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The Irish Plumber and Heating Contractor, October 1962 (complete issue)

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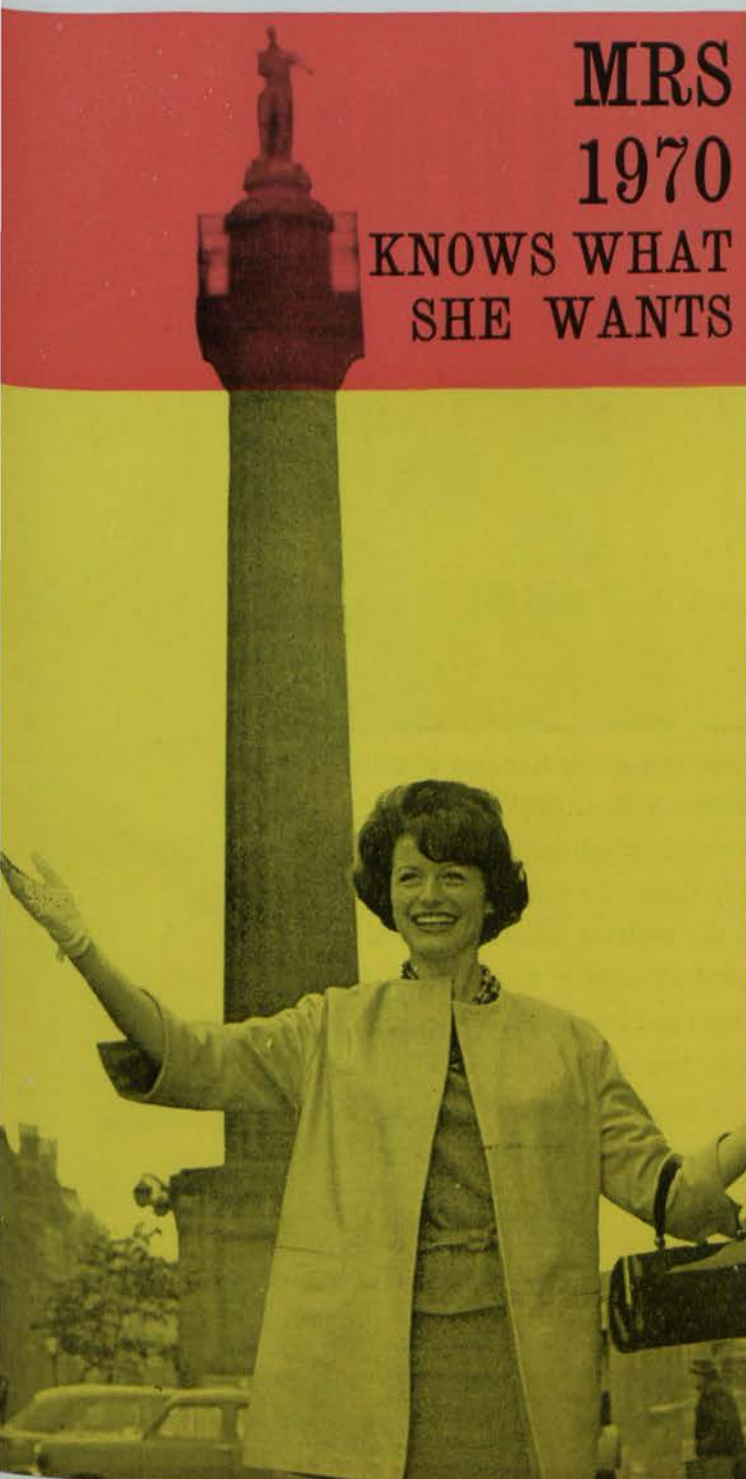
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THE IRISH PLUMBER & HEATING CONTRACTOR



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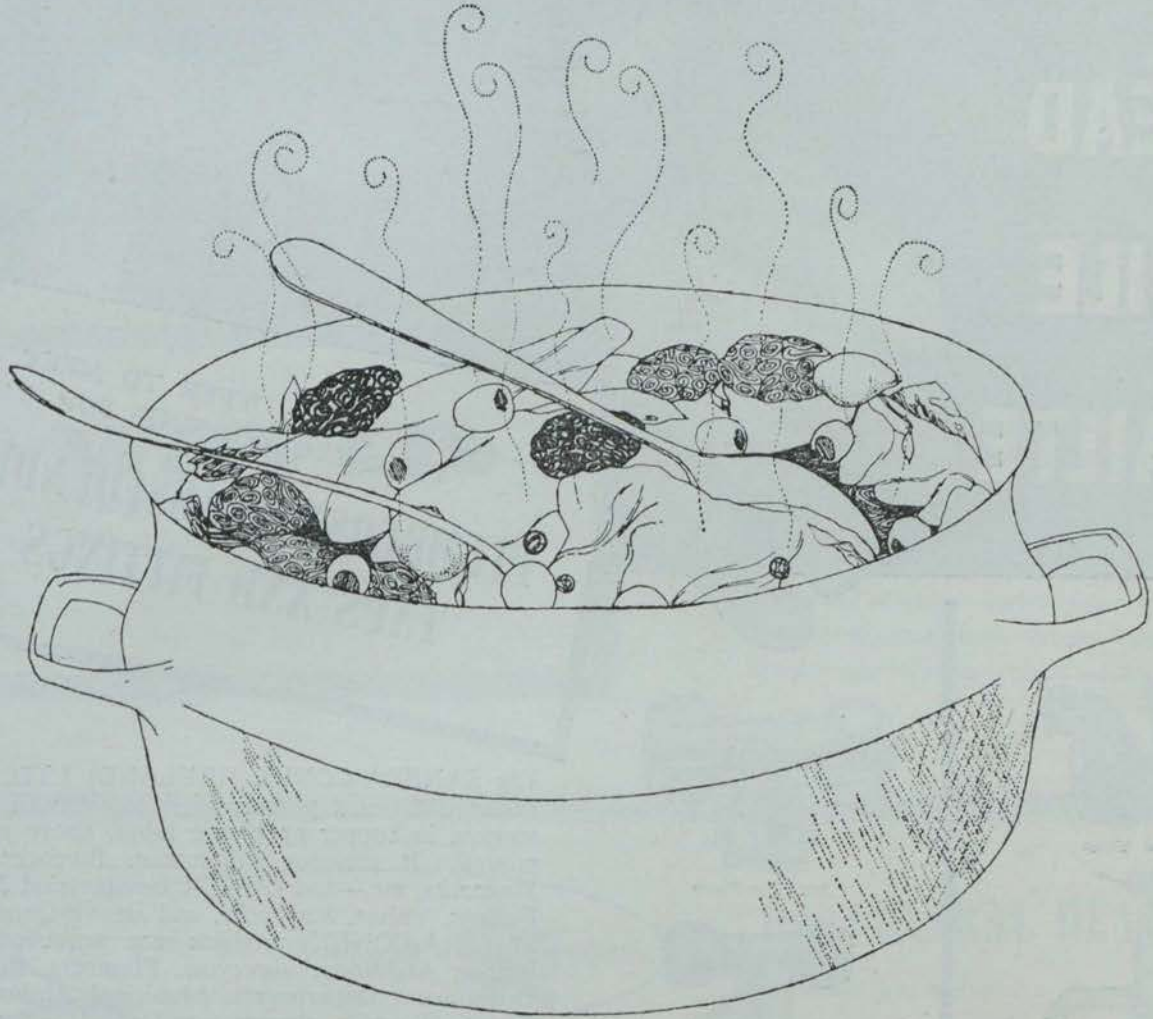


