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## The Irish Plumber and Heating Contractor, November 1963 (complete issue)

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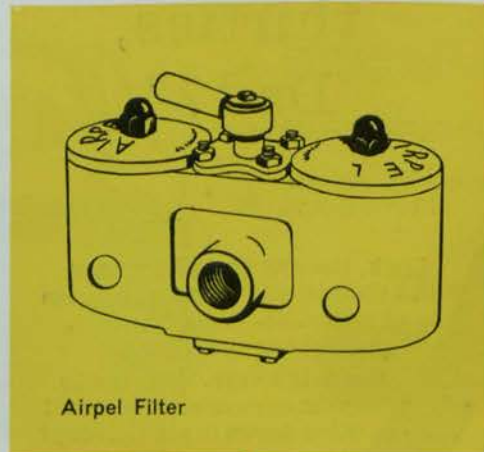
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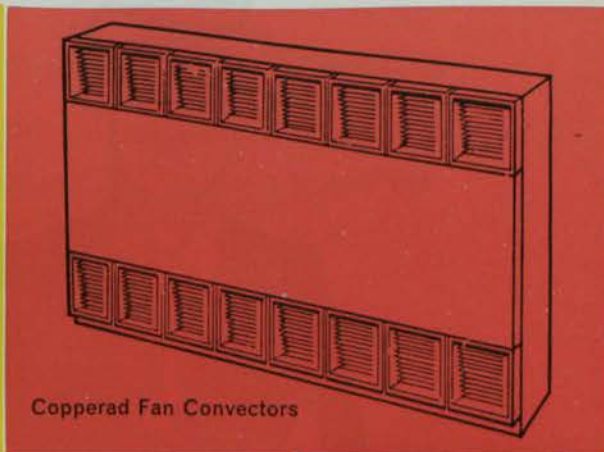
# THE IRISH PLUMBER & HEATING CONTRACTOR

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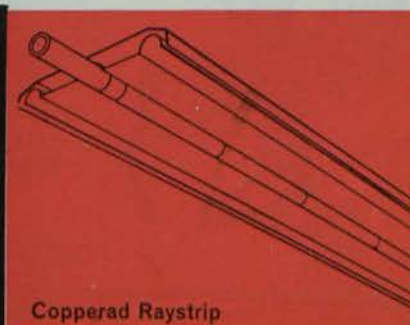


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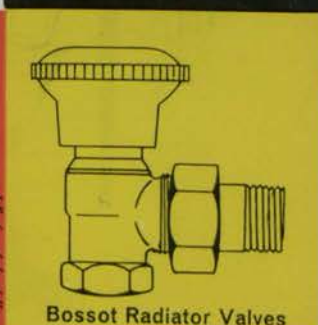


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Dublin 66961-2-3-4  
Telex 317

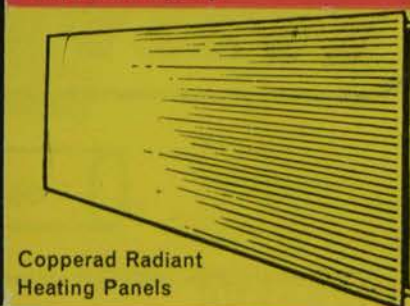
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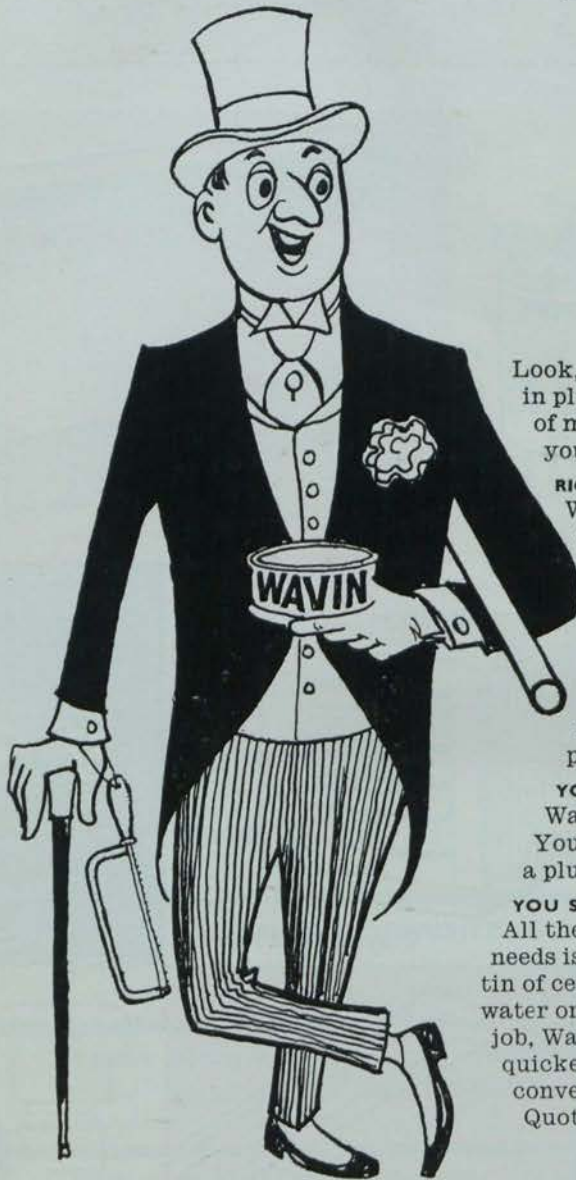


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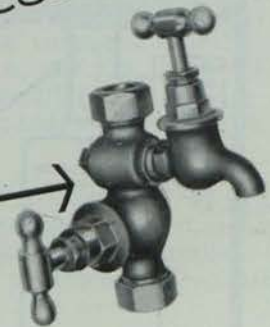
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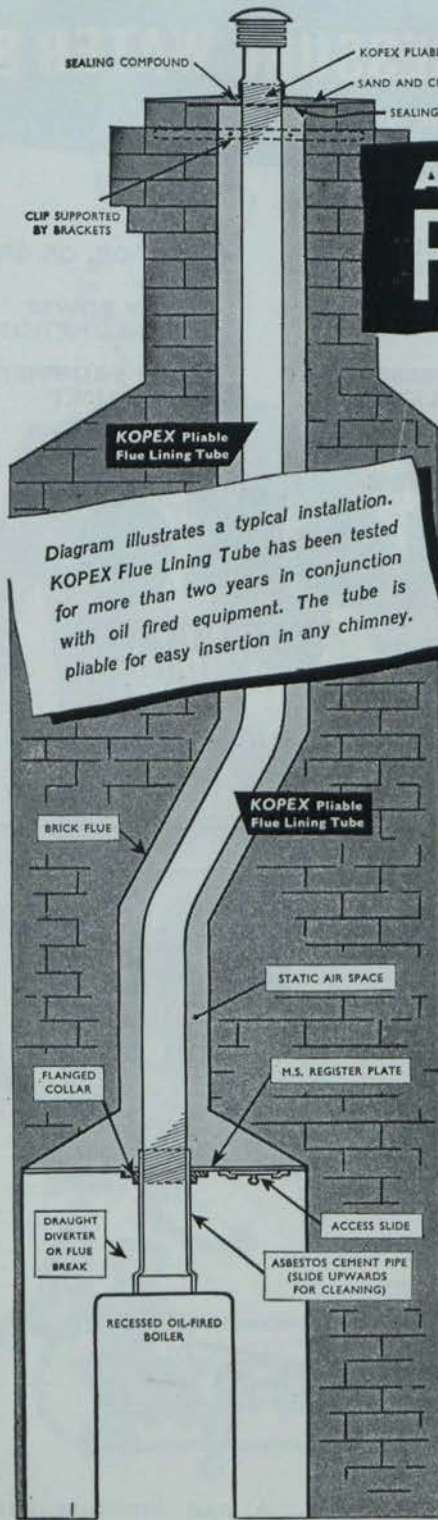


Diagram illustrates a typical installation. KOPEX Flue Lining Tube has been tested for more than two years in conjunction with oil fired equipment. The tube is pliable for easy insertion in any chimney.

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**Kopex Flue Lining Tube eliminates the risk of interior and external wall staining, improves draught, checks brickwork corrosion and reduces degree of condensation.**

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Most modern domestic boilers operate at a relatively low flue gas temperature in order to obtain maximum efficiency. Condensation of the products of combustion is consequently unavoidable and may result in serious staining on inside and outside walls, also other attendant troubles.

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By fitting the KOPEX Flue Lining Tube in the chimney flue condensation troubles are overcome. APPROVED BY LEADING OIL COMPANIES SUITABLE FOR NEW AND EXISTING INSTALLATIONS. Technical information is available on application to the manufacturers.

**UNI-TUBES LIMITED**  
197 Knightsbridge, London, S.W.7  
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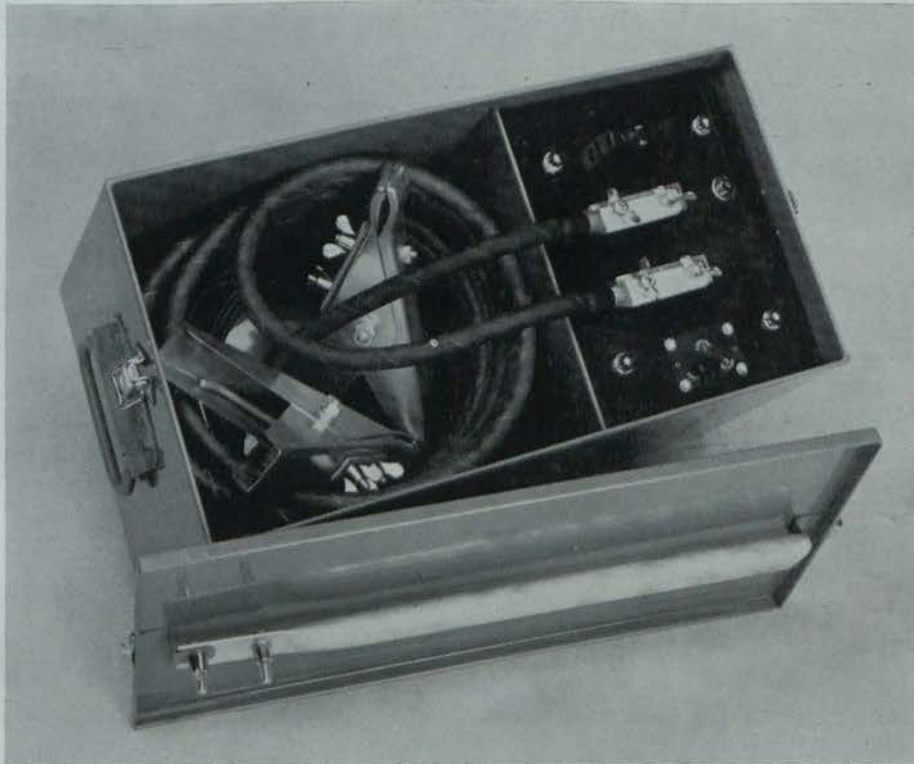
**KOPEX**  
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Irish Agents and Distributors:

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The Radford Defroster comprises a transformer with a primary winding designed for connection to single-phase mains of 200-250 V. 50 c/s., tappings being provided for mains voltages of 200-225 V. and 225-250 V. The secondary of the transformer is a low voltage winding of approximately 5 V., which provides a very large current (between 400 A. and 500 A. depending on the length of pipe in circuit). The apparatus is completely self-regulating and no taps or adjustments to the secondary output voltage and current have to be made by the user. It is absolutely safe and can be used by non-technical personnel.

Connection is made to the pipe by heavy copper cables, which are fixed at one end to the equipment. The free ends of the cables have lugs to which may be connected the prod or large crocodile clips. The equipment is housed in a portable steel case with carrying handles. A compartment is provided for accommodating the cables and clips, the prod being stored inside the cover.

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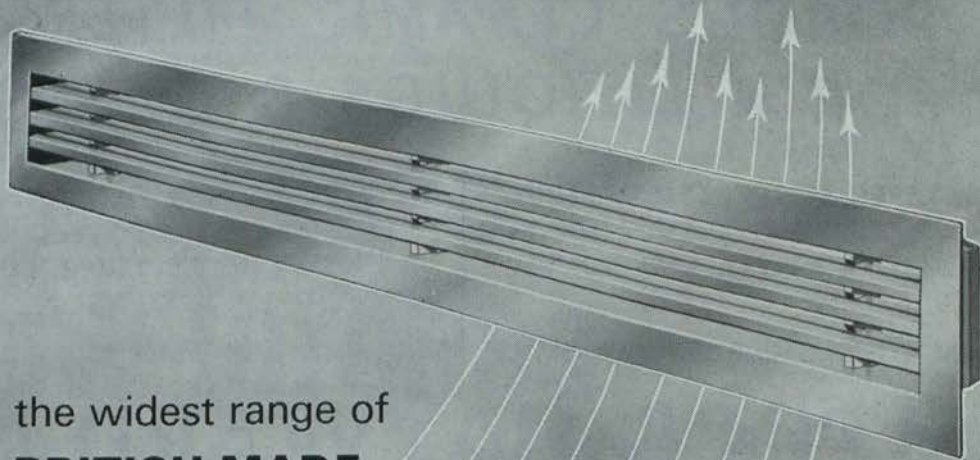
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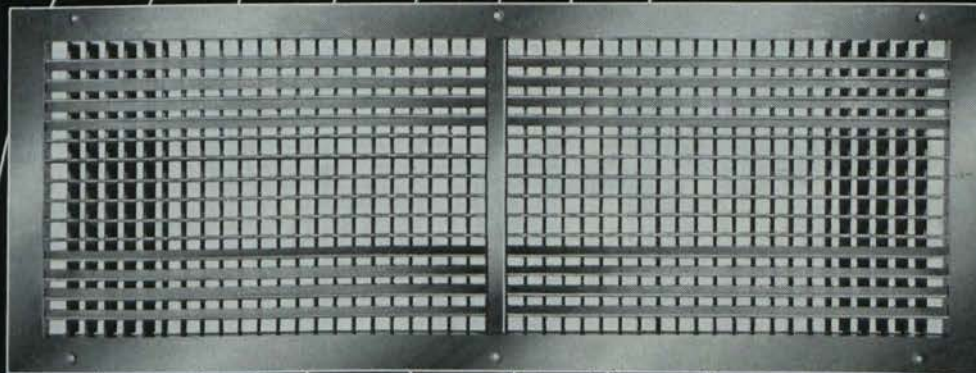


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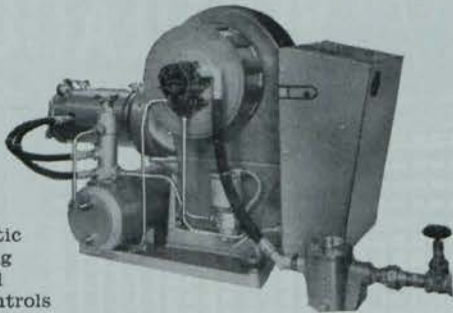
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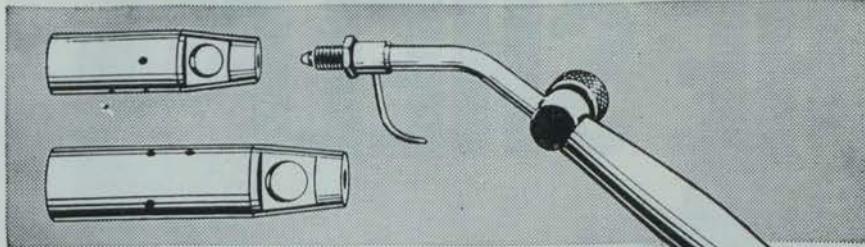
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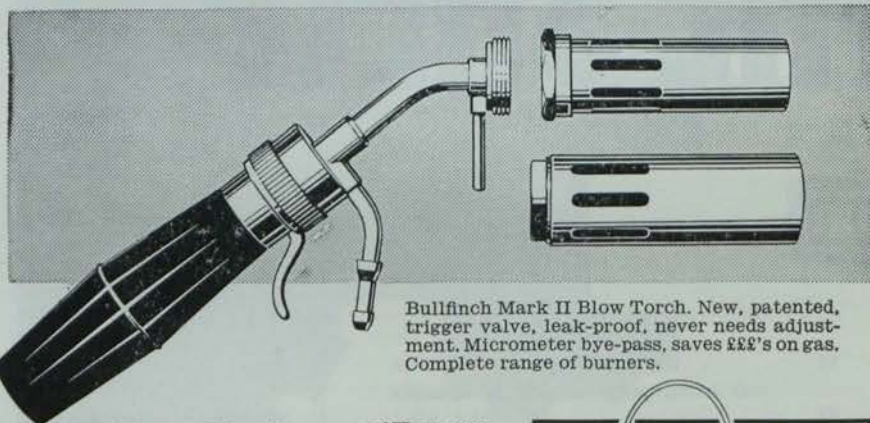
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(TH3) (TH4) Kosangas High Pressure Blow Torch. Wooden handle. Needle control valve, for gas adjustment. Supplied with large or medium burner heads.

