYSTEMS (IRELAND) LTD.
6 Mount Crescent, Dublin. Tel.: Dublin 66489.
Branches at Cork, Limerick and Longford.

Thirty

THE MINISTER for Industry and Commerce, Dr. Hillery, said in Monkstown, Co. Dublin, late last month that in Ireland there was an obvious need for a programme of study on corrosion and for unremitting efforts to create a public awareness of the need for the adoption of preventive measures.

TWO DAY CORROSION CONFERENCE

The Minister was opening a two-day conference on corrosion, organised by the Institute of Chemistry of Ireland, in the Salthill Hotel. The conference was attended by chemists and engineers from Ireland and Britain.

The realisation of the importance of corrosion prevention in the context of economic development had led a steady expansion in many countries in facilities for education and research on the subject.

The Institute for Industrial Research and Standards during the past year dealt with a number of problems on the subject from all sectors of the industry.

The annual cost of corrosion to the world had been estimated by experts at several thousand million pounds.



FOUR major cross-channel Associations in the heating and ventilating industry have agreed to produce an Official Year Book. The sponsors are: Heating and Ventilating Contractors' Association; HEVAC Association (Manufacturers), Institution of Heating and Ventilating Engineers, and the Heating and Ventilating Research Association.

* * *

CASE modifications to the 6 in. disc chart temperature recorder produced by the British Rototherm Co. Ltd. now make it available in three forms—as a portable instrument, with a front flange for panel mounting, or with four fixing lugs for wall mounting, all in die-cast aluminium cases. It is also suitable for general industrial purposes. Republic agents: Rototherm Precision & Instrument Co. Ltd.



MR. J. V. B. TIGHE, B.E., M.I.C.E.I.

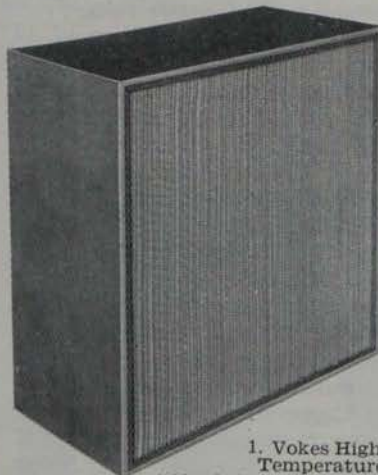
A. H. Masser appointment

MR. J. V. B. TIGHE, B.E., M.I.C.E.I., has been appointed technical adviser to Messrs. A. H. Masser Limited on the development of the stone-vapor boiler for the Irish market.

Mr. Tighe was Dublin branch manager of Irish Shell and BP Limited until the beginning of this year, when he retired after over 35 years' service.

Where purity is essential . . . install

VOKES 'ABSOLUTE' AIR FILTERS

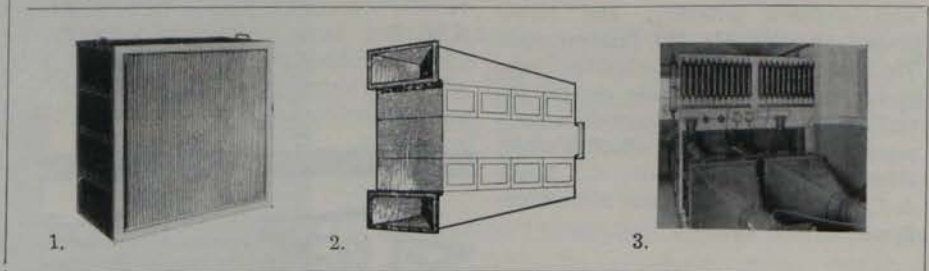


Vokes 'Absolute' air filters were developed for use in nuclear energy applications where inefficient filtration could lead to hazardous conditions for both equipment and personnel. Their outstanding performance (99.95% efficiency against particles in the 0.1-0.5 micron range) has quickly led to their adoption by laboratories, food processing plants, etc.—In fact, wherever a need for super efficiency filtration exists. For further information please write for catalogue HJ.

Variants of the 'Absolute' filter include High Temperature High Humidity, and Acid Resistant types—all with a guaranteed efficiency of 99.99% against sub-micronic particles. 'Absolute' filters are available as canister types using an all welded canister assembled between headers, and Vokes can also supply 'UNIPAK' systems for housing several panels in easily-serviced, space-saving units.

Vokes 'Absolute' filters are tested in accordance with BSS.2831 on a methylene blue test rig. Every filter is subjected to a stream of air containing particles of methylene blue 'dust' ranging in size from 0.1 to 0.5 microns, and rejected if its efficiency is less than 99.95%. Vokes is the only British company to guarantee minimum performance figures in this way and Vokes filters are therefore widely used in all applications which require scientific filtration.