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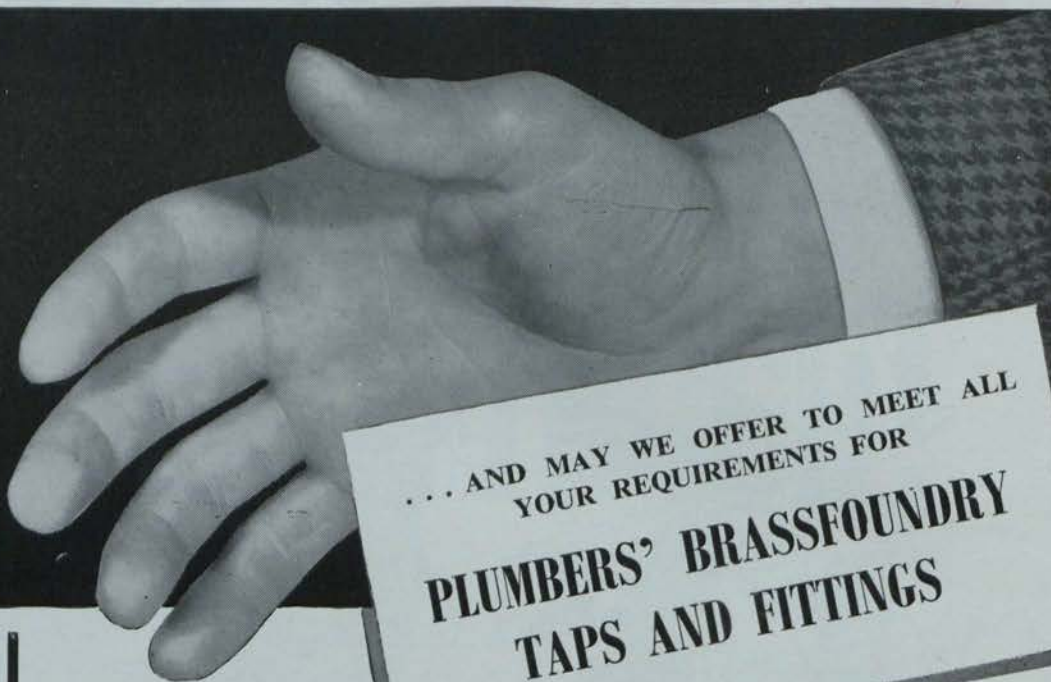
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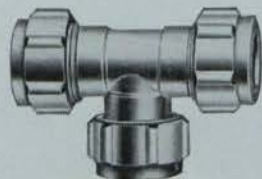
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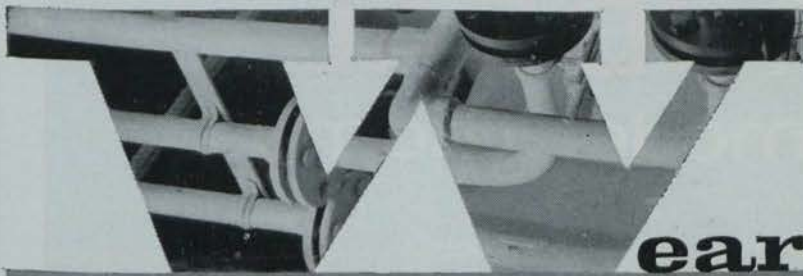
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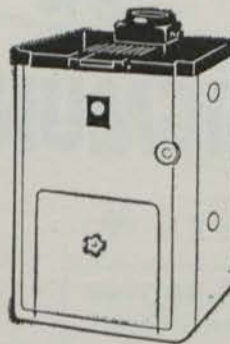
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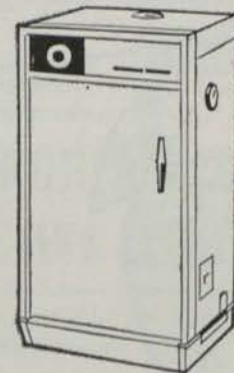
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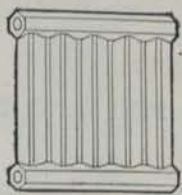
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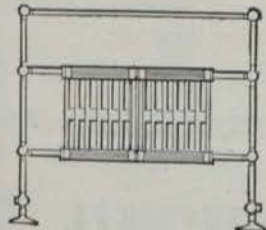
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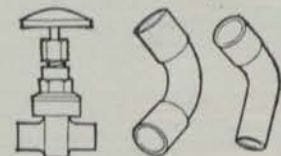
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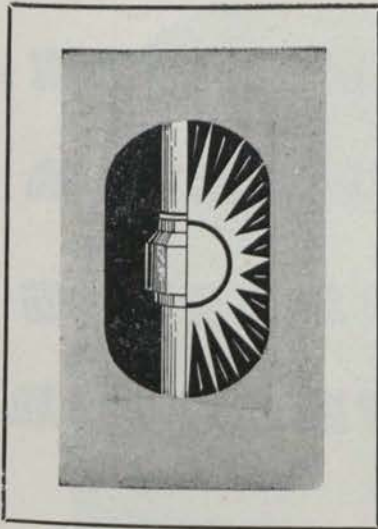


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October, 1962.

THE IRISH PLUMBER & HEATING CONTRACTOR



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If you would like further details of any produce or service you read about in the pages of this Journal, complete the form below. Technical problems should be addressed to the Editor.

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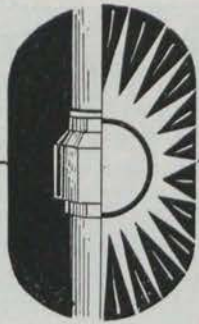
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The Irish Plumber and Heating Contractor.



Vol. 2. No. 7

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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OCTOBER, 1962



THE IRISH PLUMBER & HEATING CONTRACTOR

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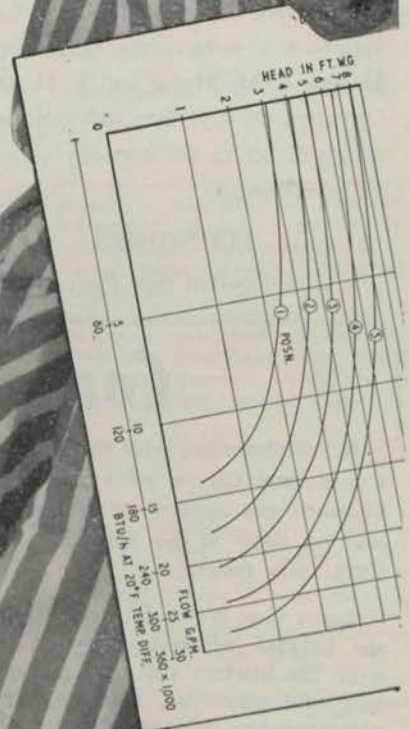
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The Irish Plumber and Heating Contractor.

FYFFE AND SANBRA ANNOUNCE MERGER

NEGOTIATIONS between Fyffe Couplings (Ireland) Ltd. and Sanbra Limited have been successfully concluded by the formation of Sanbra Fyffe Limited, in which the two Companies have equal holdings.

The Board of the new Company is as follows:—**Mr. P. D. Frame**, Chairman; **Mr. P. A. Duggan**, **Mr. J. Rogers**, **Mr. F. Whitworth**, **Mr. T. Jackson**, **Mr. R. B. Eaton**, Managing Director.

Messrs. Rogers and Whitworth are joint Managing Directors of Conex-Sanbra Ltd., an Associate Company of the Delta Group. The new Company will also have the assistance of **Messrs. A. H. Meese** and **E. H. Ollis**, Directors of the English Company, who will act in the capacity of alternative Directors.

ECONOMIES

It is anticipated that the new Com-

pany, having at its disposal the technical assistance of the Conex-Sanbra organisation, will both improve and extend its production of brassfoundry, and in due course effect production economies which will enable prices to be reduced, and to cope with competition which must arise with the establishment of the Common Market.

Common Selling Terms are already in force for all products of all two Companies but, pending the movement of personnel and plant from James's Street, Sanbra-Couplings (Ireland) Ltd. will continue to trade separately.

Ultimately, all manufacturing and trading activities will be vested in Sanbra Fyffe Limited at Santry Avenue, Co. Dublin, where the Conex and Instantor ranges of Compression Couplings and a common range of

TRADE

TOPICS

Plumbers' Brass Ware, with the addition of certain luxury items, will be produced.

REPRESENTATIVE

Mr. Brendan C. Byrne has been appointed Sales Representative for the whole country. It is planned to increase representation, and thereby ensure frequent and regular visits to customers.