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*for every plumbing job!*

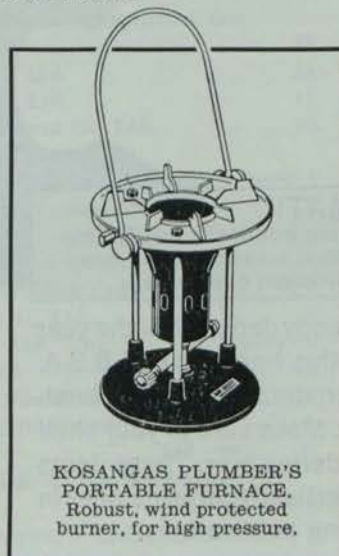


Bullfinch Mark II Blow Torch. New, patented, trigger valve, leak-proof, never needs adjustment. Micrometer by-pass, saves £££'s on gas. Complete range of burners.

Make full use of the wide range of Kosangas blow torches, available for plumbing work. They're much more efficient than the conventional type. The Kosangas TH3 and TH4 are designed for paint burning, pre-heating and soldering. The Bullfinch Mark 2 has a wide variety of heads, including soldering attachment. In conjunction with the small portable Kosangas cylinder, use Kosangas blow torches for:

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- JOINTING OF PLASTIC PIPES
- ANY OTHER HEATING NEEDS

The Kosangas plumber's portable furnace, with wind protected burner, is excellent for outdoor plumbing and cable work, requiring liquid asphalt, pitch, zinc, lead, tin and other fusible materials.



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## CHANGE OF TITLE AND WIDER COVERAGE FROM NEXT JANUARY

\* \* \*

AS a further stage in the development of this Journal the title of the magazine will be changed with the January, 1964, issue to "THE IRISH PLUMBING & HEATING ENGINEER."

\* \* \*

Commencing with this issue also we shall be including a monthly supplement devoted exclusively to industrial heating and ventilating under the title of "Industrial Heating and Ventilating in Ireland." The circulation of the Journal will, accordingly, be increased to include all Consulting and Plant Engineers, Architects and Building Contractors throughout the country.

\* \* \*

The existing Journal will continue to deal with Domestic Heating and Plumbing news, product information and technical articles by specialist contributors.

\* \* \*

If you are not already a subscriber to the Journal we suggest you take out a subscription without delay. The annual subscription is 21/- post free, and includes the Directory of Manufacturers, Agents, Representatives and Distributors, published in June each year.



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Vol. 3. No. 9.

The only publication in Ireland for the craftsman plumber and contractor, the heating, ventilation, insulation, air conditioning and refrigeration engineer and contractor, the electrical contractor, supplier, manufacturer and wholesaler of fittings and equipment for the trades.

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NOVEMBER, 1963.



# THE IRISH PLUMBER & HEATING CONTRACTOR

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# WAVIN TENDER APPLICATION REFUSED

AN APPLICATION from Wavin Pipes Ltd. for permission to tender for the supply of pipes, has been turned down by Dungannon Rural Council.

The Balbriggan firm had requested permission to compete in the supply of pipes to contractors tendering for water main contracts in the rural district.

The Council was told that the firm had registered offices in London and Belfast. It supplied pipes to other councils in the Six Counties.

Mr. W. R. Clarke, engineer, pointed out that the Council's current specification included a clause that materials should be of British manufacture.

Mr. C. J. Burrowes, chairman, said he felt very prejudiced about a thing like this. Goods from the Twenty-Six Counties could be brought into the Six Counties, duty free, but "we must pay duty on any product we may want to send across the Border."

## New company

RADIATION Limited, parent company of the Radiation Group embracing such household names as Ascot, Jackson, New World, Parkray and Parnall, have recently announced the formation of a new company, Radiation Central Heating Limited.

The central heating interests of the Group have hitherto been handled by

## TRADE

## TOPICS

Radiation Parkray Limited, which company will now concentrate exclusively on developing its rapidly expanding share of the market for domestic solid fuel appliances.

Radiation Central Heating Limited will continue to market Ductair and Parkray gas appliances. The new company takes over from Radiation Parkray Limited the Ductair range of warm air central heating units, the recently introduced Ductair Flat-Pak Ducting and Parkray gas-fired small bore central heating units.

## O.B.C. expansion

CONSIDERABLE expansion and reorganisation of the company's warehousing facilities has been carried out at the head office of the Droitwich (Worcs) firm of O.B.C. Ltd., one of the country's largest central heating equipment merchants.

The expansion, which has doubled the company's capacity for stocking boilers, cylinders, radiators and other equipment, has been brought about "by the overwhelming demands being made on the company for the supply of solid fuel, gas and oil appliances," said a spokesman.

An additional single span warehouse of 6,000 sq. ft. has been added to the existing bays and the company now devotes over 24,000 sq. ft. of space to accommodating nearly 2,000 boilers, 5,000 pumps and the largest stock of



This is the new breeze cadet, an economical light duty fan by the London Fan and Motor Co. Ltd., of 331 Sandycombe Road, Richmond, Surrey.

control equipment in the country.

Irish Offices: O.B.C. Ltd., 5 Upper Fitzwilliam St., Dublin, and O.B.C. Ltd., 23-27 Cupar St., Belfast, 13.

## Venton basin

FROM ROYAL VENTON the circular Mitre 18 in. diameter vanity basin in glass hard vitreous china is elegantly styled and easily installed in a vanity unit. It features a front overflow, anti-splash rim, provision for a 4 in. (inlet centres) mixer tap and pop-up waste fitting, and is supplied complete with stainless steel mounting rim and fixing clip/screw assemblies.

The Tiara basin (23 ins. x 18 ins.) is of modern style with off-centre bowl and large individual soap. It also incorporates a hygienically designed overflow for which a patent has been applied.

Irish agent is R. T. Large & Son of 47 Merrion Square, Dublin, who are also agents for the new Budget Model (£26 19s. 6d.) In-Sink-Erator food waste disposer. This unit, which has many big unit features, has continuous feed and whisper quiet operation.

## Package boilers

THE NEWS from Hartley & Sugden Ltd., of Halifax, England, is that they are preparing a range of package boilers for oil firing complete with insulation, base mountings, etc., pre-wired and complete with control equipment.

The range will be based on the highly successful Oilex range which up to now has been supplied as a boiler only.



### WHAT O.B.C.'s EXPANSION MEANS . . .

Nearly 2,000 boilers can be stocked in the warehouse at their head offices.



A successful Central Heating Week was staged by Irish Shell and BP last month. The well organised promotion involved a number of striking window displays at Baxendales, Dockrells, T. & C. Martin, and Monsell Mitchell.

Another aspect of the week was the spotlighting of four showhouses featuring oil fired central heating and a convincing series of advertisements.

Our pictures show two of the eye-catching window displays seen during the week.

## TRADE

## TOPICS

### RIGS WILL TEST METERS

TO MEET an increasing demand for oil flow meters, which has more than doubled in the past year, the Arkon Instrument Division of Walker Crossweller & Co. Ltd., of Cheltenham, Glos., has designed and built two new high accuracy test rigs for individual calibration of every meter for specific rates of flow and viscosities of oil.

Operating on the nutating disc principle, the Arkon range of meters can be very accurately calibrated—using the right kind of equipment—down to extremely low rates of flow with any viscosity of oil normally encountered.

The two rigs cater for fine calibration of meters at the lower end of the scale and for those handling larger volumes.

### New defroster

THE RADFORD Defroster, when applied during the day following an overnight freeze, can defreeze a standard half inch x 7 lb. lead pipe in not more than a few minutes. The apparatus is completely self-regulating and no taps or adjustments to the secondary output voltage and current have to be made by the user. It is absolutely safe and can be used by non-technical personnel.

Connection is made to the pipe by heavy copper cables which are fixed at one end to the equipment. The free ends of the cables have lugs to which may be connected the prod or large crocodile clips. The equipment is housed in a portable steel case with carrying handles. A compartment is provided for accommodating the cables and clips, the prod being stored inside the cover.

The complete equipment comprises: Defroster complete with five yards of mains cable, two large crocodile clips, one prod, and defreezing cables complete with lugs.

Sole Irish concessionaires are Technical Sales Co., 79 Lower Leeson St., Dublin.



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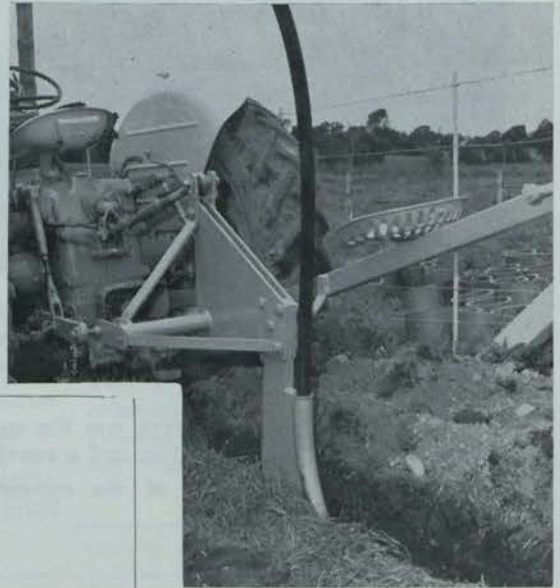
*The Irish Plumber and Heating Contractor.*

## NEW PIPE LAYING PLOUGH

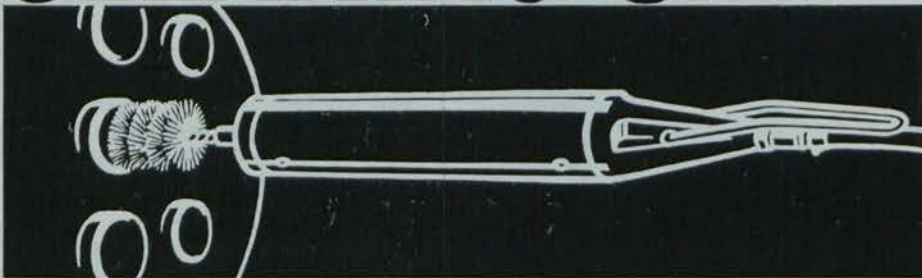
**T**HIS S & L Pipe Laying plough was developed by Messrs. Tobin's Engineering Works, Edermine, Enniscorthy, to the specifications of Stewarts and Lloyds of Ireland Limited. When this Company commenced to market High Density Polyethylene pipe to B.S. 3284 Table I some 18 months ago, it was announced that a complete technical service would be

## FROM S & L

available to engineers, contractors, co-operative group water schemes and all users of the Company's pipe, and the development of the S & L pipe-laying plough is in keeping with the Company's policy of constant research and development to enable them to provide



# A UNIQUE BOILER-TUBE CLEANING UNIT!



The Ferret is a completely unique type of boiler-tube cleaning unit. Attach It to a standard tube brush and it will creep along the tube — *without revolving* — and without any need for manual pushing and pulling! When it reaches the tube end, the double thrust action then reverses and the Ferret returns — ready for the next tube!

- THE FERRET**
- \*Cuts labour time—no manual pushing and pulling
  - \*Does away with extension rods.
  - \*Gives cleaner tubes.
  - \*Works quickly.

For full details, or a demonstration in your own plant, contact —

## AIRNESCO PRODUCTS LIMITED

https://arrow.tudublin.ie/bsn/vol3/iss8/1  
DOI: 10.21427/D7812S  
New Road, Rochester, Kent. Chatham 42217.

Twelve

the best possible technical services to all those concerned with the provision of piped water.

The S & L machine lays the pipe in such a way that it is not dragged through the ground or subjected to any tension while being laid as it is when laid by the old mole plough method. Using the S & L machine, the pipe is fed through a curved steel tube which is fixed behind the cutting blade of the plough and, therefore, the pipe does not come into contact with sharp stones, and above all it cannot elongate or stretch due to pulling through the earth.

The new machine will revolutionise the laying of small bore pipes for agriculture and rural water supplies as it provides a fast and safe method of pipe laying and eliminates trench digging completely... With a capacity of  $\frac{3}{4}$ "-1 $\frac{1}{2}$ " pipe in 500 ft. coils, the machine is priced at approximately £60.

## Heiton presentation

MR. CECIL DE HEWAT was last month made a presentation by his directors and staff on the occasion of his retirement from Heitons after nearly a half century's service with the company.

Dublin-born, Mr. Hewat was educated at Trinity College and joined the family firm after serving in the first World War. In 1923 he was appointed secretary and in 1925 he became a director. Ten years later he succeeded his father as chairman.