1. Vokes High Temperature 'Absolute' filter. To withstand temperatures up to 1000° F.
2. Vokes 'UNIPAK' system, available in many different sizes for a wide range of air volumes.
3. The methylene blue test rig at Henley Park, headquarters of the Vokes Group.



Comprehensive literature covering all Vokes filters is available on request from the Sole Agents:

THE LEINSTER ENGINEERING CO. LTD.

158-159 Church Street, Dublin. Phone 777093/4.



Thirty-one



MONTHLY SPECIAL REVIEW

AIR CONDITIONING,
REFRIGERATION,
VENTILATING, DUCTING.

IN THE Nu-aire filter ventilator, the very latest type of filtration element, plastic and washable, is employed, and is available in standard or fine-screen texture. In this unit, which incorporates draught-proof shutter, the directional grille can be rotated to deflect incoming air upwards, downwards or sideways as required.

The motor is totally enclosed and is non-reversible. A four-speed remote control is available as an optional extra. The manufacturers are Tack Industries Ltd., Longmoore Street, London, who are represented in Ireland by Mr. William O'Brien, Pan-Aer Sales Ltd. (12 Lower Mount Street, Dublin).

* * *

The Thermor extractair canopy ventilator can be fixed to an air duct, to a chimney which is out of use, to an outer wall or to a ceiling. If possible it should be mounted near the source of smells, or vapours. The outlet has a diameter of 4 7/16" (113mm.). If the opening in the wall is not brick lined it is recommended that a stovepipe collar of a corresponding diameter be installed. A balance shutter to prevent back draught is provided. A neat speed regulator switch is available is required.

Also available from the same manufacturers, Thermor Electrical Appliances Ltd. (Madison House, Molesey Avenue, West Molesey, Surrey) are the Kleear ventilating fans. The Thermor popular model is primarily designed to be quickly and easily sitted to a window. It can be fitted to a wall without difficulty, and fixing plates are available for this purpose. The smooth running induction type motor cannot cause radio or TV interference, and is contained in a one-piece dustproof housing which is easily cleaned. Sole distributors: C. Nolan & Co. (Parker Hill, Lower Rathmines Road, Dublin 6).

* * *

A NEW range of mixing boxes for use with high velocity, dual duct air conditioning systems has been intro-

Thirty-two

IN this equipment review we take a look at new developments in the fields covered by this special review. (All claims are those of the manufacturers).

duced by Thermotank Ltd. (Helen Street, Govan, Glasgow). The boxes are designed for mixing warm and cold air according to the varying requirements of the accommodation served, maintaining a constant volume of supply air in all conditions.

Known as Thermotank Convomatic Thermo-Reg Units, they are designed for ceiling mounting and are manufactured from 18 s.w.g. zinc coated, mild steel sheet. A one-inch thick thermal and acoustic lining is incorporated and all lining surfaces exposed to air velocity are specially treated to prevent erosion.

* * *

DUE to the ever increasing demand for Trox extruded aluminium registers and grilles, Mr. J. E. Jordan, Managing Director of Trox Brothers Limited, announced that a new factory has been opened in Enfield, Middlesex, which will enable delivery periods to be reduced to two weeks.

From June 14 next the existing offices at 238-240 Bethnal Green will be: Trox Brothers Limited, Lyon Industrial Estate, Enfield, Middlesex.

* * *

VAN den Bosch Ltd. (Europair House, Alexandra Road, Wimbledon, S.W.19) have introduced Owens-Corning Fibreglas Type VCRF Board, which is extremely tough and rigid with a density of 5 lbs. per cu. ft.



Due to pressure on space this month the special introductory article to this Review has been held over to the July issue.

This additional density of VCRF Board gives extra rigidity and renders Fibreglas Duct System, even more suitable for installation as large ducts. It also provides superior thermal efficiency. In all other respects, the new VCRF, known as the Industrial Duct System, is similar to Owens-Corning 90A and 90B Boards, which have already proved so successful in this country.

* * *

COPPERAD Ltd. have introduced Ductline, a continuous run induction system. Ductline is designed to be installed as a continuous casing, complete with ductwork, heat exchanger, etc., along the perimeter of the building. This method ensures continuous and even air conditioning within the room in question.

Coppered Ductline is available in two styles—Ductline 23 and Ductline 16. Ductline 23 is 23 ins. high and 6 ins. deep.

Coppered Ductline contains its own distributing air duct and water pipework. A single duct and pipe riser can serve a perimeter length of 60 ft. or more, i.e., 30 ft. each side.

Primary air volumes of up to 12 cfm. per foot run can be distributed, with a duct pressure of less than 2 in. w.g. and total thermal extraction of 1,100 B.t.u./h.ft. run can be achieved even with chilled water and primary air at 54°F., and a room condition of 75°F. D.B. 50% R.H. In winter a duty of 4,000 B.t.u./hr./ft. run can be obtained on LTHW at 160°F. mean and a room temperature of 65°F. This is in excess of normal requirements and lower water temperature would usually be employed.