TWO COMPANIES CHANGE NAMES

Colt Ventilation Ltd. have recently changed their name to **Colt Ventilation and Heating Ltd.**

J. B. van Heijst & Sons Ltd., of Dublin, have changed their name to **Veha Ltd.**

Cork sees gas appliances

In collaboration with the Cork Gas Consumers' Co., a wide selection of domestic gas appliances by Radiation was on show at the Imperial Hotel, Cork, this month.

Ascot Gas Water Heaters displayed the G525/1 which is designed to fit over the kitchen sink. It has a hot and cold water tap, swivel spout and a temperature selector giving "warm" to "piping hot" water. An outlet at the rear of the heater can connect to a second tap or shower.

The New World 888 Sunbeam Room Heater has an automatic draught regulator and comfortably heats a room up to 2,000 cubic feet. This heater can also be obtained with a thermostat to aid minimum gas consumption.

An example of the Parkray central heating units was the Ductair G105/23, which is designed for use in the average small house or flat providing full warm air heating to living rooms and kitchen, plus background heating for bedrooms either by ducting or by "spillover" warm air from the hallway.

The Bratt Colbran Crystalglow is a gas fire with the radiant area fully enclosed behind glass. This new idea cuts the cost of heating by preventing heat being sucked up the chimney. It also prevents the radiants in the heater being cooled when room air sweeps in. The Crystalglow is thermostatically controlled, maintaining an even heat whatever the outside temperature.



● The New World 888.



A. L. TOWNSEND
M.R.P., M.R.S.H.

The author, a lecturer at Oxford College of Technology, continues the first part of a four stage course on plumbing.

THIS MONTH: ALLOYS

AN ELEMENT, you will remember, from earlier in this series, is a substance made up of atoms all of one kind. Lead, copper, zinc and aluminium are all elements; each is composed entirely of atoms of lead, copper, zinc, or aluminium.

It is possible to melt down and mix together some copper and zinc, but the mixture when set, would not be an element because it would contain atoms of both copper and zinc. Such a mixture of metals is called an alloy, and in this case, if the proportions were right, by alloying copper and zinc together, brass would be made. The properties of the mixed metal would be different from those of either the copper or the zinc which were added together to make it.

True

An alloy is sometimes described as a metal composed of two or more metals. This is, of course, quite true, but an alloy can be made by alloying a metallic element with a non-metallic element. A better way of describing an alloy, therefore, is as follows: "an alloy is a metallic substance made by mixing two or more elements, at least one of which is a metal."

You have seen that copper and zinc when blended or mixed in the right proportions, will make brass. Lead and tin, two more metallic elements,

Continued overleaf

Alloys used in plumber's work

LEAD ALLOYS

	Composition %					Lead	Uses
	Antimony	Tin	Cadmium	Silver	Copper		
Silver-copper-lead B.S. 1085	—	—	—	0.005	0.005	The Remainder	Has greater tensile strength than B.S. 602 lead. Pipes of B.S. 1085 may have thinner walls than B.S. 602 for given working pressures.
Ternary alloy No 2 B.S. 603	—	1.5	0.3	—	—		Similar to B.S. 1085 but with greater resistance fatigue; i.e., to 'work tiredness'. Very suitable for use under roads subject to heavy traffic vibrations.
Anti-monial lead or 'Regulus metal'.	12	—	—	—	—		Produces a 'hard' lead capable of being turned to shape in a lathe. Can also be screw threaded. Useful for making cocks, etc., for acid works.
Soft Solders B.S. 219							

COPPER ALLOYS

	Tin	Zinc	Lead	Copper	
65/35 Brass 'basis brass'	—	The Remainder	0.1	65	A ductile alloy useful for cold pressings in sheet or strip form.
60/40 Brass 'yellow metal' or 'Muntz metal'	—		—	60	For hot stampings and for casting brass fittings.
Hot forging brass	—		2.5	58	For hot pressings and hot pressed pipe fitting manufacture. The lead included in this alloy makes for easier thread cutting and machining.
70/30 Brass	1.5		—	70	For extruded tube for towel rails, etc.
Phosphor-bronze	—		—	94	Bourdon gauge tubes.
Gunmetal (bronze)	10			88	Highly resistant to corrosion. Used for pipe fittings to be buried underground.

The Irish Plumber and Heating Contractor.

from previous page

ALLOYS

can be blended to make solder, which, incidentally, has a lower melting point than either the lead or tin of which it is composed. This is but one of many strange changes of physical properties which occur when alloys are formed.

Steel, used for making tools and so on, is an alloy. It is a mixture of iron and carefully controlled amounts of carbon. Carbon is an element, but it is not a metal, so that steel is one example of an alloy composed of metallic and non-metallic elements.

IRON ALLOYS

Cast iron	Carbon 2—4	Chromium —	Nickel —	Magnesium —	Iron	Rainwater pipes and fittings, boilers, etc.
Mild steel	up to 0.5	—	—	—	The Remainder	Water service pipes and fittings.
Tool steels	1.2	Possibly small amounts				Saws, hammers, snips, etc. Carbon content varies according to purpose of the tool. Generally tools to withstand shock, such as hammer heads, may have only 0.6% carbon whereas snips may have up to 1% carbon.
'Staybrite' steel	0.12	18	11	0.24		Cold pressings. Kitchen sinks, etc.
Invar steel	0.2	—	36	—		Has very low thermal expansion coefficient. Almost invariable in length under changing temperatures, hence the name 'Invar.' Used in bi-metal thermostatic devices.

NOTE:

- Chromium** added to steel increases its resistance to corrosion.
- Magnesium** increases the toughness of steel.
- Silicon** added to steel destroys its magnetic properties.
- Nickel**, like chromium, increases steel's resistance to corrosion.
- Vanadium** added to steel makes it

more resistant to damage by shock.

The addition of very small amounts of these metals will invest the alloys with their own particular properties. For example, you may have a spanner or a pair of pliers of Chrome-Vanadium steel. Such tools will not only resist corrosion; they will also withstand sudden wrenching shocks without fracture.

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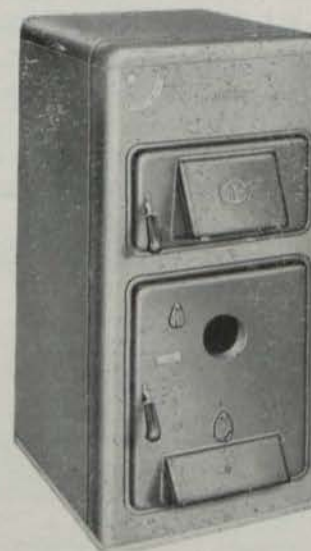
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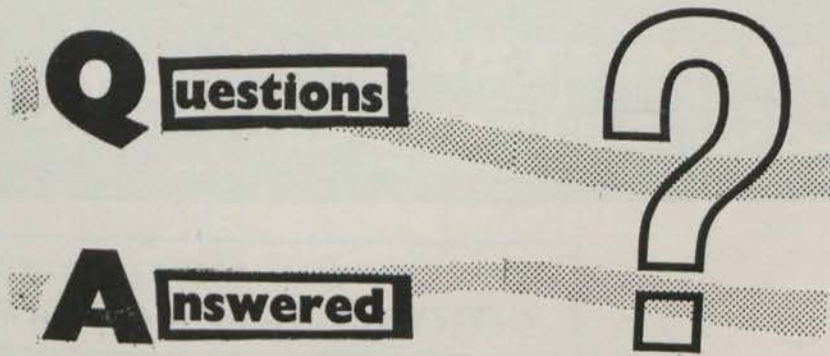
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CISTERN RUSTED AFTER FEW MONTHS

Only a few months ago we replaced a defective galvanised mild steel cold feed cistern and are dismayed to find that the replacement cistern is now rusted through in two places on its bottom. The replaced cistern had given some seven or eight years' service before leaking and the client is dissatisfied with the short life of the new one. Can you offer any explanation?

GALVANISED cisterns have been known to give lengthy service when used in hard water districts. Cases of cisterns installed 25 or even 30 years ago and still in use are not uncommon in such districts.

Soft waters tend to be acidic and might well be aggressively corrosive of the relatively thin zinc protective coating. Peaty moorland waters are particularly corrosive and where these are to be stored, or where acidity is suspected or known, materials other than galvanised mild steel should be considered for this work.