# FORTA MAGAZINE BOILERS

*A Reasonably Priced Dutch Series  
For Small Anthracite*

## FORTANO-K

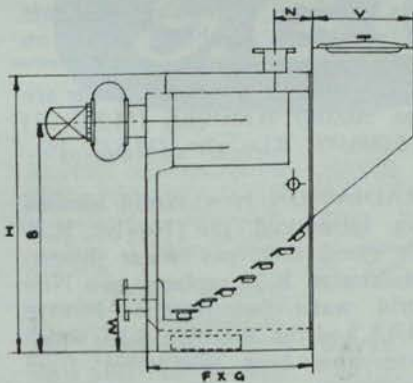
CREAM ENAMELLED FOR KITCHEN INSTALLATION

	Btu/hr.	Height	Width	Length	Flue
K1	60,000	40"	15"	20"	5"
K2	72,000	40"	15"	22"	5"
K3	84,000	40"	17"	22"	5"
K4	100,000	40"	19"	22"	6"
K5	116,000	44"	17"	26"	6"

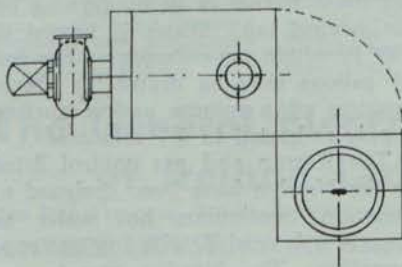
Several sizes ex Dublin stock.  
Tappings back or sides; flue right or left.  
Magazine contains about 8-hour full load burning.  
Insulation jacket and autoflame controller supplied.



## FORTAVENTI – Fan Assisted Boilers



No.	Btu/hr.	Height (ins.)	Breadth (ins.)	Depth (ins.)	M. (ins.)	N. (ins.)	B. (ins.)	V. (ins.)
0	80,000	39	19	22	8½	5½	32	11½
1	100,000	39	21	22	8½	5½	32	11½
1a	120,000	43	23	22	8½	5½	36	11½
2	140,000	43	21	26	8½	5½	36	15
2a	160,000	44	23	26	8½	5½	36	15
3	180,000	44	25	26	8½	5½	36	15
4	220,000	48	25	29	9	6½	38	17½
5	280,000	48	30	29	9	6½	38	17½
6	340,000	52	30	33	10	6½	43	20
7	400,000	52	34	33	10½	7	43	20
8	500,000	59	32	37	10½	7	48	24
9	600,000	59	37	37	12	7	48	24
10	700,000	62	37	41	12	8	53	28½
11	800,000	62	41	41	12	8	52	28½
12	960,000	62	48	41	12	8	52	28½
13	1,120,000	62	48	54	13	8	51	30
14	1,320,000	62	54	62	13	8	50	30



**Sole Agents:**

### QUADRANT ENGINEERS

167, STRAND ROAD, MERRION GATES, SANDYMOUNT,  
DUBLIN, 4. Telephone: 693940/43.





# AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

A good hot water supply is a "must" for the modern home. All up-to-date dwellings have some form of domestic hot water supply service. Many older properties have been renovated and in most cases the installation of an up-to-date hot water system has been the most appreciated improvement.

The final choice of system is by no means easy. The customer's own tastes for one system or another, or for one particular fuel, may have a bearing. That "the customer is always right" may be a diplomatic sales approach in many less complicated fields than that of hot water supply. In this case the customer, by virtue of his inability to be au fait with all

## REVIEW OF HOT WATER SUPPLY EQUIPMENT AND BOILERS

current trends in equipment design, costs and running costs, may well be wrong. It is our job to know all of the possibilities and, having weighed the customer's clearly defined needs, to advise that, or several arrangements best suited.

In short, we must, as diplomatically as possible, be prepared to make a "short list" of equipment and then be able to show how one may be a little more advantageous than another, and in this way leave the final selection to our customer but knowing

that whichever he chooses will give good service.

A good arrangement is surely one which provides sufficient hot water, at the right temperature, when and where the customer wants it. In addition, it must do these things with a minimum of inconvenience to the customer, and at a reasonable running cost.

"Central" systems must be carefully weighed against "local" ones. Initial costs of equipment and installation work must be checked against running costs over a

period of years of subsequent use. Fuels must be considered separately but with the same searching care, for choice of fuel can affect capital, running costs, and user convenience.

Even to those with long experience in the trade, the choice becomes increasingly bewildering as manufacturers improve existing equipment, or introduce newer ideas in hot water heating. To keep abreast of all new trends one must carefully study the makers' claims and specifications—together with prices of course—of all presently available equipment. The advertisements in this issue will offer plenty of scope for all readers to become fully "genned up" on this important aspect of our work.

SALES of Buderus coke boilers in Ireland have recently shown an upward trend, particularly in the 50,000 B.t.u./hr. to 80,000 B.t.u./hr. range, report the agents here. Especially noteworthy is the fact that many in the trade have installed them in their own homes for central heating, which may be considered a tribute both to the fine finish of these boilers and to the advantages of coke. Delivery on these boilers is four weeks in any size; many are ex-Dublin stock.

Those who prefer Anthracite, which also includes many in the trade, have been installing Forta anthracite boilers in their own houses. The Forta boilers in domestic sizes are available ex Dublin stock.

Sole agents for both the Buderus and Forta range are Quadrant Engineers, of 167 Strand Road, Merrion Gates, Sandymount, Dublin 4.

\* \* \*

A WIDE range of products in the hot water supply field are offered by the General Electric Company of Ireland Limited. Included is the compact undersink water heater for installation where space is limited.

This model, which is thermostatic-

### In conjunction with this Special Survey we review here products from the leading manufacturers' ranges.

ally controlled, has a 1 Kw. loading and a capacity of 2 gallons. Also from G.E.C. is the automatic water heater providing "instant" hot water.

No preheating is required and the unit will heat water up to 148 degrees F. A nearly 100 per cent. energy conversion is claimed. With this unit the risk of liming or furring up, even under hard water conditions, has been eliminated.

\* \* \*

THE HARTLEY and Sugden M.S.C. range of steel sectional boilers has been designed so that a practical balance between the demands for both high combustion efficiency and the important keeping clean of boiler surfaces can be achieved.

The combustion chamber in each size of boiler is critically designed. The relationship between this, the

position of the baffles and the free areas, promotes a turbulent gas state and provides a scrubbing action on all heating surfaces.

The ratings of the M.S.C. range are from 500,000 B.t.u.'s/hr. (M.S.C. 1) to 5,000,000 B.t.u.'s/hr. (M.S.C. 16).

\* \* \*

RADIATION New World Limited have introduced the Newlyn K.30 high speed sink gas water heater. The Newlyn K.30 replaces two New World water heaters—the Newlyn S12/2A and the Speedlyn S.30, which have now been withdrawn from sale.

The new heater has a capacity of 1½ gallons. When the pilot is alight the main burner is lit by turning on the control tap. Water is heated to 140°F. within ten minutes. The full 1½ gallons may be drawn in three-quarters of a minute and a further supply re-heated in 6-7 minutes.

The Regulo and gas control fitted to the Newlyn have been designed to maintain continuous hot water as long as it is needed, with low gas consumption. The Newlyn operates on only three foot head of water and

*Continued opposite*

## PRODUCT REVIEW

from previous page

is ideal for use wherever there are water and gas supply limitations.

The New World C.T.12 circulator is a small form of gas-fired boiler for connection to a hot water storage cylinder. It may be used with an existing hot water storage tank to supplement another water heating system, as a booster to an existing system, or as alternative water heating during the summer.

The C.T.12 is available either for single hole fixing like an immersion heater, or two-hole fixing as with the conventional boiler system.

The C.T.12 can be used on a storage vessel of up to 30 gallons capacity, and the heating up rate is 5½ gallons per hour raised 80°F. When the water is heated to 140°F. a thermostat reduces the burner flame to a maintenance rate which ensures that this temperature is kept constant. A version of the C.T.12 is available for connection to a cylinder designed to fit under the draining board or work top. Flow and return connections for this application are provided by the makers.

**THE  
MIL  
AIR ELIMINATOR  
REMOVES  
AIR  
FROM  
HOT WATER  
SYSTEMS**



The removal of air from hot water heating systems, either by installing air vent pipes or fitting mechanically-operated automatic air eliminators, can be a costly job. The MIL air eliminator does this work very well at small cost and is suitable for low pressure hot water systems up to 80ft. head.

**MIDLAND INDUSTRIES LIMITED**  
HEATH TOWN WORKS, WOLVERHAMPTON. Tel. 23901

# G.E.C.

## water heaters

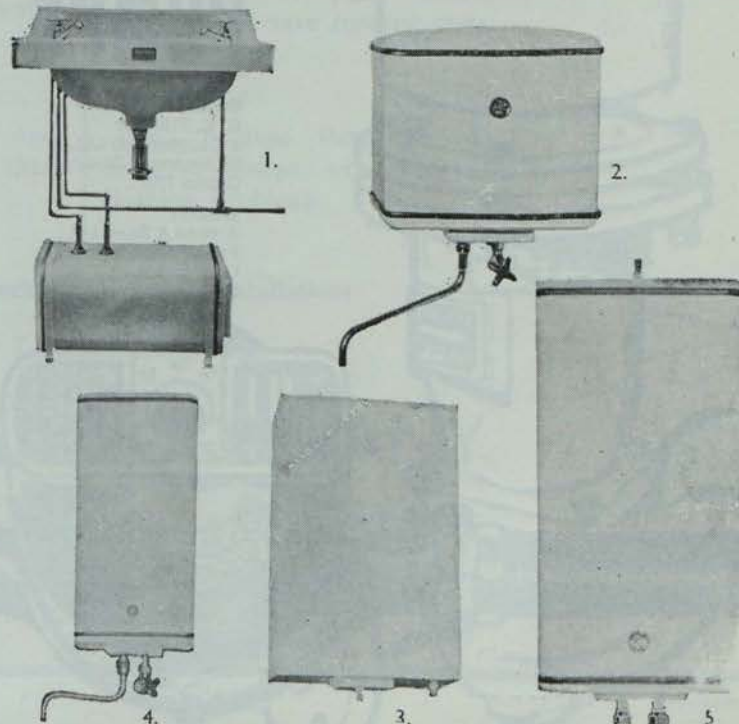
1. **UNDERSINK WATER HEATER.** Easily installed under sink, with special fitment provided. Thermostatically controlled. Capacity 2 gallons. Loading 1 KW. Price £12-10-0.

2. **'HOTFLO' 2 GAL. WATER HEATER.** Easily installed. Thermostatically controlled. Glass fibre tank lining prevents heat loss. Loading 1 KW. Price £10-10-0.

3. **CISTERN TYPE STORAGE WATER HEATER** — Available from 5 gal. capacity upwards. Ball valve tank, hot water tank heating elements and thermostat are embodied in one unit. Price from £25-5-0.

4. **NON-PRESSURE TYPE WATER STORAGE HEATER**—Single outlet only. Takes its cold water supply direct from mains. Available in capacity from 2 to 20 gals. Prices from £10-10-0.

5. **PRESSURE TYPE WATER STORAGE HEATER**—for multipoint installations — takes its cold water supply from an overhead tank. The 15 or 20 gal. sizes provide ample supplies for the average household. Larger sizes are available for hospitals, schools, institutions, etc. Price from £11-5-0.



**The General Electric Co.  
of Ireland Ltd.**

Sales Departments, Trade Counter and Showrooms:  
**DUNLEER HOUSE, STORE ST., DUBLIN 1.**

Branch Showrooms:

**54 DAME STREET, DUBLIN 1.**

*The Irish Plumber and Heating Contractor.*

WHILE THERE have been no recent additions to the now well-known Cox water heater range, an important innovation has been announced by the manufacturers, Cox Engineering Co. Ltd.

This has been the development of a new type of metallic filling which means that the porcelain balls in the heat exchange chamber of the heater can now be replaced by a metallic ring filling. This new type filling is used where operating conditions are severe, causing the porcelain balls to move and erode due to their grinding against each other.

The new metallic ring filling permits

## PRODUCT REVIEW

*from previous page*

no movement and the heaters can work satisfactorily for 10 to 15 years without maintenance.

Agents here for Cox water heaters for wash basins, sinks, baths, process work and general industrial purposes are Halpin & Hayward Limited.

\* \* \*

THE ADVANTAGES of gas appliances in the field of instantaneous hot water have long been accepted, and with the emphasis to-day on

heaters having higher outputs and operating at much lower water pressures, the provision of an abundant supply of hot water at the sink, bath or wash basin, both quickly and economically, is no longer a problem. Furthermore, the need for a constant and reliable hot water supply in factory and office cloakrooms, shops, cafes, etc., can quite frequently be met by these heaters. The present range of heaters include not only the single point models, but also small multipoint heaters suitable for supplying wash basin and shower.

Apart from their ability to cater for "all the year round" requirements, multipoint heaters provide an ideal alternative to the solid fuel back boiler for "summer use," and where the family are away from home all day and require a quick supply of hot water in the evening.

THE advantages of the "room sealed" or "balanced flue" appliance have been widely appreciated and the range of such appliances both for hot water supply and central heating is continually being extended.

The latest addition to the range of "room sealed" appliances is a bath water heater having an output of 1½ gallons per minute.

The incorporation of small circulators into ducted warm air appliances, thus providing both central heating and hot water supply from a single unit, has proved very successful, and the range of such units now covers from 17,000 to 45,000 B.t.u.'s per hour with circulators having outputs of 15 gallons to 28 gallons per hour.

A new high speed sink water heater, having a storage capacity of 1½ gallons which can be heated to 140° Fah. within 10 minutes of lighting, is now available. Fitted with thermostatic control to maintain a constant supply of hot water as long as it is needed, this heater requires only three feet head pressure to operate.

The use of instantaneous heaters to meet the needs of the smaller premises has already been referred to, but gas boilers can fulfil even the largest demands for hot water. Boilers with outputs of up to 1,250,000 B.t.u.'s/hr. and which can be easily incorporated into any storage system supplying hot water for canteens, restaurants, factories, offices, etc., are available. For process applications in addition to these boilers, special tube firing and immersion burners can be installed which are ideal for the rapid heating of large quantities of water in bulk. A small thermostatically controlled immersion heater for solution tank heating is a recent addition to this range.

## SELFETTE

To meet the demand of modern practice the static pressure limit on this popular range of heating circulators has been increased to 225 ft. Quick delivery is available in Gunmetal and cast iron on all sizes. Contact your nearest area office for speedy attention.



## SELFLO

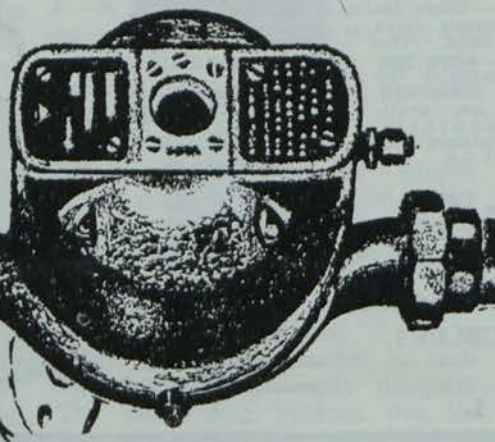
The Selflo range of circulators are glandless accelerators ideal for large commercial heating installations. Delivery is EX-STOCK, maintenance has been virtually eliminated, pumps are GUARANTEED, and they are available with either single phase or three phase motors.

**HOLDEN AND BROOKE LTD**  
SIRIUS WORKS  
MANCHESTER 12

# HEATING PUMPS

**Dublin**  
G. C. Pillinger  
& Co. (Ireland) Ltd.,  
20 Sycamore Street,  
Dublin 77007.

**Belfast**  
J. Hind & Sons Ltd.,  
Prince Regent Road,  
Castlereagh,  
Belfast 59365.



FOR  
PERFECT  
CENTRAL  
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**PERFECT!**

. . . because you can choose between warm air heating or Gas fired boiler serving a hot water system.