The Copperad Technical Representative for Northern Ireland is Mr. K. R. Morrow, 7 Beechill Park South, Belfast 8. Republic of Ireland enquiries to British Steam Specialties Ltd., 33 Leeson Park, Dublin 6.

* * *

AIR Distribution Equipment Ltd. (Brentinck Road, West Drayton, Middlesex) are licencees of extruded aluminium air distribution outlets de-

Continued page thirty-four

make the atmosphere inviting

Ireland's housewives are becoming increasingly conscious of the need for XPELAIR extraction fans in their kitchens and homes.

- ★ Easy to fit.
- ★ Good to look at.
- ★ Keeps the atmosphere fresh and inviting.
- ★ Features include, inbuilt back-draught prevention iris shutter and switch. Both interlocked and operated by nylon pull-cords.
- ★ Large models to suit offices, restaurants, bars, etc. Retail price from £9.18.0.



XPELAIR

THE GENERAL ELECTRIC CO. OF IRELAND LTD.

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cold houses

& hot houses

An igloo or mud hut? Not likely. But in case the impossible happens, you can rely on Aerobord to turn client's folly into a haven of comfort. Aerobord, the **versatile** featherlight insulating material that makes civilised places habitable. And clients happy.

FACTS ABOUT AEROBORD: As thermal insulation 1" thickness of Aerobord is equivalent to: 1.2" glass wool, 1.25" cork slab, 1.5" mineral wool, 1.8" softboard, 2.25" vermiculite, 2.5" wood wool cement slab, 3" straw-board, 3.5" asbestos insulating board, 6" vermiculite plaster, 40" brickwork, 50" concrete.

Manufactured in Ireland by

SOUTHERN CHEMICALS LIMITED, ASKEATON

AEROBORD



The Irish Plumbing and Heating Engineer.

SPECIAL REVIEW

from page thirty-two.

signed by Titus Manufacturing Corporation, of the U.S.

The company's products have recently been employed in contracts at Queen's University, the new Abbey Theatre project, Carreras, N.I., the new flax spinning mills at Ballybofey, and a number of other important contracts both North and South.

* * *

An important new development from the London Fan and Motor Company Ltd. has been the introduction of their Continuous Temperature Control Unit, designed for continuous and infinite control of ventilation down as far as 10 per cent. of the maximum fan capacity, whilst maintaining a constant temperature within the building.

Each fan is provided with its own set of by-pass shutters which are linked to a control motor which in turn responds to a sensitive thermostat in the building. As the fan shutters close off the extraction rate of air from within the building, they open a by-pass duct which allows air from outside the building to enter the fan chamber and be passed straight out again.

The unit is designed to allow 10 per cent. of the fan capacity to be extracted from the building even when the shutters are in closed position.

A unit has been installed by the manufacturer's agent in Northern Ireland, Messrs. MacMillan of Crossgar Ltd. (Crossgar, Belfast) in one of their broiler houses.

* * *

THE latest development in the Worthington range of equipment from the Lightfoot Refrigeration Co. Ltd. (Wembley, Middlesex) is the introduction of a six-row cooling unit in the Ultra-flex air handling unit. This design of coil enables larger proportions of fresh air to be introduced to the air distribution system. This was not previously possible with standard units using direct refrigeration cooling which is the most economical method of air cooling for comfort conditioning.

Self-contained packaged air conditioning units can be supplied, using water-cooled or air-cooled condensers, but the manufacturers feel that the provision of the air handling unit only in the area to be conditioned has

many advantages. The unit takes up less space than a self-contained model. The actual refrigeration machinery is remote and can be more conveniently maintained and serviced. A multiplicity of duties is afforded by combining twelve different air handling units with nine different condensing units.

The equipment is handled in Ireland by the associate company, Lightfoot Refrigeration (Ireland) Ltd. (121 St. Stephen's Green, Dublin).

* * *

KEITH Blackman Ltd. (Mill Mead Road, London) have recently introduced their Conomat-X automatic roll type filter. It is an entirely new type

of filter for heating, ventilating, and air conditioning applications, employing an exclusive, long-life filter medium giving up to 94 per cent. efficiency with a dust holding capacity of 125 grams/sq. ft.

It presents a three-sided filter "face" to the incoming air and handles thereby 50 per cent. more air volume than some conventional filters. Yet it is smaller and more compact. The Conomat-X is supplied as a single or double-deck unit to suit plant room space. The single horizontal type is ideal if headroom is restricted.