Asbestos Cement cisterns are non-corrosive. In price they are comparable to Grade A B.S. 417 galvanised M.S. cisterns. Pipe connections to A.C. cisterns is in no way difficult. Hole saws are used to cut the necessary openings in base or side and joints are made watertight with rubber washers suitably protected externally by brass washers as thrust washers against the backnut tightening. These A.C. cisterns are now

made to B.S. 2777 and become deservedly popular where corrosive tendencies prevail.

Glass-fibre cisterns are now available. These, like the A.C. cisterns, are available in all commonly used domestic cistern capacities up to 100 gallons. Larger sizes are obtainable. Glass-fibre is a tough and chemically inert material. Pipe joints to it are similar to those described for A.C. Prices of glass-fibre cisterns are rather high and generally they will be found to be about twice as expensive as a comparable sized galvanised M.S. one. But, it must be remembered that the cistern is virtually everlasting.

In all cases of galvanised cistern installation, even in districts where the water is known to be alkaline and therefore not aggressively corrosive, there is an ever present need for care in fixing if the life of the vessel is to be prolonged.

Danger

Swarf or cuttings from the holing tool is probably the greatest danger to be guarded against. With ordinary care minute particles of bare iron cuttings can be inadvertently left in the cistern on completion of the job. When water is turned into the vessel these particles set up minute electric cells and the zinc protective coating of the cistern, being anodic to the tiny iron particles, is sacrificially decomposed by electrolytic action. The result—a minute patch of unprotected cistern wall or bottom and in the absence of this zinc protection rusting action quickly follows. The result is

all too often the short life of a new cistern as now complained of.

Invariably, when fitting new galvanised cisterns I made a practice of wiping the insides clean with a dry, clean rag to collect the larger swarf particles. I followed this with a systematic tracing of the cistern bottom and sides with a powerful magnet to attract the tinier bits which had escaped the wiping. I remember it was a magnet from an old model T Ford magneto. This done, the bottom inside and for six inches up the sides of the cistern were painted with a non-toxic cistern paint such as is to-day manufactured and sold by Tretol Ltd. I have never received any medals for doing this. Very few, if any, of our clients knew about it anyway. But at least we had no complaints of premature failures, and we did have the satisfaction of knowing that we had done the best possible to protect our client's interests.

★ ★ ★

AN EASY WAY?

Gland packing of taps requires that easy-clean covers be removed.

This in turn requires the removal of capstan turns and here we have experienced some trouble. Is there an easy way of getting the turns off?

THE simple and easy way of removing capstan turns from easy-clean taps is as follows. Turn off the water supply and open the tap as far as it will go without exerting undue pressure. The spindle will rise far enough to reveal the flats on the headgear, which accept a spanner as in the rewashing routine. Having removed the screw retaining the capstan, turn on the spindle (take care to put the waste outlet plug into the waste outlet whilst doing this or you may loose the screw); place a spanner between the raised bottom edge of the easy clean cover and the bottom of the headgear (just as if you were

Continued page twenty-seven

SELL ELECTRIC WATER HEATING

You have plenty of support when you suggest ELECTRIC water heating to your customers. A large scale advertising campaign is helping to convince the public that electric water heating is the best, and a full range of water heating appliances enables you to provide the ideal system for every home.

There are electric water heating systems available to suit every home, every family. Sell electric water heating all-year-round and you're selling a wonderful service.

ELECTRIC WATER HEATING IS HANDIER !



AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

UNIT HEATERS AND WARM AIR HEATING SYSTEMS

ADVANTAGES WELL-KNOWN

THE ADVANTAGES of warm air heating are well known in industry where flexibility of control, absence of time lag from cold start to comfort conditions, and economy of operation are important factors.

Industrial unit heaters, usually suspended from roof truss members and heated by L.P.H.W. or steam, have long provided simple and effective space heat emission to intermittently warmed buildings and without obstructing valuable productive floor space.

A striking feature of the newer models of unit heaters is the care now being taken in styling the encasement to provide pleasing appearance—a not insignificant feature, since coupled with established functional efficiency, an aesthetically pleasing appearance can be a morale booster in factory, workroom, store, or office layout.

Effective

THESE appliances, basically comprising a high efficiency gilled heat exchanger battery built on the car radiator principle with an electrically driven fan to impel air through the heater and on via adjustable louvres for optimum discharge to occupied space, are robust, simple to instal, and require very little maintenance.

Effective as they are as heat

emission appliances, their value as air circulators in summer use is an important one which should not be lost sight of. The pleasantly cooling sensation of moving air is known to all. The electric desk fan or a journey in an open car on a hot day are common experiences which offer proof of this air moving function, and the unit heater offers the industrial equivalent to the operatives that the desk fan does in the executive's office.

Most unit heaters have been of the simple straightforward heat exchanger with exposed rear fan arrangement kind. These perform on the full re-circulation principle. Warmed air is impelled out to space and used cooler air from the same space is entrained back to the fan for re-heat and re-circulation.

This arrangement offers the utmost in heating economy. It also provides usually adequate air movement in summer, but where environment conditions demand some admixture of fresh air from without the building, then simple wall or roof terminating ducts to the heater are required. These ducts may be so damper controlled that either all air passing through the heater is fresh from outside, or by re-circulation and F.A.I. damper adjustment any desired admixture of fresh and warm space air can be dealt with, or, at pre-heating or in very cold weather, the F.A.I. damper may be closed and the re-circulation

damper fully opened so that the heater functions as a simple full re-circulation heater to effect a speedy warm through of the air in the building space.

Additional

UNIT heaters are available with fan casing to accept such ductings and in addition, if required, for outlet ducting to deliver the air to some specific point in the space to be warmed. The Colt "Warm-flo" is a notable appliance of this kind, a feature of which is its remarkable flexibility under all operating conditions regardless of external prevailing climatic conditions.

It offers rapid pre-heat of space prior to occupation by damper adjustment to give full circulation. As internal temperature rises due to incidental heat emission from machines or lighting, from process work, or from solar heat gain, heat element temperature adjustment by thermostat coupled with inlet damper operation permits admixture of fresh air which may be induced into the space and tempered by passage through the heater or by dilution of part re-circulated warm air in doing so.

By simple switching to reverse fan motor rotation, the units may be

Continued page fifteen



This special survey—another in a series on important aspects of the plumbing and heating trades—has been compiled by technical expert A. L. Townsend, M.R.S.H., M.I.P.

THE POTTEZ DIRECTED HOT AIR SYSTEM

This is a new concept in central heating in Ireland. The heat is deducted from a Central Unit built into the wall of the house, passed through 6" x 6" ducting into each room through the grille of ventilation system. The B.T.U. output per hour is 50,000, which is equivalent to 17 bars on electric fire. The output of heat is controlled and may be diverted into any one or all of the rooms. The cost of a unit installed in an ordinary 4-bedroomed house is approximately £150. This includes cost of burner, installation, ducting and grilles and 250 gallons storage tank for fuel oil. This total cost represents $\frac{1}{4}$ the cost of conventional (pipes and radiators) method. The efficiency rating of the system is 85% and running cost per 7-day week approximately £1.

- For further information contact—



THE HOUSE OF ROWAN

51, CAPEL STREET, DUBLIN TELEPHONE 41891.

used purely as extract fans, the heat being off, of course. In the summer the units used in this way expel heated air from the space and induce a cooling fresh air flow at low level through doors and windows.

This brief description does not exhaust the versatility of this form of forced air convection appliance. All interested in factory or similar building warming should study this and other unit heaters in detail.

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POPULAR IN INDUSTRIAL HEATING

FREESTANDING, oil, gas or solid fueled warm air furnaces, with or without distributive ductwork, are also very popular in industrial heating. In principle these are forms of unit heaters but differ in that they burn fuel within themselves to generate heat to warm air as it passes through the heat exchanger battery of the furnace.

The "Thermobloc" by Messrs. Wanson of Borehamwood, Herts, is one example of these excellent self-contained warm air space heaters of modern force convection design, and proven performance.

The Woods of Colchester "Airwood" oil-fired heater is another example and this particular heater may be fixed horizontally or vertically either on floor or suspended "in-line" in distributive ductwork at high level—a useful versatility where space problems exist.