**PERFECT!**

. . . because the capital and maintenance costs are lower than for any other fuel.

**PERFECT!**

. . . because full automatic control and our special central heating tariff save running costs.

**PERFECT!**

. . . because there are no delivery, storage, stoking or cleaning problems.

**Special low Gas tariff for domestic installations**

Consult our Technical Experts at

**DUBLIN GAS COMPANY**

**D'OLIER ST. Phone 71811**

# HOT

## 2

**how to keep out of it,  
make more from it,  
and build a good reputation**

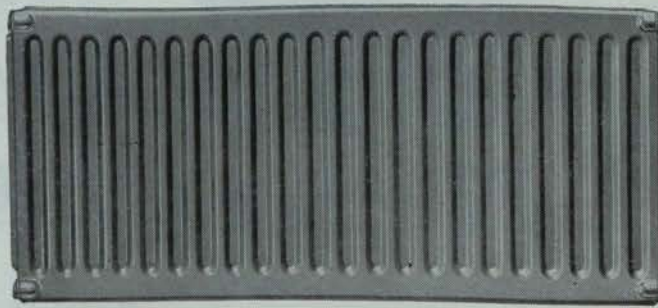
**the more h<sub>2</sub>o<sub>t</sub> you channel through**

**INTERNATIONAL PUMPS & RADIATORS**

**the better job you'll be doing – in every way**

**17 sizes in 3 heights, singles and doubles**

TREBLES, too, can be banked on the spot. And CURVES, by our distributors with our special machine. All International radiators come with the SEAMLESS ROLLED-TOP finish. They're extra-slim, pressed from cold-rolled steel for added strength. Each one is tested to 70 p.s.i. Singly or in series, International radiators look better



and perform better than anything else you can specify. Europe's biggest and most modern plant has an output, too, which ensures that International radiators are always plentifully available—and that their prices are the lowest going. Clients like them. Installers like them. And discounts are better with International.



**Over half the installations in Britain include the Thermopak** because, even though it began the whole boom, it's still up with the best in performance. Silent. Durable. Independent of thrust bearings. Fitted with a clutch so it doesn't jam. Proved the most reliable pump on the market.

Installer price for the CRI/B **£20.8.0** for singles



**Infinitely-variable quantity control on new Multiflo** eliminates "throttling" and guarantees complete silence. Runs in any position, on any voltage 200-250 AC. Only one sealing joint, with quick-release coupling—dismantles easily and fast; and the one-piece motor is simple to replace.

Installer price **ONLY £14.8.0** nett for singles

All prices shown are subject to 5% increase to cover carriage, etc.

**All INTERNATIONAL equipment is backed** and you are supported, by the best after-sales service in the country. International Service Engineers will travel to any International installation anywhere. And, for a nominal fee, the International Drawing Office will plan a complete small-bore circuit for you. In every way, you do yourself and everyone else proud when you advise, recommend and specify International.

**INTERNATIONAL**  
FIRST NAME  
IN DOMESTIC CENTRAL HEATING

**HAVE THE FACTS ON HAND — SEND FOR THIS MATERIAL NOW**

Please send me full information on the items ticked

Pumps and Mixing Valves  Radiators   
Boilers

Your publication "The principles of Forced Circulation in Hot Water (H<sub>2</sub>O) Heating Systems" for which I enclose 3/6.

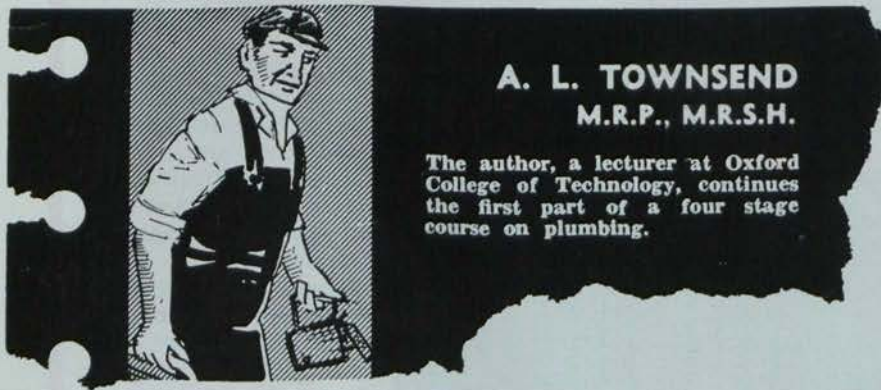
NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

SEND TO:

INTERNATIONAL BOILERS & RADIATORS LTD, TERMINAL HOUSE, GROSVENOR GARDENS, LONDON, S.W.1. (TEL: SLOANE 2201, TELEX: 25877, TELEGRAMS: INTERAD) The sole agents for the Republic of Ireland: Monsell Mitchell & Co. Ltd, 67/73 Townsend Street, Dublin.



# DOMESTIC COLD WATER SUPPLY

**EVEN** on metered supplies, which are hardly ever used in houses, water costs are low enough to make it man's cheapest commodity. This does not mean that anyone can afford to waste it, but rather the reverse, since the demand for piped water tends to exceed the national sources of supply.

Local Authority Bye Laws prescribe the materials and methods that should be used in the installation of water supplies. They aim to conserve water by preventing the waste, undue consumption, misuse, or contamination of supplies.

Having satisfied yourself that your materials and proposed methods of installation meet the requirements of the Bye-Laws, you can proceed with the work of laying the underground water service pipe, and the fixing of the internal pipework and fittings.

## **Topped**

**External arrangements.** — Suppose that the authority's supply main has been tapped, and a short length of service pipe already laid up to a stop tap situated just outside the boundary of a detached house standing well back from the road. Incidentally, the length of service pipe between the main and the boundary stop tap is sometimes called a "communicating pipe."

There is no hard and fast rule as to how the work should be organised. The order of work is dictated by conditions on the site, and many other things.

You might proceed as outlined below, checking all the good installa-

AIR  
CON  
DIT  
ION  
ING  
GOES  
EAS  
ILY

Fibreglass is a name found mixed up in the whole field of air-conditioning and heating. This is only to be expected: Fibreglass has been of inestimable value in providing the new forms of thermal and acoustic insulation that help to make modern air-conditioning so silent and efficient. The most recent advances are based on Fibreglass Superfine wool, a material far finer and more consistently fine than any previously available. It is used in many types of external and internal duct insulation. Fibreglass Rigid Sections for hot and chilled water lines are highly efficient and cheap to install; and Fibreglass air filters are probably more widely used than any.

**MONSELL MITCHELL & CO. LTD.**  
Sole distributors of  
Fibreglass heat insulation products  
in the Republic of Ireland

**JAMES RYAN (DUBLIN) & CO. LTD.**  
Sole stockists of  
Fibreglass Air Filters  
in the Republic of Ireland

**Fibreglass  
Limited**

FIBREGLOSS LTD · 21 MERRION SQUARE NORTH · DUBLIN · TEL: DUBLIN 67060  
Twenty

*Continued page thirty-four*

**in brief...**

A CHANGE of address for Satchwell Controls Limited—their new one is 32B James Street, Dublin 8. Their new phone number is 56144.

At the same address there has been set up an Elliott Automation Technical Centre under the management of Mr. B. G. Daly, B.E. (telephone 51311). Information on products manufactured by member companies of the Elliott Automation Group is now available from a central premises and this should prove a valuable service.

\* \* \*

THE DSV Soot-Vac solves problems when cleaning boilers. When using it, say the manufacturers, you have a guarantee to meet demand for quick, effective and easy soot-cleaning.

The advantages are lower fuel expenditure, reduced risk of corrosion, and longer lifetime of the boiler. Irish office: Danish Stoker & Boiler Co. Ltd., 38, Pearse Street, Dublin.

\* \* \*

THE DUBLIN City Architect's Department has changed its address from 1/4 Parliament Street to 4/8 Mountjoy Square.

\* \* \*

THOMAS GLOVER & Company Limited announce that their Dublin Branch has now transferred to new and larger premises on the Chapelizod Garden Estate, Dublin.

The new Depot affords greatly improved facilities for Thomas Glover & Company's services to customers in Eire, including their Agency for the products of R. & A Main Limited and Main Morley Limited. The Manager of the Dublin Branch is Mr. G. L. Edwards.

\* \* \*

The price of the gas therm has been raised by a penny from 2/4 to 2/5 by the Alliance and Dublin Consumers Gas Company. The increase has been made because of increased operating and other expenses.

\* \* \*

TECHNICAL Sales Company, 79, Lower Leeson St., Dublin, announce that they have been appointed agents in Ireland for Bahco Ltd., of Sweden, one of the world's largest manufacturers of air handling equipment.

\* \* \*

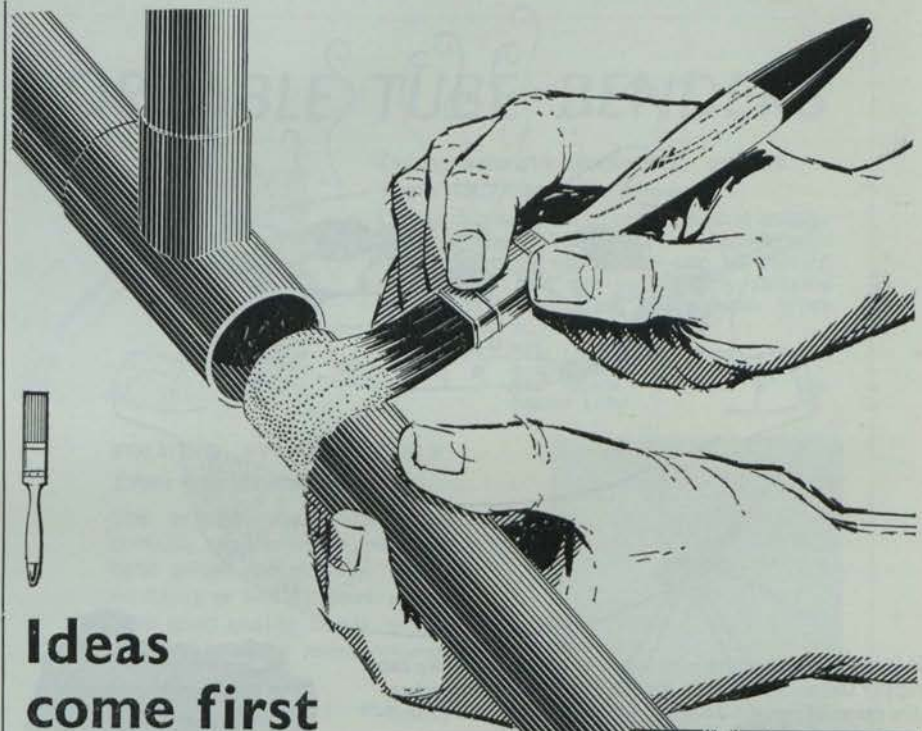
A brochure illustrating a comprehensive range of stopcocks and bibcocks fittings has recently been released to the trade by Sperryn & Co.



A new urinal stall in ceramic glazed fireclay is of particular interest in association with the prevalence of multi-storey construction. Equally suitable for individual or range in-

stallation, this stall has been designed in such a manner that its weight is about one hundredweight less than any other of comparable dimension. Integrally moulded end panels serve ideally as divisions when the urinal is used in range form, and it is normally supplied with Dimex treads—on Fireclay blocks where a raised tread is desired.

Embodying all the well proved qualities of ceramic glazed fireclay, this new urinal stall is stainproof, burnproof and is immune to heavy frost or rapid temperature variations. Like all fireclay sanitaryware, it is easily cleaned and maintained in the peak of hygienic condition.



**Ideas come first**

Fry's were first to provide a uniform mixture of powdered solder and flux for single application.

Fryolux Solder Paint eliminates the manipulation of molten solder allowing the use of unskilled labour and aiding the mechanisation of the process.

The development of solder paint heralded sweat soldering as it is known today. In the future you can be sure that Fry's will continue to lead in new ideas to give you faster, more effective soldering, whatever the job.

For information on Fryolux Solder Paint, write for Technical Booklet No. 22.

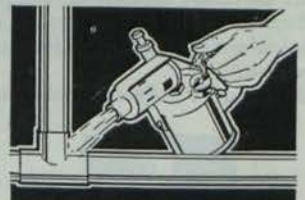
**FRY'S**

set the pace

by looking ahead through research

Fry's Metal Foundries Ltd., 197 Pearse Street, Dublin. Tel.: Dublin 70336.

and at Manchester, Glasgow, Kilderminster and London.



TEX fittings made by Compression Joints Ltd. MR/63/3

Twenty-one



The Irish Plumber and Heating Contractor.

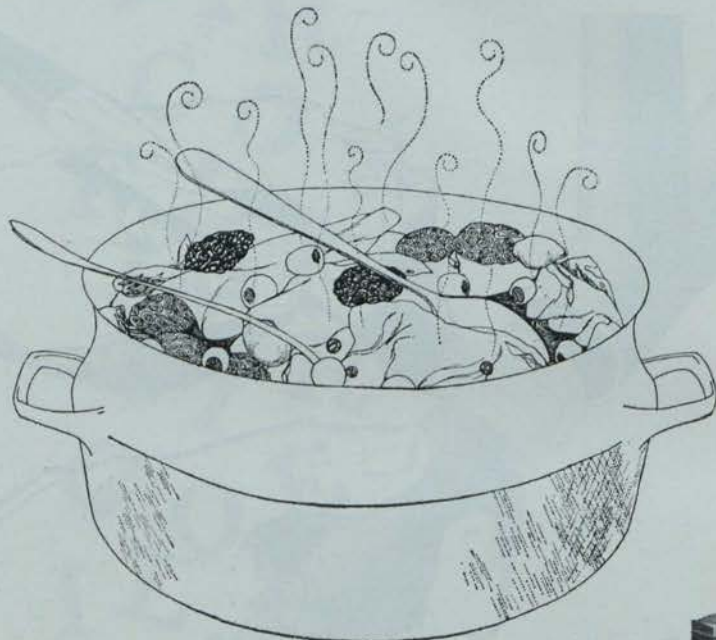
# the BUILDING EXHIBITION

IN THIS PREVIEW ARTICLE WE LOOK AT SOME OF THE NEW PRODUCTS MAKING NEWS AT OLYMPIA THIS MONTH.

**CORAS** Trachtala have organised a stand for eight Irish firms to exhibit products at the International Building Exhibition, opening in London's Olympia this month for two weeks.

One or two of these firms have exhibited independently in previous building exhibitions but this will be Ireland's first official appearance as part of the biggest ever International section at the exhibition.

## piping hot—or cold?



If it involves pumping—be it hot or cold water—we can supply the suitable pump for the job from a comprehensive range of pumps designed for the heating and plumbing industries. 'Monobloc' pumps, for instance, are ideal for air conditioning, boiler feed, boosting, circulating systems, condensate, filtering, fresh water, heating systems, refrigeration, sprinkling, sump service, transferring, washing, water softening and many other duties. They range in size from 1" to 5" diameter delivery, covering capacities up to 1200 g.p.m., and heads up to 210 feet. 'Vortex' pumps, with heads up to 600 feet, are especially suitable for boiler feed duties. Automatic domestic water supply sets are also available. Illustrated below are typical models from our range of 'Monobloc' pumps.