Straightforward design principles are employed throughout to simplify

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and Tedcastle - McCormick & Co. Ltd.,
have pleasure in announcing the
formation of -*

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(Ireland) Ltd.,**

*who will offer full heating, ventilating and
air conditioning services from their new
Dublin office at -*

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Telephone
73871





● This is the Biddle Dehumidifier. It is 27" high, 15" wide, 20" long, weighs 105 lb. and has a moisture extraction rate of up to 2.5 gallons per 24-hour period. The dehumidifier is manufactured by F. H. Biddle Ltd. and is one of the many appliances in their range of air treatment equipment.

installation, minimise maintenance, reduce costs and afford prompt delivery. The whole range is twice-enamelled to give extra durable finish. The range has air handling capacities from 10,500 to 88,000 c.f.b.

* * *

THE General Electric Co. of Ireland Ltd. represent Woods of Colchester Ltd. in Ireland. One of the world's leading manufacturers of ventilation equipment and fans, their best known product is probably the range of Xpelair extractor fans.

Xpelair Fans—Beautifully designed and engineered, these extractor fans have a tremendous range of uses. Xpelair fans are available ex stock from G.E.C. and the range extends from the domestic Xpelair extractor fans of 6", 9", and 12" diameter



● The Thermor Kleenair fan. (See Review).

ELECTRICITY SUPPLY BOARD

IMPORTANT NOTICE TO BUILDING AND CIVIL ENGINEERING CONTRACTORS

The attention of building and civil engineering contractors and all others concerned is drawn to the danger of fatal accidents when carrying out work in the proximity of E.S.B. overhead lines and underground cables.

OVERHEAD LINES

The use of cranes, excavators, hoists, drilling rigs and scaffolding near live overhead lines involves the risk of electrocution. Take no risks; ensure that your employees are fully informed of the danger and that they take effective measures to maintain a safe working distance. If, however, it is essential to use such equipment near overhead lines, the nearest E.S.B. office should be asked to make arrangements to enable the work to be carried out safely. There will be no unreasonable delay in making the lines safe and in general this will be done at no cost to the contractor.

UNDERGROUND CABLES

Serious danger to life exists where any excavation work as for foundations for buildings or trenches for pipe-lines is carried out near E.S.B. underground cables. The nearest E.S.B. office will, on request, advise on the location of cables and will make any necessary arrangements to enable the work to proceed in safety.

SPECIAL REVIEW

from previous page

window fans to special application fans such as the 9" built-in wall fan and darkroom or roof mounting cowl fitted fans.

Propeller Fans—G.E.C. have a range varying from 7½" to 60" in diameter, all fitted with totally enclosed motors and designed for operation in the most arduous situations. All sizes of fans are carried in stock in Dublin. Aerofoil Fans—These fans are intended basically for operation in air-conditioning systems and ductwork where relatively high pressures operate. Again, as with the Propeller Fans, they are designed for use in virtually every industrial situation. They range in blade sizes from 3.8"

up to 95" in diameter. Roof Units—These are designed for use with either propeller fans or Aerofoil fans. These units are hot dipped galvanised and designed to ensure complete weather protection. They can be coupled to a duct system or used for "free air" extract from any industrial or commercial applications.

* * *

DURING the year J. & E. Hall Ltd., whose office here is at 34 Anglesea Street, Dublin, and shortly to be transferred to Parnell Street, have introduced new compressors, evaporators and air coolers, all less costly to make, incorporating the latest design, knowledge and manufacturing techniques.

The new compressors are more compact, more efficient and are more economical to install. The range is from 5 to 400 h.p. in eleven different

sizes, 3, 4, 6, and 8 cylinders. They can be direct or vee-belt driven and are suitable for Refrigerants 12 or 22, Ammonia and other industrial gases. The evaporators are dry expansion type liquid chillers which can be used with either Refrigerants 12 or 22. They take up a fraction of the space which the conventional shell and tube fills.

Suitable for water or brine cooling, they are especially useful for packaged chilling units or for areas where space is at a premium. Control of the refrigerant to the evaporator is simple and oil recovery straight-forward.

* * *

THE well-known range of Luwa WK water chillers has now been extended by the addition of 3 and 5 h.p. sizes at the lower end of the present range, and 125 and 150 h.p. sizes at the upper end, thus making a new series of 12 sizes available.

The chillers are suitable for cooling water down to 39°F., and with part load operation, down to 35°F., and can also be applied to the cooling of various other liquids. Condenser cooling water is required at temperatures up to 104°F., and a range of suitable cooling towers is available if water from other sources cannot be found.

For heat pump application: WK chillers supply warm water of about 104-114°F. when operating with a heat source at a minimum temperature of 46°F.

As well as extending the range, all WK chillers have recently been redesigned to achieve a more compact arrangement, reduced weight and reduced refrigerant charge, at the same time giving improved accessibility for servicing and maintenance. Compressor driving motors can be supplied which have starting current factors of 3.5, 2.5, or 1.5 times normal running current.