Both are made in a wide range of outputs to suit small or large spaces and both are worth close examination in cases where low capital cost, and economic running costs are the order of the day.

Experience

BACKED by long and profitable experience, manufacturers of well tried industrial air warming equipment now vie with one another to capture the growing demand for air warming systems in offices, schools, and domestic dwellings. Like their industrial cousins, offices and schools, particularly schools, have for some time realised the structural and operating economies that warm air heating systems offer. It is from these applications that quiet running, smaller scale appliances of elegant appear-

ance and high efficiency have been and are being developed for domestic use.

The trend is now toward still quieter and smaller, but no less efficient equipment purpose designed for installation in even the smallest home.

Of the growing public demand for this heat emission form there can be no doubt. Flexibility of control, absence of time lag in warm up or cool down, avoidance of unsightly

previously long held concepts in domestic heating design and installation practice.

Not Outdone

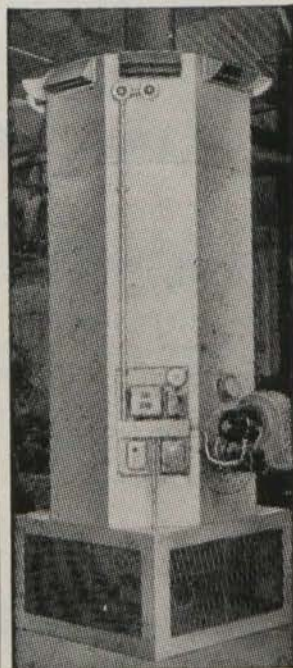
NOT to be outdone, the oil fired equipment people have developed domestic scale air heaters on the lines of the industrial "Thermobloc" or "Airwood" principles.

pipework and ancillary equipment, and economic cycling of the system by thermostat and clock controls, are compelling factors motivating this new demand.

The outstanding successes of the Radiation Group Sales, and the William Sugg gas heated air warming equipment for whole house heating by ducted force flow warm air, has triggered off a sequence of interesting and forward looking developments which bid fair to revolutionise pre-

A notable example is the model 15-41 by Potez Industries of Ireland. This model is rated at 60,000 B.t.u.'s/hr. It provides 6 x 5in. outlets for ducted distribution of warmed air propelled by a noiseless centrifugal turbine. It is thermostatically controlled at burner and at selected room stats. It is fully insulated and requires no special base construction and the appliance is safeguarded against electrical power failure with

Continued overleaf



Efficient heating for even the most difficult structures

HAINAULT

SPACE HEATERS

Large areas, with corrugated walls and roofs and high heat losses—factories, workshops, garages, stores—the most difficult heating problems can be solved with Hainault industrial heaters, oil or coke fired.

Look at these Features

1. High heating efficiency—oil fired version rated at 82%.
2. Outputs from 80,000 to 1,000,000 B.Th.U./hr.
3. Centrifugal fan ensures positive heat distribution.

4. Negligible maintenance
5. Can be utilised for ventilation in summer.
6. Independently adjustable air diffusers—direct the heat where you want it. Ducting systems to order.
7. Low cost—easy installation.
8. Delivery ex stock. "Hainault" heaters are manufactured at Hainault, Ilford, Essex, and are widely used in heating installations throughout Great Britain and Ireland. Send now for details and illustrated literature.

SOLE IMPORTERS:

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Beasley Street, Cork. Tel. 24311/2.

Dealership available in some areas.

The Irish Plumber and Heating Contractor.

from previous page

MANUFACTURERS JOCKEYING FOR POSITION

provision for automatic re-start when a failed power supply is restored. Incoming air, from the tempered air space in the hall, is filtered before transmission via heater and ducts to the outlet registers in the various rooms.

This, and appliances like it, form the central heating "boiler" of the warm

air systems with ducted warm air distributive arrangement.

Jockeying for position in the warm air heating trend race and, incidentally, making valuable contribution to its development, are those manufacturers concentrating more on the development of forced warm air convectors for all applications but par-

ticularly for commercial and domestic application.

Utilise

THESE appliances utilise L.P.H.W. and are for connection to conventional piped hot water heating systems of the gravity or force circulated (small bore) kind. The advantages offered by this kind of heat emission appliance, which is basically a unit heater mounted in a pleasing floor or wall mounted cabinet, are as those previously mentioned for industrial application plus the fact that they offer freedom of prime heat source type and fuel used.

The use of L.P.H.W. as heating medium instead of direct air warming as with the air heating "boilers," permits use of any existing or presently available conventional water heating boiler. This in turn permits indirect D.H.W. supply provision from the same boiler and furthers the economic advantages of forced warm air heating.

Electric power is yet another competitor in this warm air system development race. Direct warm air heating "boilers" for ducted distribution of forced warm air flows are now available and show every prospect of becoming serious rivals to the other fueled systems of the same ducted kind. The "High-Vee" is a typical electrically heated central air heater for ducted distribution. It comprises four cylindrical short ducts each containing a 3kW. black heat element. These are individually switchable at the control panel of the appliance or by remote thermostat control. Four duct outlets are provided, i.e., one from each duct heater, and this offers a versatile combination to meet most installation problems which might be met in installations to existing homes.

The fact that electrically heated equipment requires no flue, or fuel store, will not go un-noticed. Many of these appliances are being fitted beneath the stairs, re-circulation air,

Continued page eighteen

Trim New Forceflos

so quiet you can hardly hear them



Only Biddle Forceflos are independently tested* to guarantee factual sound level noise criteria. Compact design coupled with extreme quietness; that's the trim new Forceflo range. And the quietness of these low-cost forced convection units is guaranteed. For the first time, you can select a heating unit to conform to a specific noise criteria curve — increasingly recognised as the only accurate means of establishing noise levels prior to unit installation.

*By Acoustical Investigation & Research Organisation Ltd., the leading acoustical engineers in the U.K.

- * Fully adjustable over 25 to 43 noise criteria range
- * Centrifugal Fan Types yet only 9" deep by 28" high
- * Outputs from 29,500—62,000 BTU/hr (based on 60°F E.A. and 180/160°F water)
- * Complete range of sizes and designs
- * Vari-speed rotary control
- * For hot water or steam

For technical literature write:

F. H. Biddle Limited

British Trane Co. Ltd. (Manufacturing Division)

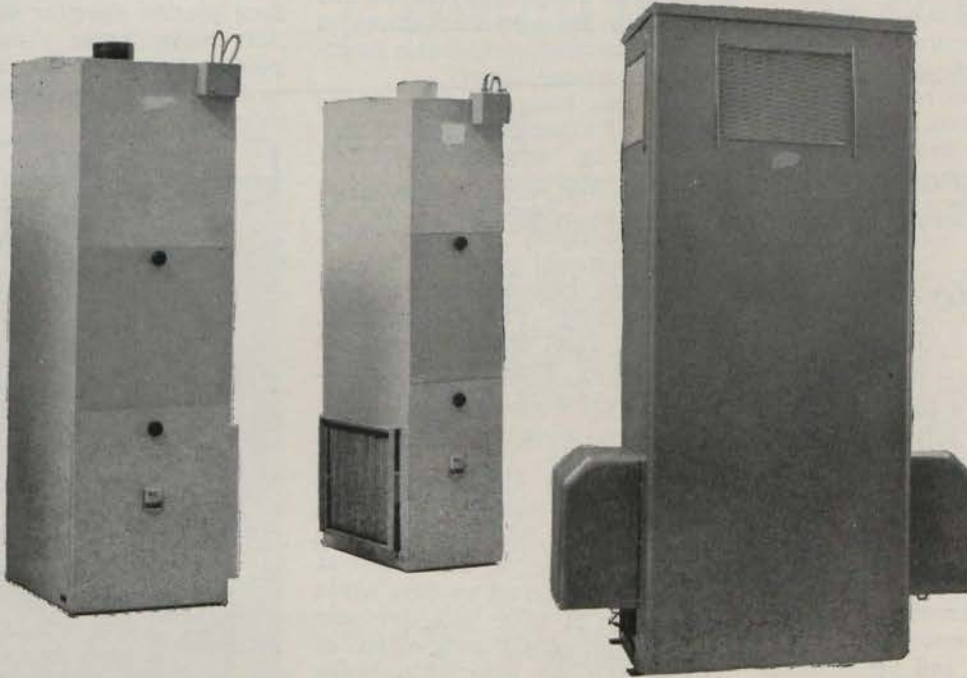
16 UPPER GROSVENOR STREET, LONDON, W.1. TEL: HYDe Park 0532



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**GET YOUR PERIMETER WARM AIR
CENTRAL HEATING FROM
W. J. THOMPSON LTD.**

MALLOW - PHONE 21

ESTIMATES FREE



The Irish Plumber and Heating Contractor.