Send now for fully descriptive literature.



**Worthington - Simpson Ltd**

20 HERBERT PLACE DUBLIN

PUMPS • COMPRESSORS • HEAT EXCHANGE EQUIPMENT

P8847



Grouped together in the Empire Hall will be official Government exhibits from Ireland, Canada, Nigeria, Italy, Finland and Sweden.

Theme of the exhibition will be "Industrialised Building," which will also form the subject of British Government stands and will be the main topic of a conference to be held during the exhibition.

From the general to the particular—the big news from **W. & G. Sissons Ltd.** is of substantial price reductions in their range of round bowl stainless steel sinks which will be on display at the exhibition.

Also on Sissons' stand will be a deluxe stainless steel sink and drainer combination, which incorporates a stainless steel worktop with built-in boiling rings and switches. It will be the first appearance at the exhibition for this type of sink top.

Other products which the firm have on display will be stainless steel rectangular bowl domestic sinks, sinks for caterers and wash-hand basins; sink cabinets and kitchen unit furniture, and caterers' food-waste disposers.

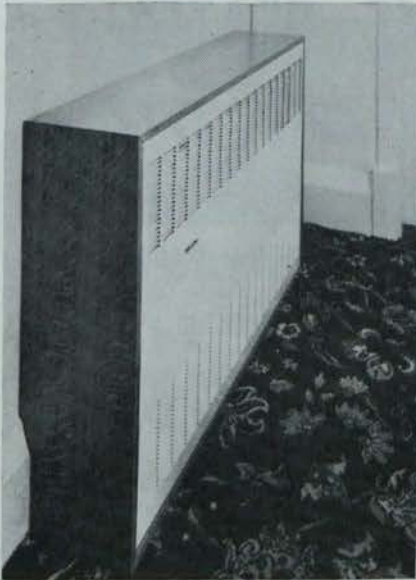
Two new gas-fired warm air central heating units that possess many new features, produced by **Radiation Central Heating Ltd.**, will be shown at the exhibition. The Ductair G.3501 and G.4501 are identical in size and cover a wide range of outputs, from 30,000 B.t.u./hr. and 40 000 to 45,000 B.t.u./hr., respectively.

The Ductair G.3501 will heat a home of approximately 1,200 sq. ft. and the G.4501 a home of up to approximately 1,500 sq. ft. Because the units have only two internal components that are different, it is possible to convert the G.3501 after installation to a G.4501 to meet any additional demand for a higher level of heating or an extension to the house.

**Hilmor Ltd.** are exhibiting a large and comprehensive range of hand-operated hydraulic and motorised tube bending machinery to cover the requirements of the plumber, heating engineer, gas fitter, electrical contractor and the allied building trades.

Among the new machines shown for the first time will be a general purpose motorised semi-automatic compression bender, type CSA 2. This is a push button operated machine of great versatility which will bend light and heavy gauge tube, bar, angle, extrusions, etc., and will produce sets, double sets, simple and

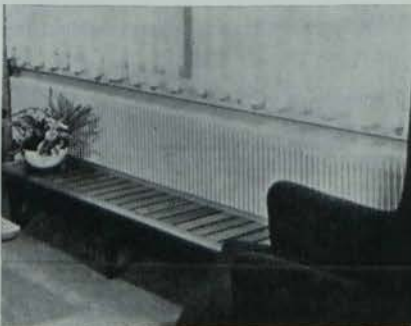
# the BUILDING EXHIBITION



● One of the forced convection heaters manufactured by Fenton Byrn & Co. Ltd. They are now available with a variety of polished hardwood surrounds, including oak, pine and sapele mahogany.



● The new Ambassador (No. 1316) Bath Mixer fitting displayed by James Barwell Ltd. of Birmingham.



● The new Corru-Rad manufactured by Powell Duffryn Heating Limited of Camberley can be used with either the corrugated or plain side showing to the front. In the picture the corrugations which give the radiator a greater heating surface are in the front, and are an added attraction to the decor of the room.

compound bends and flat and helical coils.

A two-in-one hot water radiator, which can be used with either a corrugated or plain face, known as the Corru-Red and manufactured by Powell Duffryn Heating Limited, will form the centre piece of their stand at the exhibition.

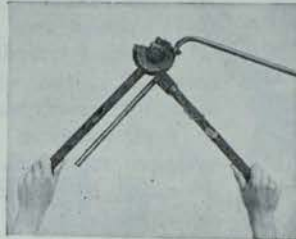
The major feature of the new radiator is that its corrugations, whether at the rear or the front, give it a considerably greater heat output than

that of many other types of radiators. While concentrating a large heating surface in a small space it also maintains an excellent balance of radiant and convection heating.

Another major exhibit on the stand will be the Powell Duffryn H.E. Radiator—Britain's first all aluminium panel radiator. It has a sixth of the water content of the normal steel panel radiator, and is quick heating

*Continued overleaf*

## PORTABLE TUBE BENDERS



### LIGHTWEIGHT BENDING TOOLS

Types GL.O and GL. Minor

Compact machines to produce good quality sets, compound bends, etc., in non-ferrous tube. Robustly built, they can be carried in tool bag and are particularly suitable for small bore heating and similar types of installation.

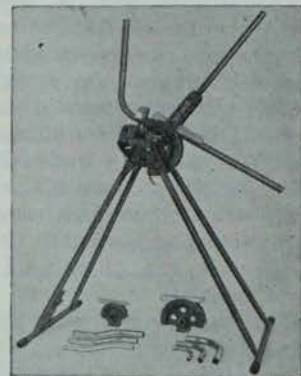
CAPACITY: GL. O— $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " dia. copper tube.  
GL. Minor— $\frac{1}{4}$ " and  $\frac{3}{8}$ " dia. copper tube.

### FOLDING STAND MODELS

Types GL. 2B and GL. 3B

The original and most efficient portable benders made for bending light gauge copper tube. Require no fixing or bolting down and produce good quality bends, cold and unfilled, to exact measurement on standard radii.

CAPACITY: GL. 2B— $\frac{1}{4}$ ",  $\frac{3}{8}$ " and 1" dia. copper tube.  
GL. 3B— $\frac{1}{4}$ ",  $\frac{3}{8}$ ", 1", 1 $\frac{1}{4}$ " and 1 $\frac{1}{2}$ " dia. copper tube.



### EASY-WORK RATCHET BENDER

Type RP. 5B

A machine of new design with a rotary bending action through a powerful ratchet operated screw. Completely portable, produces good quality bends speedily, accurately and with minimum of manual effort.

CAPACITY:  $\frac{1}{2}$ " to 2" dia. copper tube.  
 $\frac{1}{2}$ " to 1 $\frac{1}{4}$ " o.d. conduit.  
 $\frac{1}{2}$ " to 1" nom. bore gas and steam.

SEE OUR PERMANENT EXHIBITION AT THE BUILDING CENTRE OF IRELAND, DUBLIN.

FIRST  
MADE



FINEST  
MADE

For details of range of hand-operated, hydraulic and motorised machines handling up to 8" dia. tube, apply to local stockist or write to:—  
Dept. F, HILMOR LTD. (Sales and Service), CAXTON WAY, STEVENAGE, HERTS.

# the BUILDING EXHIBITION

from previous page

and quick cooling. It has a built-in radiator valve, is extremely light, and has the advantage that it can be fitted and used while still in its packing so that no damage can be done while installation is being carried out.

**Ascot Gas Water Heaters Limited** will preview two new instantaneous gas water heaters at the exhibition. They are the 611/4 bathroom water heater and the 815 balanced flue water heater. The model 611/4 supplies hot water by means of a swivel spout. It has an output of two gallons of water per minute raised 50 degrees F., or 1 gallon of water per minute raised 100 degrees F. This model is at present undergoing tests and is expected to be available at the end of the year.

The 815 balanced flue heater, which is planned to succeed the 715 range, has the advantage of an increased thermal output which is now 82,000 B.t.u.'s per hour. This improved model appliance will provide plentiful hot water for the kitchen sink, bathroom basin, and bath, or three basins, or two showers.

**Glow-Worm Boilers Limited** are introducing a range of warm air domestic heating units at the exhibition. Full details will be announced at their stand, No. D320, and the units rated at 35,000, 53,000, and 70,000 B.t.u./hr. will be on show. The firm will also show a complete range of domestic water and central heating boilers—fired by gas, oil or solid fuel.

Several models incorporate the unique, fuel and space saving Sunrod heat exchanging surface—including the new gas-fired G.75 and G.75B boilers—and particular attention is being drawn to four new solid fuel boilers of sectional construction.

Also new: the gas-fired Thermglow Mk.111, a further improvement on boilers in the well-tried Thermglow range which, like almost all Glow-Worm boilers, features a smart all-enveloping casing in a choice of colours.

## NEXT MONTH

We will continue discussion of the new products seen during the Olympia exhibition.

Twenty-four

# THE KHAM SIN PORTABLE SPACE HEATER



★★★ HOT AIR — at the touch of a switch

★★★ ECONOMICAL—uses paraffin or fuel oil

★★★ CIRCULATING WARM AIR —covers 2,000-3,000 sq. ft.

★★★ No exposed flames or fumes

★ Available in four models—Model No. 85, 75,000 B.T.U.'s, £87-10. Model 125, 120,000 B.T.U.'s, £117-10. Model 140, 150,000 B.T.U.'s, £122-10. Model 200, 250,000 B.T.U.'s, £135.

**SIMPLEX DAIRY EQUIPMENT CO. OF IRELAND LTD.**  
Bluebell Works, Inchicore, Dublin. Telephone 503288.



# We don't just sell a boiler then run away

**We return to the scene of the sale three times a year**

When you instal a John Thompson Multipac Boiler, our Service Contract becomes automatically available, entitling you to three annual visits by our mobile teams of boiler engineers. Based at Glasgow, London, Birmingham, Manchester and Belfast, these specialist engineers carry out a rigorous inspection of all working parts, controls and burner units of your MULTIPAC installation. In the United Kingdom and Eire, John Thompson also operate a genuine 24 hour emergency service for all boiler ancillaries — including burner replacements.

For full details of MULTIPAC Maintenance Service, please contact any of our branches:-

**BELFAST** 16/20 Rosemary Street, Belfast.

**BIRMINGHAM** 2 Greenfield Crescent, Edgbaston, Birmingham 15.

**GLASGOW** John Thompson (Wilson Boilers) Ltd., Lilybank Works, London Road, Glasgow E.1.

**LONDON** Tavistock House East, Woburn Walk, Tavistock Square, W.C.1.

**MANCHESTER** Sunlight House, Quay Street, Manchester 3.

**Features of the MULTIPAC boiler:**

- Is of the well proved 3 pass design
- Has dished wet back combustion chamber, (no refractory troubles)
- Easy access to all parts of boiler for maintenance
- Uses patented Primary Split Burner Quarl for ease of replacement
- Only boiler with burner panel over-riding control, fitted as standard (i.e. boiler can be kept steaming on hand control though panel "Automatics" are unserviceable)
- Ladder & gangway is fitted as standard
- Sequence slowdown controls fitted for safety in operation
- No need for costly pumping and heating sets (if O.S. tank is local to boilerhouse)
- Boiler accessories are of uniform manufacture and only the finest are fitted
- Boilers are rigorously tested under all operating conditions before despatch

There's a 'MULTIPAC' installation in your area — contact our nearest branch office and we will arrange for you to see it in action.



**JOHN THOMPSON PACKAGE BOILER DIVISION** · Lilybank Works · London Road · Glasgow E.1

EIRE: William Peet & Sons Ltd., Dalkey, Co. Dublin.



# AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

## “HOW hot is hot water?”

Perhaps more to the point, “How hot should hot water be when used for domestic purposes?” General agreement might be difficult to establish but it can be said that bath water temperature at 110 degrees Fah. is acceptable by most, and that washing-up water at 140 degrees Fah. is a useful temperature for the purpose.

In a properly designed system there should be no need to provide water, or store it, at a temperature greater than 140 degrees Fah. Above this temperature, in hard water districts, “fur” deposits are precipitated at a much faster rate. The damaging, and fuel wasting effects of “fur” deposits in boilers, water heaters, and pipes, are well enough known as to warrant steps being taken to prevent unnecessary depositions.

A thermometer is the only sensible means of ascertaining water temperature. These cost very little. They are easily fitted, and even with

## REVIEW OF THERMOSTATS, THERMOMETERS, TEMPERATURE INDICATORS, ETC.

automatically controlled equipment they are at least a check on the adjustment and continuing good order of working of those controls.

The higher stored water temperatures are allowed to rise, the greater are the standing heat losses. This applies whether a store is insulated or not. Increased heat losses mean the consumption of more fuel to maintain the water temperature. Such fuel usage is wasteful and should be avoided. A thermometer will give visual indication, helpful even to a lay person—the housewife, perhaps, so that she can readily see if the water is overheating and therefore unnecessarily wasting expensive fuel.

Thermostats, now commonly provided as integral ancillary equipment to most

domestic hot water heating equipment and central heating boilers, are heat sensitive devices used to monitor combustion control and so regulate the temperature of its associated system.

As a general rule, thermostats are of the immersion type, that is, the heat sensitive element is immersed in the fluid, the temperature of which it is to measure. Examples are: the water immersion kind as used to control electric immersion heaters and some boiler water temperatures; the flue gas immersion types used to control check-draughts to solid fuel boilers and to monitor flue gas temperatures in oil-fired ones; and finally the wall mounted room-stats which control heating systems through sensing ambient air temperatures.

Thermostats are available in many patterns, for many functions. All have been perfected to a degree and can be relied upon, even to the extent, some would suggest, that thermometers need not be used. In general, one would have to agree, but adequate thermostatic control will ensure not only a higher standard of system performance, it will ensure this higher standard with minimal fuel consumption, thus providing lower operating costs, as well as safeguarding the system from incidental damage due to overheating.

Thermostatic control is no gimmick—it is a sound economic necessity and essential to automatic control, a desirable feature these days. So let's not spoil the ship for a “Haporth of tar,” let us get hold of manufacturer's literature and see for ourselves just how much better we can serve our customers' needs if we make wise use of modern thermostatic control equipment.

A NEW electronic round thermostat, for control of space heating or air conditioning in commercial buildings, is available from Honeywell Controls Limited. Highly sensitive, giving fast response to changes in temperature, the thermostats are for use with electronic panels or pneumatic electronic transducers.

The new thermostat (T7018) is the same price as the T7000A model it replaces. It offers all the features of the latter but has an improved functional and aesthetic appeal.

Ideal for wall mounting, it contains a resistance type sensing element and a bi-metal operated dial thermometer calibrated in degrees fahrenheit or centigrade.

Two models of the new thermostat

**In conjunction with this Special Survey we review here products from the leading manufacturers' ranges.**

are available. The T7018A has a temperature setting adjustment as an integral part of the thermostat. The dial type thermometer and control point indicator are on one easy-to-read dial. Adjustable locking settings within the thermostat make it possible to adjust the temperature range within the desired limits, or to lock the temperature at one specific setting.