* * *

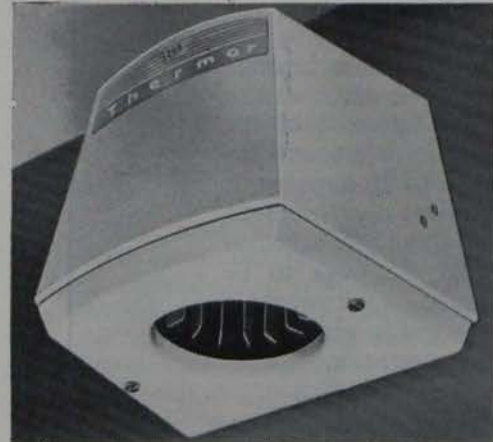
ONE of the many products from the comprehensive Vokes Ltd. air filters range is the Mark III. version of the Autoroll automatic air filter.

This appliance, which features the latest Vokes filter material, is available in three standard forms: normal flow, reverse flow, and the Manuroll hand-operated unit.

Initial efficiency is 98 per cent. In each case the effective area of filter medium is disposed between two spools, the upper spool containing the clean and lower the spoiled material.

Intermittent movement of the filter is controlled by a pressure differential switch or timer (optional). The pressure switch is normally set between 0.35 and 0.45 in w.g., but higher if fan permits. The timer is adjusted on site to suit similar conditions. Leinster Engineering Ltd. are the Vokes agents.

Thermor EXTRACTAIR CANOPY



THE ANSWER TO CONDENSATION & VENTILATION PROBLEMS!

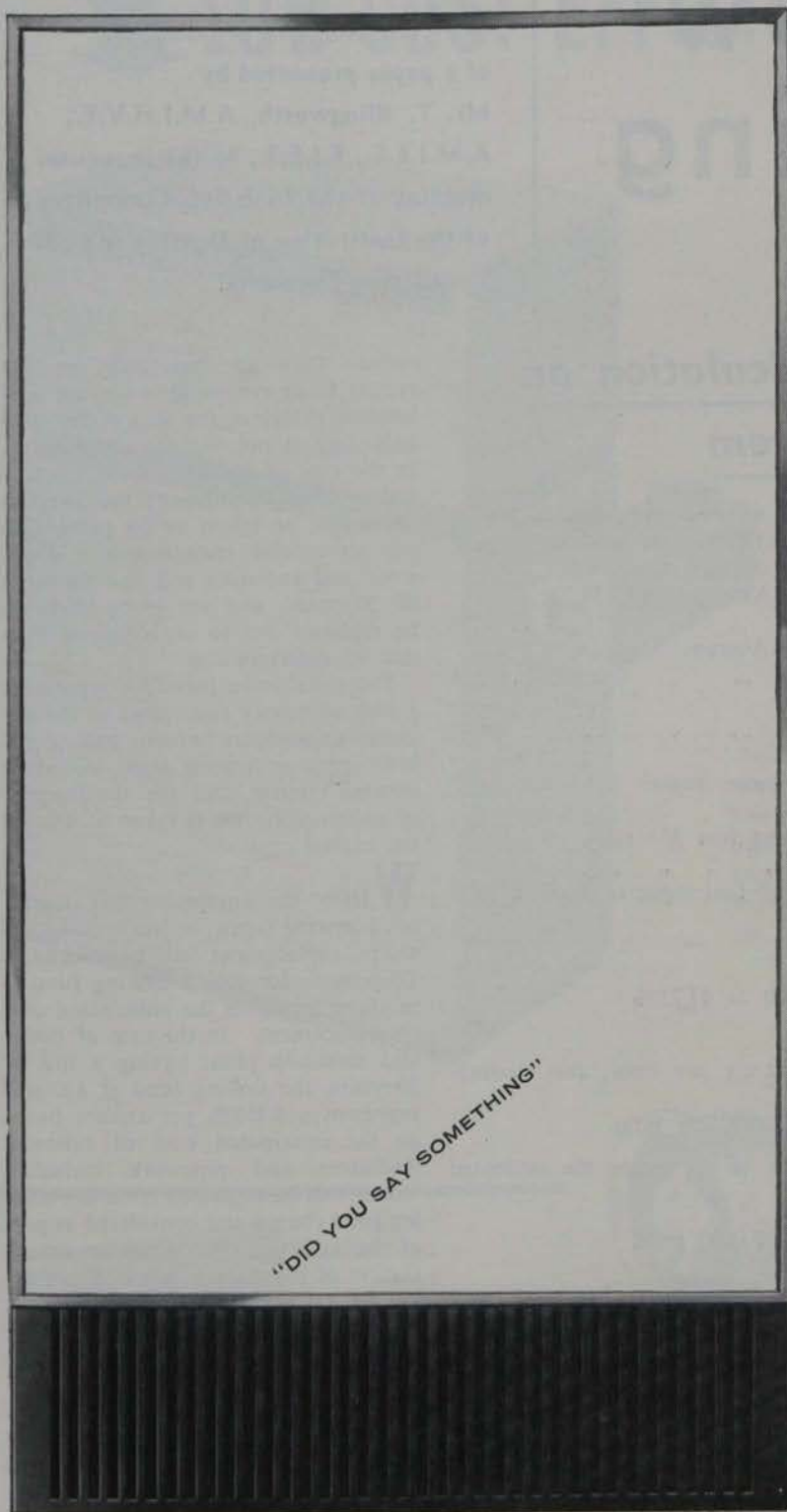
There's no better answer to condensation and ventilation problems than the Thermor Extractair Canopy Fan. It just whisks away steam and cooking odours, keeps the kitchen morning-fresh the whole day through. Just look at these features!