SPECIAL SURVEY

from page sixteen

filtered or unfiltered according to choice, being taken from the hall space. This type of electrical air heater functions exactly as the well established larger electric duct heaters used quite extensively in larger warm air systems either as booster for air warmed by other means but needed at one place at higher temperature than general distribution, or as sole means of heating air passing through the duct.

Domestic field

IN THE domestic field the "tug of war" would seem to be between direct heated, ducted forced air flow systems; and local, L.P.H.W. heated, fan assisted air flow convector cabinets of one kind or another plus D.H.W. supply by the water heating appliance.

Fan assisted warm air convectors are now made in so wide a variety of shapes and styles to suit any foreseeable application, and by so many manufacturers of wide and long experience in the heating industry, that to name but one or two would seem unfair to all the others.

The recently published Directory of Manufacturers will help readers to seek further and more detailed information on application to the individual firms. The opportunity to do so should not be lightly passed over for this warm air heating is a decided trend based on sound practice and economics.

Imagine the comfort of all pervading warmth issuing, in the form of gently moving warm air, from a neat register set in a wall or from an elegant floor standing cabinet, or from an inset model which heats spaces on both faces of the wall in which it is inserted. Consider the pleasantly cooling effect of fanned air currents in summer. Think of the flexibility of control to suit comfort condition—fan off, no heat—fan on, immediate heat output; as simple as that, and you will appreciate the deserved impetus of this trend and will wish to arm yourself with all the necessary "gen" and hasten to join the band

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

AFOS heaters, in addition to eliminating internal expansion strains, are constructed with independent renewable battery tubes. The heater tubes are separate components secured into headers by high pressure unions in place of the usual unrepairable monoblock constructed battery.

The tubes being independent and bowed, can expand or contract without affecting neighbouring tubes, eliminating any stress fatigue within the battery. Steam and condense headers are rigidly fixed and movement of external pipework connections cannot impose strains on the copper battery. From Afos Ltd., Reform St., Hull, who are represented in Ireland by Peter Macfarlane & Son Ltd., Cupar St., Belfast.

★ ★ ★

THE POTEZ Convector Heater provides space heating by Natural Warm Air circulation. Potez heaters are manufactured in a number of different sizes, from the smallest, which gives output of 1,700 B.t.u. per hour to the largest model, with output of 200,000 B.t.u. per hour. All models are designed to burn Gas Oil (35 secs.) in the pot type burner and to heat rooms, etc., by natural convection.

Efficiency is high, 80% and over, and cleanliness and safety are assured by use of a properly constructed flow. The heaters appear to be reasonably priced. Burning a cheap fuel, they are also economical in use and would appear to offer one of the cheapest forms of whole-house space heating now available.

The Potez organisation had a stand at the recent Hevac Exhibition at Olympia, where the full range was on display. Messrs. Tedcastle, McCormick & Company, Ltd., hold the sole concession for all Ireland.

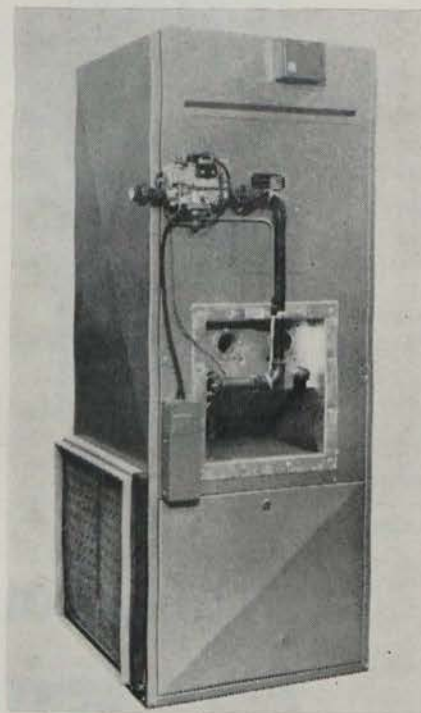
Enquiries should be addressed to their heat and air conditioning division.

★ ★ ★

WATERBURY "Downflo" models provide downward air stream for application to an underfloor ductwork system. We picture here the DEG model warm air heater from the Waterbury range. The heat exchanger casing is fitted with an inner liner to

maintain low external surface temperatures.

Warm air discharge is in the base of the unit, which is located over a floor plenum chamber of equal size. Soft rubber strips should be interposed between the base and the floor to form an air seal and acoustic insulation.



The return air inlet is on top of the unit with an upstanding duct connecting spigot incorporating a filter box and spring-loaded filter. The main burner consists of a number of neat burning jets arranged in rows to provide an even distribution of heat over the cross-section of the combustion chamber.

The manufacturers are Waterbury Ltd., Upper Grosvenor St., London, and the Irish agents, Quadrant Engineers, 6 Mount St. Crescent, Dublin.

★ ★ ★

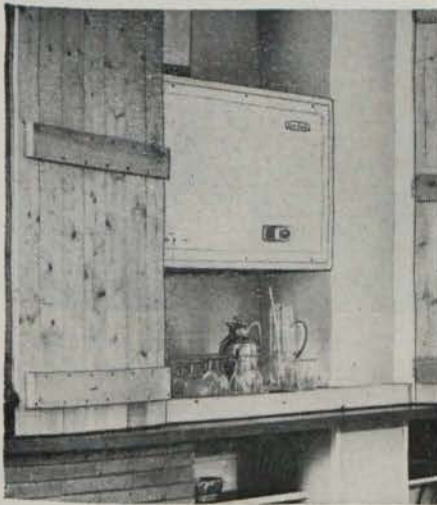
HOT WATER heating units for homes, commercial and public buildings, which occupy little more space than ordinary room baseboard mouldings, are available through Trane Ltd.,

Continued page twenty

Radiation

Easy-to-install CENTRAL HEATING for Small houses & flats

Ductair



G105/23

GAS-FIRED CENTRAL HEATING BY FANNED WARM AIR available for SE-duct, balanced flue or conventional flue

In small houses or flats this Ductair unit provides full heating in the living room and kitchen and background heating in the bedrooms by ducting or by spillover warm air from the hall. Warm air can be diverted to a clothes drying cupboard.

Special features

This flexible system is specially suitable for individually metered installations in multi-storey flats. Balanced flue or SE-duct models obviate the need for conventional flueing. The unit will provide air circulation in summer. Warm air can be diverted to a clothes drying

cupboard. The small cabinet, 32" wide × 23" high × 14½" deep, can be installed at high or low level.

Fuel consumption

As a guide: in a house of 1,000 sq. ft. insulated to Edgerton standard, Ductair G105/23 provides background warmth at all times and full heating to 67°F. in the living room 8 hrs. each day for an annual fuel consumption of about 400 therms of gas. Electricity consumption for fan and controls—approx. 100 units.

Performance

Output: 23,000 Btu/h. Overall efficiency 75%. Air flow 230-280 c.f.m.

See the Ductair G105 at work in the Gas Showrooms, Londonderry Road, Belfast.

Parkray

G301/2

GAS-FIRED CENTRAL HEATING PLUS HOT WATER balanced flue appliance—particularly suitable for multi-storey blocks

This new gas-fired unit for central heating and hot water in the 2-3 bedroom home is specially designed to give maximum efficiency on both circuits—with low gas consumption.

Special features

The G301 is a room sealed appliance—the products of combustion are isolated from the room it is installed in. Balanced flueing eliminates the need for costly conventional flues. The remarkably small unit can be wall-mounted at high or low level. The stainless steel heat exchanger has an exceptionally long life and requires minimum maintenance—just an annual check. Maximum flexibility

in dealing with combined peak loads is made possible by a unique control system.