On the T7018C model the temperature setting is adjusted at a centralised



**The Honeywell round thermostat.**

control panel. It does, however, have a thermometer for temperature indication.

*The Irish Plumber and Heating Contractor.*

OVER a dozen new products coming within the scope of this special survey are being offered by Manotherm Limited.

These include a new room thermostat best suited for use with portable heaters which will control room temperature within a range of from 0 to 30 degrees C. This thermostat has an attractive case with its scale on the front and a plug at the back.

Also new from Manotherm is a controller which should have valuable applications in hot water heating installations. The unit, prompted by outside temperatures, controls the system so that a constant temperature indoors, at the desired level, is accurately maintained.

Other "news" by Manotherm are: The series 4200-4300 Boilermasters by Penn Controls; compact temperature controls; line voltage heating-cooling thermostats; line voltage thermostat; dual hot water controls; triple function hot water controls; automatic changeover control; strap-on temperature; hot water controls; the new compact series 6218 temperature controls; oil burner primary controls; and the new low voltage thermostat.

\* \* \*

FROM THE range of Satchwell Controls Limited we look at the TL

## PRODUCT REVIEW

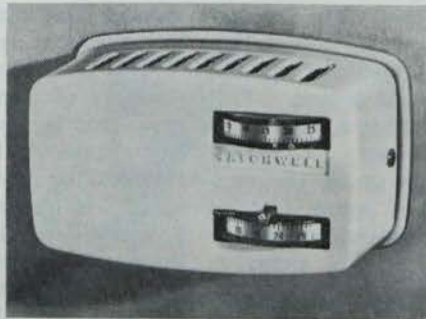
*from previous page*

room thermostat which is designed to control space temperature in conjunction with appropriate mains or low voltage valves, relays, boiler firing controls and similar equipment for heating and cooling applications. It is particularly suitable for use with the M Motorised Valve for controlling individual radiators or heating zones.

The thermostat can be provided with a single-pole on-off or single-pole changeover switch. Both types have a robust magnetically controlled



The M motorised valve.



The TL room thermostat.

action. Accelerator heaters are incorporated which, in effect, cause the thermostat to anticipate a rise in temperature when it is "calling for heat," thus helping to reduce temperature overshoot.

The terminals are mounted on a separate base which simplifies installation, the thermostat being plugged

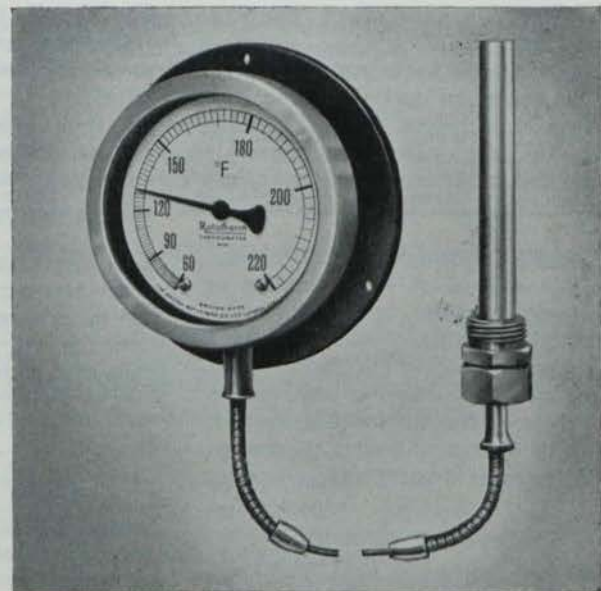
***In any industry...***

**TO MEASURE,  
RECORD  
OR CONTROL  
TEMPERATURES**

*accurately*

**Rototherm**

Bi-metal · Mercury-in-steel · Vapour pressure Thermometers



**are visibly better!**

**THE ROTOTHERM PRECISION & INSTRUMENT CO. LTD.**

Beechwood, Church Road, Killiney, Co. Dublin. Tel.: Dublin 86566, and Merton Abbey, London, S.W.19.

onto the base and secured by a captive screw after the base has been mounted and the appropriate connections made. The cover is moulded in tough plastic materials and can be removed for installation and painting if required. A guard is available to protect the thermostat from mechanical damage.

The M motorised valve is an on-off single beat valve designed to control the flow of low pressure hot water and saturated steam. The valve can be used to control individual radiators, radiator zones or other equipment where on-off control by a ther-

## PRODUCT REVIEW

*from previous page*

mostat or other controller is required. For example, it can be controlled by a room thermostat such as the TL, an immersion thermostat such as the FP, or any other controller having single-pole changeover switch action.

The valve body is a high quality bronze casting having screwed ends up to 1½" BSP. Two port and three port valves are available; the latter type is made in ½" BSP and ¾" BSP

sizes only and is used for two-position diverting applications. The gland has been specially designed to give trouble-free service and no adjustments are required.

The motor and gear train are oil immersed in a die-cast alloy housing which is fixed to the valve body with a coupling nut. A window in the housing shows an indicator plate which gives a clear indication of the valve position.

\* \* \*

COMPREHENSIVE coverage of both industrial and domestic applications by way of temperature controls is offered in the K.D.G. Sopac range available here through Luke, Martyn & Co. Ltd., 1 Sandyhill Park, Drum-beg, near Belfast.

From the range we look at the Sopac thermostat for surface temperatures HRA. This unit is designed for the control of oil or gas fired boilers and is suitable for installation on pipes of various diameters. Temperature range is +25 degrees C to 90 degrees C (on/off differential 4 degrees C).

The unit employs a vapour pressure charge capsule which operates single pole single throw contacts opening on increase of temperature.

\* \* \*

THE LATEST development from Steel Radiators Limited, manufacturers of the famous Stelrad radiators, is their Stelostat, which is a thermostatic valve. The Stelostat has already proved itself in Europe, having been marketed there for a number of years by Steel Radiators' associated companies.

Stelostat is fitted to the inlet pipe of the radiator and is no larger than the conventional types of radiator valves, giving full temperature control. With the product, the temperature in the room can be regulated according to personal requirements, an advantage which cannot be attained with central or group thermostats. The Stelostat can be fitted both vertically and horizontally and is obtainable in ½" or ¾" connections at a very reasonable price. Their range of temperature control is from 50°F to 80°F.

\* \* \*

A NEWLY INTRODUCED control system comes from Sangamo Weston Limited of St. Georges Court, 22-26 New Oxford Street, London, W.C.1. The new system is designed to control thermal storage heating installa-

*continued overleaf*

# DANFOSS FOR CONTROLS

- SOLENOID VALVES for Water, Gas and Air.
- THERMOSTATIC RADIATOR VALVES.
- THERMOSTATS for Room, Boiler, Air Duct, Piggery, etc., applications.
- CONTROL PANELS, OIL PUMPS, JETS, etc., for OIL BURNERS.

For further information:

**J. J. SAMPSON & SON LTD.**

12a WEXFORD STREET, DUBLIN. Telephone: 51856.

Sole Agents in Ireland.

## PRODUCT REVIEW

from previous page



The Sangomo Weston dial time switch.

tions and consists of a synchronous time switch and an external sensing unit.

It is planned for connection to a single-phase supply and is capable of controlling a five kilowatt storage heating system; higher loadings necessitate the use of a contractor.

The 24-hour dial time switch shown has two pairs of adjustable target pins which rotate with the dial; one pair controls a set of contacts which switches the night charging period, the other pair controls another set of contacts which switches the boost period.

VENNER have extended the Auto-point range by incorporating a thermostat in the latest addition.

The new unit, which is available in either portable or wall-mounting form, provides automatic time and temperature control of all forms of electric space heating.

Also making news for Venner is the Vennerette Mark II. which provides comprehensive control of lighting or heating installations. It is designed to occupy a prominent wall-mounting position. This unit is fitted with separate clock terminals (30 amp.—6 kw.).

Irish agents are Roper Bros. Ltd.

\* \* \*

ARIC (Ireland) Ltd., 6 Montague Street, Dublin, have introduced a fluid filled Differential Thermostat for industrial use, which will detect and register the differential temperature across two points and provide accurate control by opening or closing built-in micro switches at predetermined values of temperature differential.

A typical application for a three-switch unit is that of protection for an oil-fired heat exchanger where two of the micro switches are used to control the burner and fan while the third acts as a "fail safe" switch.

The "hot" and "cold" bulbs are each connected via a capillary to a bellows mounted on a differential movement which in turn is connected to a rack and pinion operating the pointer. If both bulbs sense the same increase in heat their respective bellows expand an equal amount and their relative motions are absorbed in the differential movement.

The instrument can be provided to cover a wide range of differential temperatures and the position of the red setting pointer will be related to the temperature rise of the particular installation. The temperature of the "cold" and "hot" bulbs must fall within one of the following bands:— 100 degrees F to 200; 30 degrees F to 320; 70 degrees F to 650 F. The red pointer is set by rotating the cam spindle with the special key provided which determines the operating position of the top micro switch.

\* \* \*

● WHEN we reviewed the new Perkins Mini Warm Air Pilot unit last month we said that it could be provided with a "vapourising pressure jet burner." This, of course, should have read vapourising or pressure jet burner. The new unit is available here from Oil Fired Homes (Ireland) Ltd.

● JOHN G. BOLTON'S regular contribution has been held over due to heavy space demands.

## Here's the first really NEW IDEA in electric heat thermostats

There's no other room thermostat like it. Its large dial actually "meters" desired temperature changes. Each "click" is a change of 1° . . . reduces tendency to over-, or under-adjust. And, it gives faster response to both convective and radiant heat. You'll also like the faster installation and easier wiring. Write for Bulletin 3205 . . . it's free!

**PENN CONTROLS, INC.** Goshen, Indiana

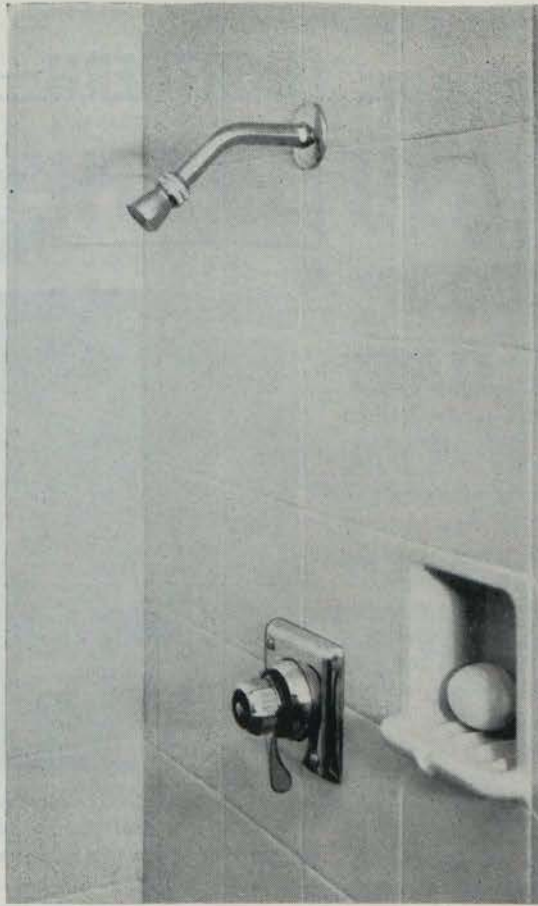
● Easier to wire. There's no more looping of wires . . . simply insert straight wire end under the new "quick-connect" large terminals and tighten.

● Decorator Panel Click Dial Thermostat blends perfectly with any room decor. Snap-in front panel is easily removed for painting to match any colour scheme.

# MANOTHERM LTD.

14 CORN EXCHANGE BUILDINGS, BURGH QUAY, DUBLIN. Tel. 73913

The Leonard 72B was the only sanitary fitting awarded a design prize in the 1963 Hanover International Fair.



for single showers  
The Leonard 72 is the most attractive and efficient control available for showers, shampoos, etc. It combines in one body temperature and flow control handles; does not require outlet stopcocks, non-return valves, etc.

for larger uses  
There are six basic sizes of Leonard valves, ranging from  $\frac{1}{2}$ " to 2" outlets, from 1 to 104 gallons capacity. They are used for grouped showers, grouped basins, many hospital uses, and in all types of industry where large quantities of temperature-controlled water are needed.

# hot and cold water economically and safely controlled by Leonard thermostatic mixing valves



Little girls are always washing: look after them with a Leonard.



This baby has high praise for his Leonard controlled bath water. Not a murmur!



Some boys like to get into hot water! Make sure it's controlled by a Leonard.



## NEW DUCTAIR WARM AIR SYSTEM INTRODUCED

**D**UCTAIR G.4501, a new gas-fired warm air central heating system, received an enthusiastic send-off when trade, technical and Press representatives were invited to the preview at a new show bungalow at Bangor, Co. Down, last month.

Introduced for the first time in Northern Ireland, by Radiation Central Heating Ltd., the latest off-shoot of Radiation Parkray Ltd., the new system is the first of 130 such installations in houses and bungalows on the Fairfield Road site.

An informal gathering, interested viewers included the heads of the Belfast and Bangor gas departments as well as the local mayor. The South was also represented in Mr. Paddy Mahon of the Dublin Gas Co., and building contractor Mr. T. J. O'Reilly from Glenageary.

The Ductair "45," the larger of two such self-contained units, has an output of from 40,000 to 45,000 B.t.u./hr.—sufficient to provide complete central heating for the larger 3/4 bedroom house. It can also be derated by 5,000 B.t.u./hr., thus ensuring an economical system, tailor-made to individual requirements.

Designed for conventional or balanced flues, the unit can be built into a cupboard or recess to save valuable working space.

Cost to install is in the region of £284, while maintenance is stated to be at a minimum. Finished in white stove-enamelling, the dimensions are: height, 33½"; width, 11¼"; depth, 10".

Radiation Parkray representatives in attendance included Mr. L. F. Young, area sales manager for Northern Ireland; Mr. A. Marks, technical manager; Mr. S. Davidson, technical representative, and Mr. W. Black, service superintendent.

Radiation will present their latest brain child to the public later this month when the G.4501 and the G.3501 will take pride of place on their stand at the Building Exhibition at Olympia in London.

## NORTHERN FROM ALLEN MCDOWELL NOTES



By operating a clock control panel on the face of the G 4501 the householder can pre-set the heating programme for the day.

## McNEILL GROUP STAGE UNUSUAL TRADE SHOW

**MEMBERS** of the heating trade as well as architects, surveyors and civil engineering concerns were present in a Belfast hotel recently to see a trade-show-with-a-difference.

Staged by the McNeill Group of Companies, the show—an informal stage and screen production—had the dual purpose of emphasising the thermal insulation and acoustic potential of Owens-Corning Fibreglass. This glass fibre, which has captured the imagination of many trades in the

## At McNeill show . . .

From left: W. G. Conn, Managing Director, Noise Control Products Ltd.; J. C. McNeill, Chairman, McNeill Group (N.I.) Ltd.; W. J. Doran, Sales Director, McNeill Group (N.I.) Ltd.; R. J. Walby, Director, McNeill (Ireland) Ltd.