- ★ Size of Outlet—4½" diameter.
- ★ Air conveying capacity, 17,500 cubic feet per hour.
- ★ 60 watt induction motor.
- ★ Pliable plastic impeller.
- ★ Stylish white plastic casing (H. 8½", W. 9½", D. 7¾").
- ★ Suitable for wall, air duct or chimney fitting.
- ★ Wonderful low price.

And there's the Thermor Kleenair (the popular slim-line extraction unit) and the Thermor Kleenair De Luxe with two fan speeds for both intake and extraction.

Sole Agent for Eire: **Charles Nolan & Co.**, Parker Hill, Lower Rathmines Road, Dublin 6. Telephones 973510 & 976916.

Northern Ireland: Thermor Electrical Appliances Ltd., Madison House, Molesey Avenue, West Molesey, Surrey. Telephone: Molesey 4461/4.



Now an *automated* Capital Boiler that does everything but talk!



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The International *Capital* range of small-bore units now has even more standard and optional control features. Yet our prices/your terms remain unchanged.

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This up-to-the-minute control programmes heating and hot water separately. For the user, wonderful economy and convenience. For you, a powerful selling story.

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The Irish Plumbing and Heating Engineer.

a review of heating costs

Example of load calculation on heating system

OFFICE block occupied 5 days per week, 9 a.m.—5 p.m., heated for 34 weeks mid. September to mid. May, ° LPHW with automatic firing. Time switch and weather compensated control of flow temperature. Occupational time during season, 1360 hours. Average load, 54.7%.
 Equivalent hours at full load 744
 Heating up time during season, 425 hours. Average load, 63%.
 Equivalent hours at full load 268
 Total operational hours at full load 1,012

It is interesting to compare this with the hour degree figure of 1,000 hours per annum.

Theoretical heating required, 744 (calculated heat loss 35° rise).

Output of heating system, 1,012 (" " " " ").

At 65% average plant efficiency calorific value of fuel input is equal to 1557 full load output per hour, i.e., 1012

$$\frac{1012}{65\%}$$

Performance efficiency is therefore $\frac{774}{1557} \times 100 = 47.21\%$

Assuming a calculated heat loss of 500,000 B.t.u.'s per hour, the seasonal input to the system would be:

$$500,000 \times 1557 \text{ B.t.u.} = 778.5 \text{ Million B.t.u.}$$

With oil fuel at 18,500 B.t.u. per lb. and 3.4 lbs. to the gallon the estimated consumption would be:

$$\frac{778.5 \text{ million}}{18,500 \times 8.4} \text{ galls.} = 5,000 \text{ galls.}$$

i.e., 1/100th of the calculated heat loss, a very convenient figure to note, and one that has been proved by practice.

Results obtained by this method of calculation have been found to be substantiated by practical results on various types of installations averaged over a number of years.

THE result, however, refers only to the cost of fuel, and before it is possible to arrive at the final cost of running a heating system, it is necessary to take into account the cost factor. This may be described as the ratio between expenditure on fuel only and the total cost of operating the system, including

diture, sinking fund allowance, maintenance, the cost of operating auxiliaries and any other expenditure incidental to the operation of the system.

As a simple example of this, if the cost of fuel as purchased for a heating system represents an expenditure of £500 per annum and a similar amount is spent on boilerman's wages, then the actual cost of fuel as fired is £1,000, and the cost factor in this hypothetical case is Z.

The installation of any heating system represents a capital expenditure

We conclude here serialisation of a paper presented by Mr. T. Illingworth, A.M.I.H.V.E., A.M.I.E.E., F.I.E.S., to the inaugural meeting of the Irish Sub-Committee of the Institution of Heating and Ventilating Engineers.

rather than an investment as the system must eventually wear out and become valueless, the cost of removal balancing or outweighing scrap value. In the case of boilers, pumps, burners and auxiliary equipment the average life might be taken as 20 years subject to careful maintenance. Pipework and radiators will last upwards of 50 years, and are more likely to be replaced due to obsolescence than due to deterioration.