Fuel consumption

This will vary according to the degree of comfort maintained and the amount of water used. As a guide: The G301/2 utilizing the full output but with the provision of domestic hot water throughout the year, will consume about 720 therms a year.

Performance

Output: 25,000 Btu/h. Typical heating surfaces: G301/2 approx. 100 sq. ft. (3 to 4 average size radiators) plus 25-30 gallon cylinder.



Full technical information on all Radiation products is available from:

Heddon St., London, a subsidiary of the Trane Company, La Crosse, Wisconsin, U.S.A.

Called baseboard convectors, the units are easily installed, provide even heat all along the outside walls and do not interfere with furniture arrangement.

★ ★ ★

CONTAINED within a neat rectangular cabinet, this low cost warm air central heating unit, the gas-fired Ductair G.105, from Radiation Parkray Ltd., is compact enough to be fixed on the kitchen wall or fit inside a cupboard.

It is designed for the popular sized house, bungalow, maisonette or flat, and as well as providing space heating throughout the home, can supply warm air to a clothes drying cupboard adjacent to the unit.

Radiation Parkray Ltd., North Circular Road, London, are represented in Northern Ireland by L. C. Young, 85 Gransha Road, Bangor, Co. Down.

★ ★ ★

THE BEACON air heater uses the principle of direct contact of cold air forced over heated metal surfaces. Each heater will warm a building of 150,000 cu. ft. or a building of about 200' x 50' with a mean height of 15'.

Automatic oil-firing and safety devices are incorporated, making the heater trouble free and requiring the minimum of attention. Running costs are low, with a normal consumption of 4 gallons per hour. The heater is fitted with an axial flow fan and radial diffuser. From John Thompson Ltd., Ettingshall, Wolverhampton. They are represented in Ireland by William Peet & Sons, Dalkey, Co. Dublin, and the firm's Northern Ireland office is at Rosemary St., Belfast.

★ ★ ★

THE LINCOLN E.P.50 is a cupboard sized furnace, oil fired, which warms air to a thermostatically controlled temperature and distributes it through suitably sized ducts to registers, incorporating additional flow control, set in room perimeters.

A draft booster ensures peak burner efficiency by creating a positive air supply for smokeless combustion. The furnace dimensions are 5f 2" high, 1' 10" deep, 1' 6" wide. From Lincoln Furnaces Ltd., Oxted Mill, Oxted, Surrey. The Irish agents are Dunwoody & Dobson Ltd., 32 Lombard St., E., Dublin.

SPECIAL SURVEY

from page eighteen

★ ★ ★

THE CYCLONE unit heater is a neat compact unit consisting of an electric motor and propeller fan, a heating section and a steel plate housing complete with louvres.

The heating section is of gilled tube design for use with high or low pressure steam or hot water. Ten unit sizes are manufactured with a choice of two styles of casing for three smaller sizes. All sizes are available for standard A.C. and D.C. electrical supplies.

From Matthews & Yates Ltd., Swinton, Manchester, who are represented in Ireland by Heatovent Supply Company Ltd., Upper Fitzwilliam St., Dublin.

★ ★ ★

WELDRYTE LTD., South Quay, Arklow, Co. Wicklow, are agents in Ireland for Zephair Ltd., Brandon Road, York Way, London, range of air heaters. The firm undertakes complete installation for the heaters and can also manufacture and supply the necessary duct work, etc., which may be required in an installation.

From the range we note the Zephair Ductair II., an air heater for use with ducting for heat outputs of 300,000/600,000 B.t.u.'s per hour at a temperature range of 125/375 degrees Fahrenheit and at a pressure of 0.25"/1.0" water gauge.

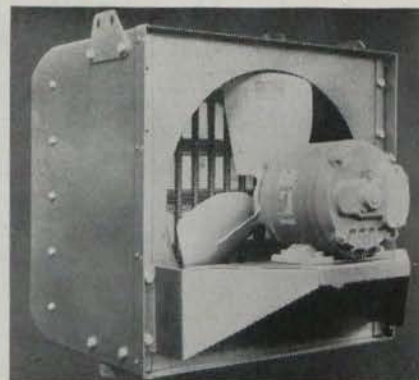
A highly efficient, compact, robustly built, gas oil-fired appliance for the supply of warm air for heating and process drying purposes. It provides a rapid temperature rise under thermostatic control with the minimum attention and greatest economy. An air filter can if necessary be fitted to the fan inlet. The combustion gases, which have a CO₂ content of over 13 per cent. on leaving the air heater, are forced to atmosphere through an exhaust pipe. There are consequently no draught or chimney requirements.

★ ★ ★

A FURTHER development of the Heat Throw unit heater range is the fresh air circulation type for attaching to ducting from roof or outside walls. These units have the same royal

blue hammer finish as the horizontal or vertical mounting recirculation types (illustrated here).

The fresh air, duct mounted unit is similarly available for steam or hot water, with single or three-phase electric supplies. The "Heat-Throw" range constitutes as an economic solution to the ventilating and space heating of factories, workshops, public buildings and warehouses. It serves in summer also as cool air can be circulated with the heating medium cut off.



The manufacturers are Keith Blackman Ltd., Mill Mead Road, London.

★ ★ ★

THE HAINAULT model H.S. 200 is an automatic oil fired air heater of the suspended series. The suspended oil fired heaters have been designed for use where floor space is limited. The dimensions are 4' 2" height x 2' 9" wide x 7' 2" long. The rated output is 200,000 to 250,000 B.t.u.'s per hour.

The volume of warmed air is 2,000 C.F.M. and the approximate weight is 5 cwt. From the Hainault Engineering Company Ltd., Tubela Works, Fowler Road, Hainault, Ilford, Essex, who are represented in Ireland by Hennessy's Ltd., Beasley St., Cork.

★ ★ ★

ECONOIL X.19 and X.24 air heaters are of the straight through horizontal type incorporating axial flow fans, making them ideally suitable for both ducted and free air distribution systems. They are oil fired with contra-flow heat exchangers for optimum efficiency.

The heat exchangers are of tubular steel, aluminised on all external surfaces. Thermal stresses are eliminated by expansion rollers. A plug-

Continued page twenty-nine

Reporting**PRESENT DAY THINKING ON****GAS AS A MODERN
HIGH SPEED FUEL**

THE concept of gas as a modern high speed fuel has become well established. It is now recognised that gas appliances provide a most economical means of hot water supply and to meet the ever-increasing demand the gas industry and appliance manufacturers are continually introducing new and improved appliances. All modern gas appliances are both laboratory and field tested before large scale manufacture commences and continuous observation is carried out by the gas industry research establishments to ensure that high production standards are maintained.

This research and control has resulted in standards of materials and workmanship which bear comparison with any and accounts for the high efficiency and long life of modern gas appliances.

Instantaneous Water Heating:

In this field, more than any other, gas shines forth and heaters with higher thermal inputs and consequently greater and speedier outputs of both hot and boiling water have recently been introduced. Most of these are of the now well established automatic pressure operated type but the newer designs will operate at much lower pressure heads—in some cases as little as three feet is required.

Sink heaters with outputs of half a gallon per minute at 150° Fah. and 3 pints per minute boiling, and bath and multipoint heaters with outputs of 2 gallons per minute at 110° Fah. are the features.

Low pressure thermostatically controlled instantaneous sink and bath heaters have been available for some time; both types require negligible pressure head for operation and give outputs of half a gallon per minute and 1.1 gallons per minute at a fixed outlet temperature of 140° Fah.

An important development is the

BY _____
A SPECIAL CORRESPONDENT

standardisation of major components which will lead to a reduction in the cost of replacements and servicing.

Appearance has not been overlooked and the efforts of specialist consultants and the use of new and improved materials and finishes is well illustrated in the new designs.

SHOWER BATHS:

The use of the gas instantaneous water heater as an ideal alternative to the storage system has long been recognised and consequently the present day demand for shower installations can be adequately met by gas. By providing a simple and economical solution the instantaneous heater is now being used extensively for both single and multiple shower installations.

For the single shower small thermostatically controlled or pressure operated heaters, complete with mixing taps and shower fittings, are available.