United States, is now being marketed in Britain by Noise Control Products Ltd.

The presentation in the Conway House Hotel, Dunmurry, marked the start of a series of performances which ended last month in the Inter-Continental Hotel, Dublin, where McNeill (Ireland) Ltd. were the hosts.

Mr. G. J. Lashbrook, of Lashbrook Advertising, who organised the shows in Ireland, said he was delighted with the successes. No fewer than 14,000 invitations had been sent out to representatives of the trade throughout Britain and Ireland.

Three tons of equipment were brought in a specially chartered plane for the Belfast presentation—the actual staging cost being in the region of £1,000.

Mr. Lashbrook added: "It is the largest show of its kind in Europe as well as being the first. The idea of putting on such a show was a complete success and Owens-Corning should do well with this remarkable product."

## REVOLUTIONARY APPROACH TO HOME HEAT

**PLAYING** a "behind-the-scenes" part—but nonetheless an important one—in the Hopkin's bungalow heating installation is the use of Thermalon, a plastic foam insulation.

A revolutionary new approach to home heating, the idea was developed by Thermalon Limited and has been used extensively on the continent for the last 17 years.

The cost of insulation is very reasonable—generally one shilling per square foot supplied and fixed—which means that the average small house

*Continued opposite*

## Northern Notes (Cont.)

of 800 square feet floor area can be adequately treated for around £35.

A stable and rigid foam substance, Thermalon will not aid combustion—indeed it will reduce fire risk, while tolerating temperatures up to 230 degrees Centigrade. It is equally unaffected by extreme sub-zero temperatures; it has excellent germicidal properties, no odour, and is completely resistant to rot, pests, vermin, etc. Its most striking use, as in the Show Bungalow, is in cavity walls, where it is pressure injected, either during or after erection.

Every 1,000 square feet of wall insulated is equivalent to a heat saving which can be expressed in round figures as  $\frac{1}{4}$ -ton solid fuel, 150 therms gas, 4,000 units of electricity or 100 gallons of oil per year for every year of the future, say the manufacturers. Where buildings have full-scale heating this would show an actual fuel saving. Buildings with background heating would have a higher standard of comfort such as would be produced by using this greater quantity of fuel.

Agents for all-Ireland are Stag Insulation (N.I.) Limited, 68 Orby Road, Belfast, 5. An agent is soon to be appointed for the South.

## DAVIDSON'S NEW AGENT

MESSRS. E. C. Handcock Ltd., Fleet St., Dublin, have been appointed representatives in the South for Davidson & Co., Ltd., Sirocco Engineering Works, Belfast.

Handcock's, who have a branch office in Cork, are currently associated with the marketing of a wide range of electrical products in the Republic.

With this new appointment the Dublin company now becomes associated with one of the world's largest manufacturers of fans and ancillary products. They will work in conjunction with Sirocco's specialised engineers and will have full recourse of their extensive technical resources.

NORTHERN NOTES continued  
overleaf

# CENTRAL HEATING

WITH THE FAMOUS

## "ALL-AROUND" GRATE BOILER

The Willis "All-Around" grate boiler is the most powerful grate boiler on the market—proof of this claim is to examine the design—the boiler fits "All-Around" any open fire, giving a larger heating surface than any 'Back' boiler—ask your merchant, he knows.

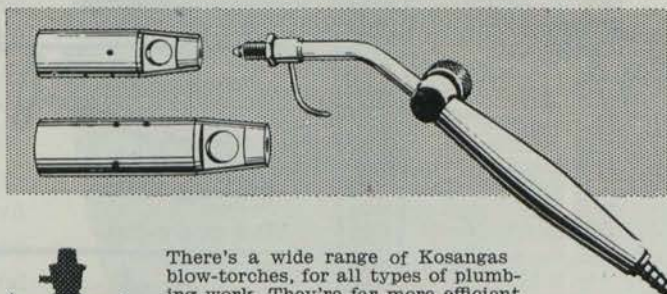
**HEATS 3-4 RADIATORS PLUS PLENTY OF HOT WATER — FROM ONE OPEN FIRE**

Made in Belfast by WILLIS, the Name Famous for 40 years in Open Fire Heating.

Write now for details to: Wm. Willis & Co. Ltd., 23/9 Dublin Road, Belfast, 2.

# Kosangas Blow-Torches

for every plumbing job!



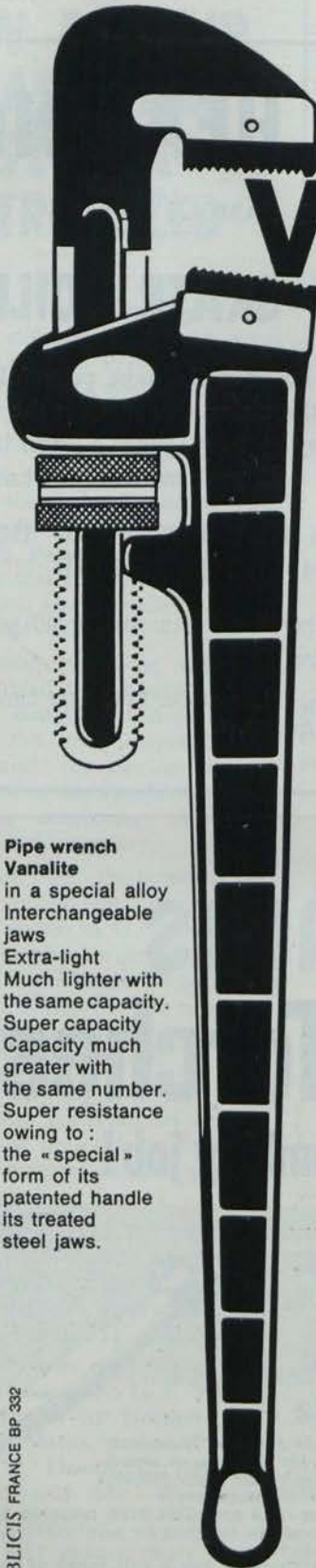
There's a wide range of Kosangas blow-torches, for all types of plumbing work. They're far more efficient than the conventional types.

The Kosangas TH3 and TH4 high pressure blow-torches are specially designed for paint-burning, pre-heating and soldering.

The Bullfinch Mark II has a full range of heads, including soldering attachment. Use Kosangas blow-torches, with the small Kosangas portable cylinder, also for roof-felting, jointing of plastic pipes, and other heating needs.

A plumber's portable furnace with wind protected burner is available.

Send for details to: McMullans Kosangas Ltd., 1 Upper O'Connell St., Dublin. Tel: Dublin 40761-4.



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For you, in Ireland, as well as throughout the world, VIRAX proposes a complete range of strong tools making use of the latest techniques.

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Your superiority is your skill, but for you, as well as for all specialists, in and throughout the world, it's the satisfaction of having a good tool well adapted to your job, a VIRAX tool.

**Pipe wrench Vanalite**  
in a special alloy  
Interchangeable  
jaws  
Extra-light  
Much lighter with  
the same capacity.  
Super capacity  
Capacity much  
greater with  
the same number.  
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owing to :  
the « special »  
form of its  
patented handle  
its treated  
steel jaws.

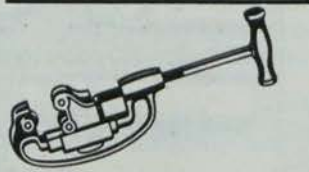
PUBLICIS FRANCE BP 332



Stillson wrench



Vice



VR 2 pipe cutter



Adjustable die

J. S. Lister Ltd.  
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DUBLIN - Tel. 47881

## Northern

### Notes (Cont.)



Mr. James Kerr

**IN THESE** days of mergers and take-overs it is most refreshing to hear a "local man makes good" story for a change.

When the Belfast branch of Bryterlite, the big British electrical concern, ceased operations some months ago, Councillor James Kerr, a former employee of the company, promptly bought it over.

Mr. Kerr, whose own firm, J. F. Kerr & Co. Ltd., are agents and distributors for building supplies, said that the new acquisition would diversify and expand their interests.

### in brief...

● **THE ORDER** position of Dimplex continues to be satisfactory, the chairman, Mr. E. Wade, told shareholders at the annual meeting of the company.

Exports were increasing steadily although they were still only a small percentage of total sales. Overseas sales, he said, showed a very substantial increase over those of last year.

● **TWO** product groups—rural and small distribution transformers and a new range of low voltage switchgear—will be transferred by Messrs. Johnson & Phillips, Charlton, London, to the 60,000 sq. ft. factory at Newtownards, Co. Down, which they have leased from the Ministry of Commerce.

● **JOURNEYMEN** plumbers in the North have been awarded a pay increase of 4d. per hour. The new rate, which took effect on November 4, brings their basic rate to 6s. 3d. an hour—an increase which is to be improved next year with 3d., and a further 2½d. in 1965.

**THOSE WHO  
SPECIFY IT...**



**THE ARCHITECT** with an eye for efficiency also sees in the Lynx's clean-cut lines contemporary styling at its very best.

**THOSE WHO  
INSTALL IT...**



**THE PLUMBER** finds it easiest of all to fit; the concealed fixing is neat and simple.

**THOSE WHO  
OWN IT...**



**THE CUSTOMER** is delighted to discover that such a handsome cistern also has the most discreetly quiet and dependable mechanism she's ever encountered.

**...All acclaim the**

*Shires* **LYNX**

**MADE IN IRELAND**

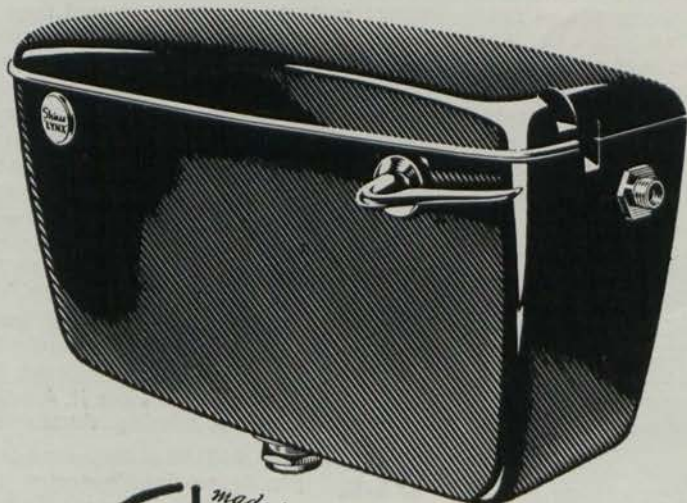
Shires Lynx is today's most popular cistern, for replacements or new installations. Lynx high and low level cisterns are made of black Duranite — tough and durable, non-crazing, non-corrosive. The Kingfisher syphon mechanism gives a powerful flush: made of polythene — non-corrosive, non-ageing and unbreakable — it can be used in hard or soft water areas. It conforms to BSS 1125 and Water Works specifications. Capacities: 2, 2½ and 3 gallons.

**EVERY GENUINE LYNX HAS THE NAME ENGRAVED ON THE CISTERN**

Other Shires' products are the Uni-Lynx close-coupled suite, cistern fittings and the Polyfloat cold water cistern float.

Available from all recognised builders' providers in the Republic

Published by ARROW@TU.Dublin, 1963



*made by*  
*Shires*  
*for your convenience*

**SHIRES (IRELAND) LIMITED, STANNAWAY DRIVE, CRUMLIN, DUBLIN**

The Irish Plumber and Heating Contractor.

# DOMESTIC COLD WATER SUPPLY

from page twenty

tion practice points as you go. (The numbers appearing in the description relate to relevant details shown in illustrated on page thirty-six.

The pipe trench (1) will have a level bottom, free from sharp stones, and be prepared in the way described earlier in this series according to the

soil conditions. It will be deep enough at all places to ensure that the new underground service will have a 2' 6" cover of soil to protect it from frost damage (2).

The ducted service entry (3) of salt glazed ware pipes, or the equivalent, will be already in place. The service pipe, with the union for the inside stop tap already wiped on, will be threaded through the duct until about nine inches of it stands above the inside floor level.

The service pipe (4) will then be uncoiled along the prepared pipe trench bottom, and finally connected to the boundary stop tap (5).

The infilling of the pipe trench can now go on as soon as the householder's stop tap has been fitted inside the house, and the service filled with water and examined to make sure that there are no leaks.

A stop tap guard pipe (6) to B.S.1185 (1944) will be placed on a suitable concrete base beneath the boundary stop tap. The guard pipe will make access to the stop tap easy at all times, and will be fitted with a cover to a pattern approved by the Water Undertaking.

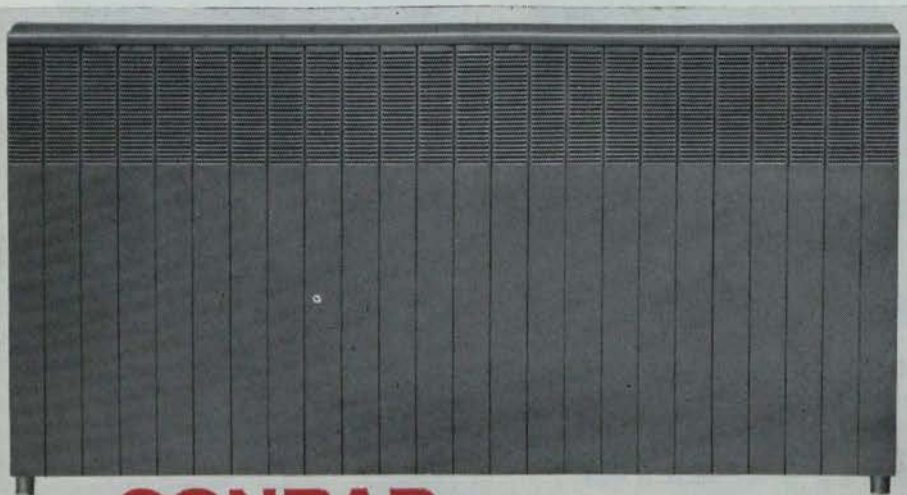
The internal arrangements.—Internal work can now be done. Having fitted the internal stop tap (7) which the householder normally uses for turning off the water and draining down in frosty weather if he intends to leave the house unoccupied and unheated, a drawn down tap (8) must be fitted immediately above the stop tap. Alternatively, the stop may have a drain tap incorporated in it—a neater, cheaper, and altogether better arrangement.

The rising service main (9) will then be prepared and fixed as described earlier et seq. Notice that it is run up an inside wall, not the inside of an outside wall. In this position an inside wall, the pipe is less likely to lose heat, and is therefore less likely to freeze.

The rising main service can be arranged so that it feeds all cold supplies to sink, basin, bath, W.C. flushing cistern, then supplies the ballvalve of the cold feed cistern (10) for the domestic hot water supply system.