The installation therefore represents a sum of money equivalent to the original expenditure which, had it not been spent on heating plant, would be earning interest, and for the purpose of calculation, this is taken at 4% on the capital cost.

WHEN the equipment has depreciated beyond repair, or has become obsolete, replacement will be necessary. To provide for this, a sinking fund is required based on the anticipated cost of replacement. In the case of boiler and auxiliary plant having a life of 20 years, the sinking fund at 4% will represent a 3.358% per annum based on the anticipated cost of renewal. Radiators and pipework, including valves, can be neglected from the sinking fund charge and considered as part of the building. Allowing for depreciation of purchasing power, the sinking fund for boilers, pumps, burners, valves and auxiliary equipment should be taken on a value of twice the purchase cost, assuming that the present rate of rising costs continues. Omission to make such provision in his charges for heating services has placed many a landlord in an awkward position when boiler renewals have become necessary after a building has been in use 15 to 20 years.

Provision for maintenance can be averaged at 2% on boilers, pumps, burners and control gear, but this expenditure will vary from year to year and is difficult in practice to predict.

Continued page forty



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THE NEW GRAYHILL G. SERIES HEATERS.

G. 30 - £352 300,000 B.t.u. hr.	G. 75 - £745 750,000 B.t.u. hr.
G. 50 - £556 500,000 B.t.u. hr.	G. 100 - £892 1,000,000 B.t.u. hr.

The new series represent the latest development in the field of space heaters.

Modern and attractive in appearance the "G" series provide trouble-free heating with a high efficiency value of over 80% for all industrial purposes.

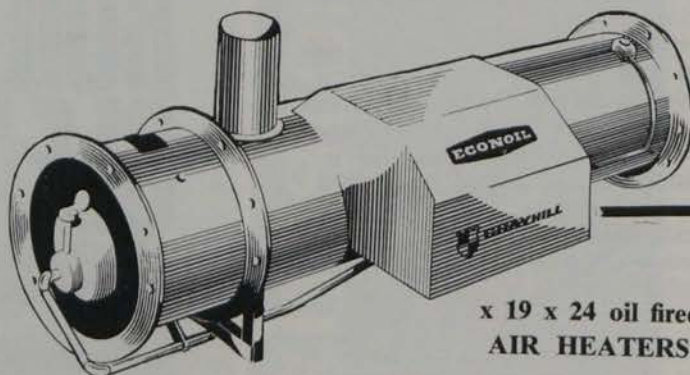
Quick and easy to install, they include single piece flue elbows, cravats and cowls in aluminium. Fully Automatic controls are supplied and fitted in accordance with the latest British Standards. Models "G" 750 and "G" 1000 are specifically designed to provide high-low operation as standard.

All models are produced with the same superb high-bake enamel finish.

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Costs reduced to a minimum by the installation of "Econoil" fully automatic "X" Range Oil-fired Air Heaters. They can be readily fixed to roof mountings, providing a generous flow of warm air in Winter and cool refreshing air in Summer. Ideal for new works buildings or extensions, workshops, office blocks, etc., or for extension of existing heating systems.

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Thirty-nine

The Irish Plumbing and Heating Engineer.

Heating costs

from page thirty-eight

Where electricity is used for the operation of auxiliaries, such as circulating pumps, oil burners, oil heaters and induced draft fans, this cost should be added to the running costs on the installation.

Regarding the question of labour cost, this is sometimes a difficult point to assess. In those cases where it is necessary to employ a boilerman solely for the stoking of a hand-fired system, then it is necessary that the full cost of the wages paid plus an allowance for social security, holiday money and similar payments should be made and debited against the cost of the heating system. The cost of labour continues to increase, and at present, at the basic rate of 5/6 per hour, amounts to a net figure of £14 6s. per week for the operation of a normal five-day per week installation allowing for overtime before 8 a.m. in the morning, and for two hours overtime on Sunday for re-lighting the boilers and banking down. Taking the heating season of 34 weeks, this represents an annual expenditure, including 13% on cost for social welfare and paid holidays of £546 per annum, or the purchase price of 55 tons of coke sufficient for the annual firing of a heating system of 450,000 B.t.u. per hour capacity for office heating five days per week. It is therefore evident that in the case of small installations the cost of labour equals or exceeds the cost of fuel, thus appreciably reducing the cost efficiency of the system, and in installations below 500,000 B.t.u.'s T.S. heating by electricity is cheaper to operate than a hand-fired solid fuel system where it is necessary to employ a full-time stoker.

IN those cases where semi-automatic plant is installed requiring intermittent attention, it is more difficult to assess the cost of labour, but in practice, it is usually found that it is not possible to dispense with labour, and that there is no change in labour charge on the adoption of such systems unless the labour can be gainfully employed during those periods when it is not engaged on boiler attendance or fuel handling either as a caretaker, messenger or in a similar capacity.

It will be noted from consideration of the above that the cost factor of

heating systems is an important factor in assessing the overall cost.

For the purpose of assessing comparative running costs it is necessary to calculate the estimated fuel consumption from the available data regarding total heat emission from the system for the maximum temperature rise, the hours of occupation, the average load from meteorological data, the heating up time and the average plant efficiency under working conditions, and to add to this the interest on capital expenditure working fund, maintenance and labour costs, together with the cost of operating such auxiliaries as oil heaters, burners and accelerators. Only by a practical consideration of all these points can a true comparison be made between the operating costs for a particular project for the various systems and fuels available.

FOLLOWING on the establishment of their new factory at Tessenderlo, Belgium, Pittsburg Corning de Belgique announce that Foamglas will be distributed here solely by Newalls Insulation & Chemical Co. Ltd. (Washington, Co. Durham).

GEORGE KENT Limited have announced that their range of Master and Torrent industrial water meters

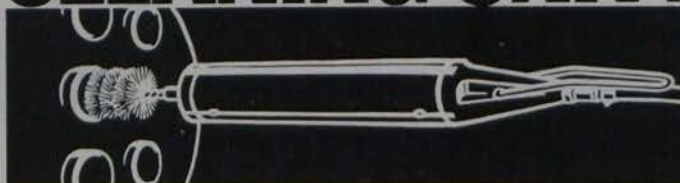
RECORDING ATTACHMENT FOR METER may now be fitted with Leeds Chart Recorders. For the

first time, it is now possible to use these direct-attachment recorders on meters having straight-reading counters with offset sweep pointers. The recorders use a base adaptor fitted directly on the meter head, and, using the appropriate base adaptor, one recorder may be used with any size of meter.

A continuous curve corresponding to rate of flow is reproduced on the chart. The total amount passed, and the rate of consumption at any particular time during a period, is permanently recorded and easily read.

The newly developed facility is a consequence of the Leeds Meter Company joining the Kent Group in 1964 and is an example from the subsequent co-ordinated development programme. Irish agent: S. W. Carty & Son, 12 Lr. Mount St., Dublin.

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- THE FERRET**
- * Cuts labour time—no manual pushing and pulling
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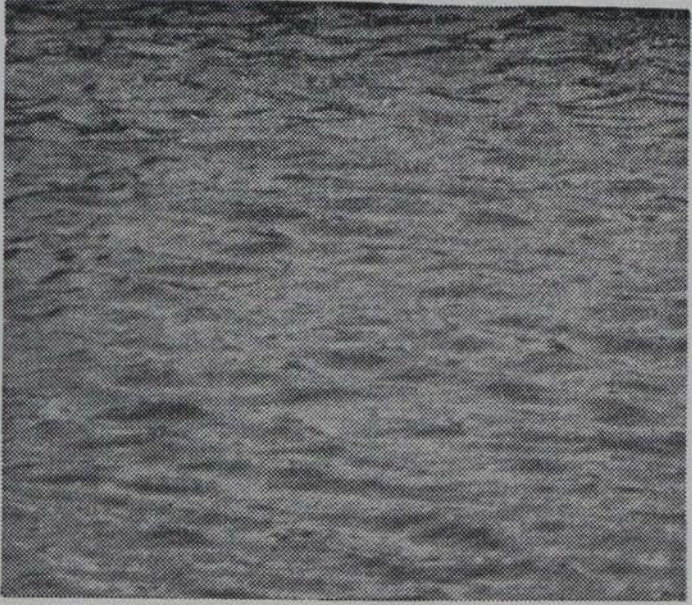
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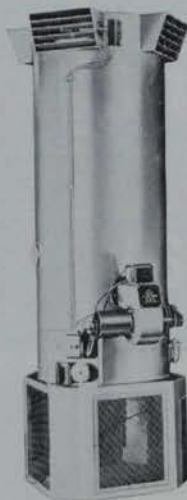
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The Supermatic Oil-Fired Wall-Flame Boiler is the most effective and the most economic central heating system available today. With more than 18 models to choose from, with capacities from 44,000 BTUs to 300,000 BTUs, the Supermatic range is the largest in Europe today.



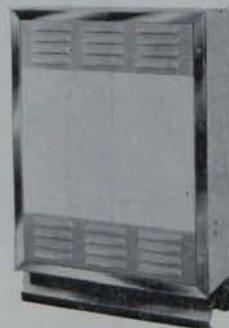
Supermatic Industrial Warm Air Heater

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