Alternatively, the rising main could supply only one tap, usually over the kitchen sink, from which drinking

Continued page thirty-six



## CONRAD a great step forward in space heating

Conrad is the happy result of a marriage between Convection and Radiation. Room air enters heater near floor level, is then evenly warmed and distributed throughout the room by convection which, combined with radiation from the front panel, offers hitherto unavailable new comfort and climate control. Examines Conrad's revolutionary new features:

- 1 Conrad is so designed that radiation from the panel face is always at optimum value. At low water temperatures the panel approaches the mean water temperature and the difference gradually increases as the water temperature rises.
- 2 Conrad is suitable for all two-pipe accelerated hot water systems. Ideal for multi-storied buildings, every Conrad is tested to 1300 p.s.i. pressure.
- 3 The low water content of Conrad ensures rapid heating up to the design room temperature giving quick response to water temperature changes.
- 4 Conrad's low installation costs bring a new concept of economy. One man can handle the fixing. There are no built-in wall brackets as with ordinary radiators—Conrad needs only 2 or 3 wood screws to firmly secure its lightweight efficiency. A 6 foot model weighs only 49 lbs.
- 5 The heater comes in 9 sizes, rising in increments of 6" from 24" to 72". It is 22" high, projects only 3" from the wall, and should be fitted not less than 4" above floor level.



**BIDDLE**  
F H BIDDLE LIMITED  
16 Upper Grosvenor  
Street London W1  
Tel: Hyde Park 0532

So there you have it. A quiet revolution in space heating. Further details from:

D. H. BUTLER, 7 Blackwood Crescent, Helen's Bay, Belfast. Telephone: Helen's Bay 2119.

QUADRANT ENGINEERS, 167 Strand Road, Sandymount, Dublin 4. Telephone: Dublin 693940

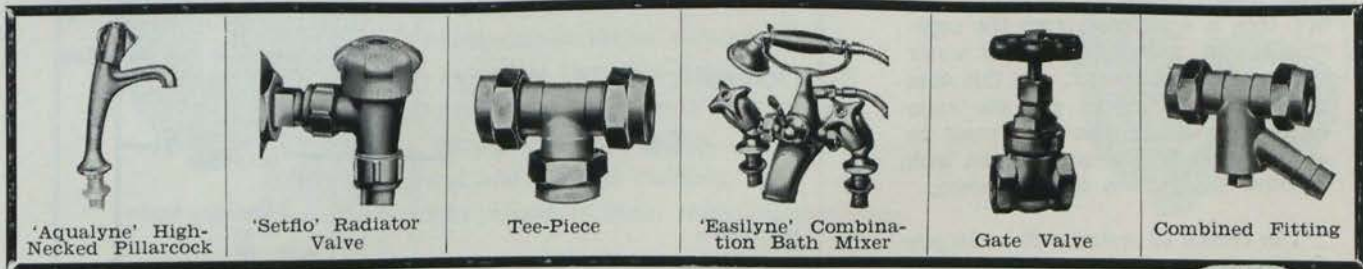
Quality Controlled Products

# See **Sanbra Fyffe** first

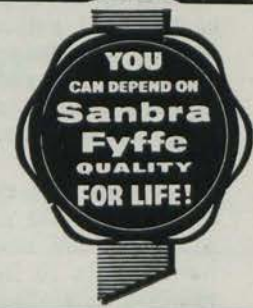
FOR ALL REQUIREMENTS IN PLUMBING AND HEATING SERVICES

**THE SANBRA FYFFE RANGE INCLUDES:—**

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- Valves, Stopcocks and Drawn Copper Traps.
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SANBRA FYFFE products are approved by the leading Architects, Surveyors, Plumbers, Contractors, Government Departments, Municipal Authorities and Water Works throughout Ireland.



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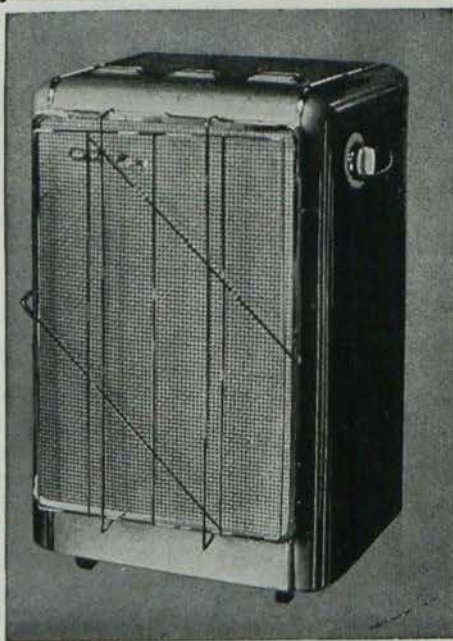
Telephone: Dublin 375131 (5 lines).

Telegrams: SANBRA, DUBLIN.

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## THIS IS FLAMELESS HEAT

CATALOR LIQUID-GAS thermo-reactor for domestic, office or industrial heating.

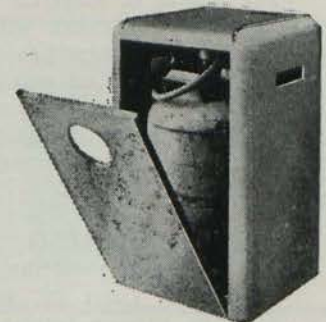


"Catalytic Heating"—What It Means And How It Works. When liquid propane or butane meet a pre-heated platinised "catalyst" they are oxydised into carbon dioxide and steam; heat is generated in the process, and the (patent) "CATALOR" heater gives off this heat as 46 per cent. radiation and 54 per cent. convection. The heating element does not ignite or glow; it simply pours out penetrating heat which is healthy, clean and SAFE. Even a naked flame held near the CATALOR element is extinguished. The larger models need only a few minutes of electric pre-heating; then an automatic cut-out switches off the current as the element grows hotter.

Left: Model 6035 CATALOR 'Housemaster' Domestic Heater, £25-12-0.

NO PIPES OR WIRES

CATALOR Heater is self-contained, holds butane or propane bottle, runs on smooth castors.



# W. & L. CROWE LTD.

East Wall,  
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Phone 43101.

*The Irish Plumber and Heating Contractor.*

*from page thirty-four*

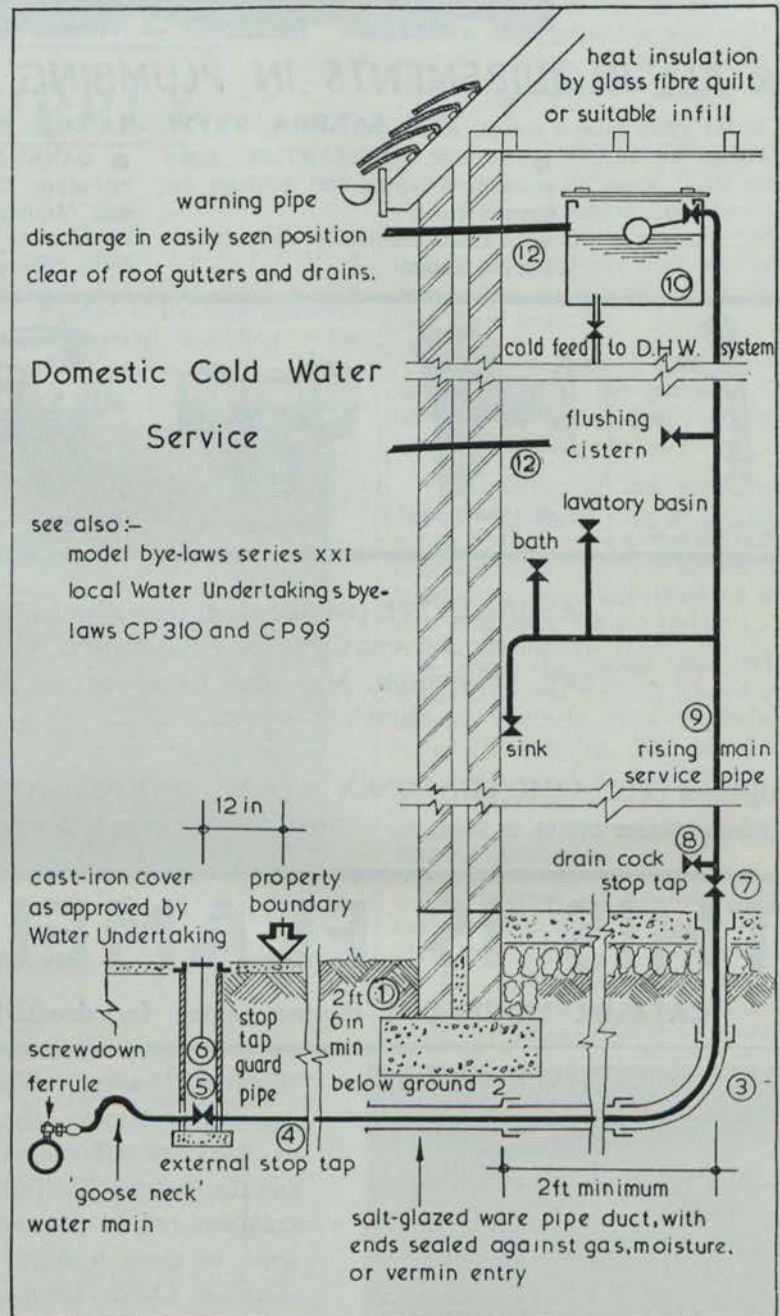
water supplies could be drawn, and then go on to feed the ballvalve of a combined cold storage and feed cistern which would downfeed through distribution pipes to all other cold taps and flushing cisterns in the house. Possibly the cold store cistern and the domestic hot water system's cold feed cistern could be separate. If not, then a cold feed from the common cistern will supply the hot water system with cold water. In this case the inlet of this pipe and the main cold water distribution pipe must be at the same height—at least an inch—above the bottom of the cistern.

The choice of system will be largely decided by the Bye-Law requirements of the local authority supplying the water. For the present, let us assume that the authority permits all taps and cisterns to be fed from the rising service main.

**The cold feed cistern (10)** for the hot water system must, of course, be watertight, and since one gallon of water weighs 10 lbs., and the cistern will hold several gallons, it will need to be adequately supported. It will need to have a well-fitting but not airtight lid to prevent dust and dirt from getting into the cistern and making the water impure. It will also need thermal insulation if it is exposed to cold air, for example in a roof space, to protect it from damage by frost.

Usually, cisterns are made of hot dip galvanised mild steel to B.S. 147, but they could be of timber lined with lead or copper sheet. Alternatively, in the smaller sizes they could be made of asbestos, cement, or copper; or of one of the newer plastic materials such as glass fibre. The choice of material for the feed cistern and pipework will depend on the chemical properties of the water and particularly on whether it is corrosive to metals. Cost may have to be considered, and again, the wishes of the local authority may have to be taken into account.

The capacity of the cistern must be sufficient to meet the needs of the household. Later on we shall deal with the various factors which help to decide what capacity is right in given circumstances. For the time



see also:-  
model bye-laws series XXI  
local Water Undertakings bye-laws CP310 and CP99

being consider that the smallest cold storage capacity permitted by the regulations is 25 gallons, and that where the cistern is used both as a cold store and as a feed for a hot water system its actual capacity, that is to working water level, must not be less than 50 gallons.

In order to store a fair reserve of water against possible interruption of the main supply, the cistern will normally have a bigger capacity than these minimum sizes.

**Warning pipes (11)** must be fitted

to W.C. flushing cisterns and to cold storage and feed cisterns. The warning pipe must not have an inside diameter of less than  $\frac{3}{4}$ " ; it must be fitted so that its overflowing level is not less than twice its diameter below the top edge of the cistern, and at least 1 inch above the working water level of the cistern.

The warning pipe must discharge so that any overflow due to a defective ballvalve can be easily seen and quickly put right, and any waste of water prevented.

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PRODUCT**

# "THE DUBOIS PLASTIC TRAP" (Regd.)

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PRODUCT**

Provn. Pat. No. 38070/60.

**1 1/4" and 1 1/2" diam. x 1 1/2" seal "S" and "P" BLACK HIGH DENSITY  
PLASTIC TRAPS**



Orthodox Shape!  
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Outlets can be turned through 220°.  
A two-piece trap at a one-piece price.  
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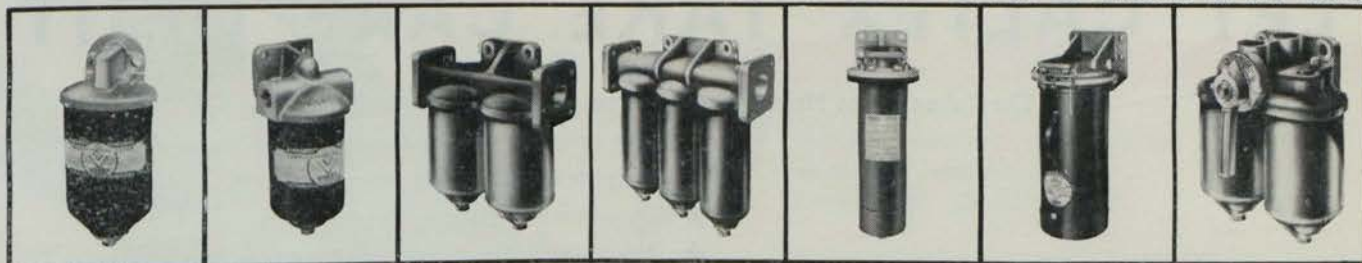
## **VOKES LUBRICATING OIL FILTERS**

**for complete engine protection!**

Vokes, a wholly British company and specialists for over 30 years in the design and manufacture of high performance filtration equipment, have during this time supplied full-flow lubricating oil filters to the Admiralty, mercantile marine and aircraft industries, and all major engine manufacturers. The easy maintenance and outstanding performance of these filters has now led to their adoption in several nuclear energy projects.

Illustrated below is the standard range of Vokes lube oil filters guaranteed 99.95% efficient against impurities down to 10-15 microns in size. Tests have shown that impurities below these sizes have no effect on engine wear. Each filter incorporates Vokes unique by-pass device which ensures a continuous flow of oil should the insert become choked. Other filters are available for special duties and Vokes engineers are always on hand to discuss your particular requirements.

Please write for Section B, Vokes new lubricating oil filter catalogue.



(1) direct mounting type. Nominal capacities, 200 to 700 g.p.h. (2) External pipe type. Nominal capacities 200 to 700 g.p.h. (3) Twin bowl, parallel flow. Nominal capacities 900 and 1200 g.p.h. (4) Triple bowl, parallel flow. Nominal capacities 1200 to 1600 g.p.h. (5) Multibolt head. Nominal capacities 750 to 2000 g.p.h. (6) Single bolt head clamping. Nominal capacities 3000 to 5000 g.p.h. (7) Duplex type, centre bolt fixing. Nominal capacities 200 to 700 g.p.h. (8) Duplex type, multibolt head. Nominal capacities 750 to 2000 g.p.h. (9) Duplex type, articulated clamp head fixing. Nominal capacities 3000 to 5000 g.p.h. (10) "Top Servicing" bolted head plate. Nominal capacities 1000 to 5000 g.p.h. (11) "Top Servicing" articulated clamp,



Nominal capacities 3000 to 5000 g.p.h. (12) Duplex "Top Servicing." Nominal capacities 1000 to 5000 g.p.h. Guide to illustrations: top row, left to right, numbers 1 to 7; bottom row, 8 to 12.

Full technical data available from the Sole Agents:

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