Storage Heaters, Circulators:

On the storage water heater side improved designs of the small low consumption thermostatically controlled circulators are available with outputs between 5½ gallons per hour and 27½ gallons per hour at 130° Fah. These units can be supplied to operate in conjunction with a separate storage cylinder or complete with an insulated storage cylinder and all connections as a "packaged" unit. High level primary flow, and double primary return connections, with economy valves to give a quick supply of hot water and control storage capacity are standard practice with such units.

An interesting development is a small circulator which is attached

directly to the storage cylinder by a single concentric primary flow and return connection. This low cost unit meets the average domestic hot water demand and requires the absolute minimum of installation.

The development of enclosed convector gas fires with efficiencies of 72% and over, resulting in quicker heating, lower running costs and higher standards of comfort will eventually make its impact on the open fire, and consequently the need for a simple, economical small unit to take the place of the back boiler, not only during the summer but all the year round, is realised and these small circulators are admirable for this purpose.

Larger Units:

To meet the larger domestic demand a wider and more attractive range of boilers with outputs from 30,000 B.t.u.'s per hour to 100,000 B.t.u.'s per hour are available. Apart from the general improvement in performance and appearance, four interesting features are incorporated, namely, glass lined sections for protection against corrosion, complete ignition and control by operation of a single switch, programming controls and the use of the "balanced flue" principle.

Balanced Flues:

This "balanced flue" principle has been used successfully for some time in connection with domestic water and space heaters and the extension of its use is an important factor. By eliminating the use of long flues it will be realised that this development, together with "See Duct" and "True Flue" integral flue systems is not only

Continued overleaf

making a valuable contribution by simplifying the installation of the gas appliances and thereby reducing costs, but is also assisting the contractor to reduce his capital costs by eliminating costly chimneys, boiler houses, fuel stores, etc.

The latest "balanced flue" instantaneous water heaters are designed to fit unobtrusively in the space beneath the draining board.

Appearance:

Appearance has always been an important sales factor and a steady improvement in appliance design has now resulted in gas, water and space heating appliances whose appearance is second to none. Attractive, correctly sized appliances which harmonise with other kitchen fittings and do not require special sites or facilities.

Kitchen Units:

Mindful of the demand by both builders and purchasers for properly planned kitchens, the Dublin Gas Company, in conjunction with Irish Timber Industries, are marketing high quality kitchen fittings. Any combination of a number of standard

from previous page

INDUSTRY INTRODUCES NEW, IMPROVED APPLIANCES

units which, with the gas appliances, will provide a complete modern layout to suit the purchasers' requirements is available. A choice of attractive finishes is offered at competitive prices and with extended payment facilities.

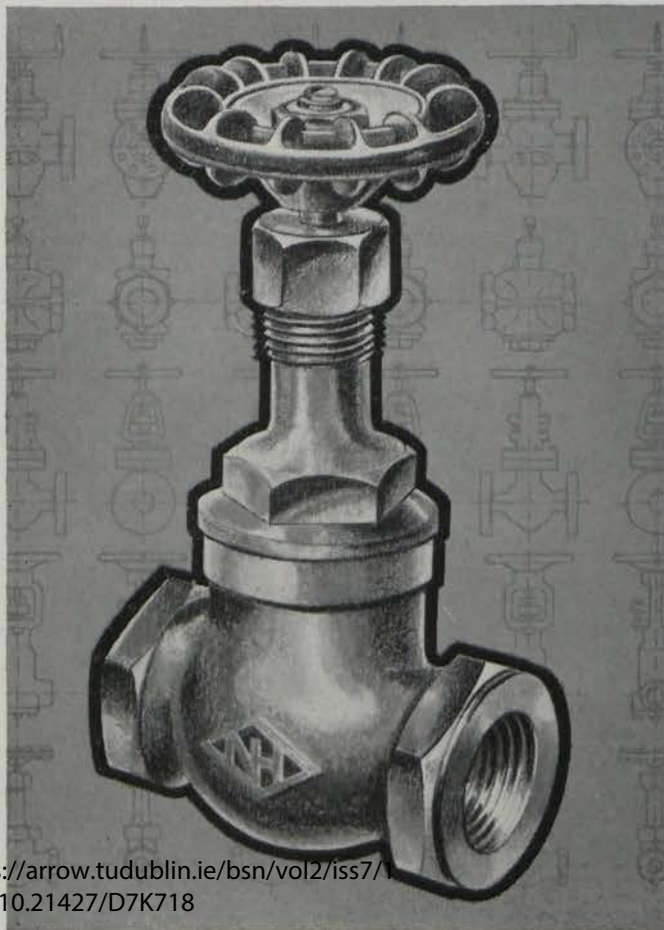
Cheaper Gas:

The recent introduction by the Dublin Gas Company of a domestic two-part tariff for central heating, which can also include hot water supply, further enhances the competitive position of gas. The price of 1/6d. per therm, after the first 50 therms, when allied to its other advantages, puts gas in a very strong position, and aware of the increased public interest which will follow, their heating advisory service has been extended and attractive personal loan and similar facilities of advantage to both purchaser and contractor have been introduced.

Warm Air Heating and H.W.S.:

The advantages of gas fired ducted warm air systems has resulted in a considerable public demand for this type of system. The latest units incorporate a thermostatically controlled hot water circulator which can be connected to any storage cylinder, thus providing warm air heating and adequate hot water supply from a single unit.

● Plumbing and heating engineers will be interested in the handy Heating Equipment Catalogue published by O.B.C. Ltd., Droitwich. This, the sixth edition, illustrated, has been planned to provide a speedy reference to products and their prices. It is divided into nine sections, seven product sections, a technical information section and an index. It is priced at ten shillings and available from the company's Irish Branches at Dublin (5 Upper Fitzwilliam St.), and Belfast (23-27 Cupar St.).



NEWMAN HENDER VALVES AND FITTINGS

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TRADE**TOPICS**FROM OUR NORTH OF
IRELAND CORRESPONDENT**MORE INTEREST THAN EVER
IN DOMESTIC HEATING**

AS THE dismal summer of 1962 merged into autumn, the indications are that there is more interest than ever before in domestic heating and that the months ahead for the trade look bright.

Soon now the campaigns launched at this time of year by the heat-raising industries (oil, gas, solid fuel, etc.) will be under way, providing the final argument to persuade those who are at the "thinking about it" stage to take the plunge.

It is true, of course, that many householders took advantage of the "close season" for heating to have their systems installed but human nature being what it is, many more left the subject until the first chill winds of autumn turned their thoughts once again towards a more comfortable winter.

Knowledge

It is most noticeable that the customer to-day in search of home heating is showing greater knowledge of the subject and is not prepared to accept just any recommendation. This may, in part, be due to the spread of knowledge, but it is also due to the fact that many installations, for one reason or another, have failed to live up to the expectations of the customer.

Quite honestly, of course, the main reason for much of the dissatisfaction lies in the fact that the customer had hoped to achieve a much higher degree of comfort, and a much warmer house for approximately the same cost as before, when the level of heating was comparatively poor and the heating apparatus inefficient.

The problem which the trade has had to face is that of convincing the customer that heat must be paid for

—but that the extra cost is more than offset by the higher standard of comfort achieved. The customer must also be brought face-to-face with the need to battle against heat losses if the running costs of an installation are to be kept to a minimum.

A more "heat conscious" public, let's face it, means a public more discerning in its requirements and

ready to listen to the desirability of having a heating system "tailored" to their needs—and that is good for the heating trade—and for the reputation of that trade.

Quite confidently, therefore, it can be predicted that by summer, 1963, more heating plants than ever before will be switched off by more householders in Ulster than ever before.

**Davidson's
new fan**

A NEW centrifugal fan (illustrated here) with backward curved bladed runner designed for high performance at relatively low capital cost, was shown for the first time by Davidson and Co. Ltd. Sirocco Engineering Works, Belfast 5, at the HEVAC.

The fan—BCB 152A—is available as a single or double inlet unit. It has been developed to meet the demand for a high efficiency fan with a non-overloading power characteristics suitable for ventilation, air conditioning and other industrial requirements involving the movement of air against low to medium pressures.

It is especially suitable for the high velocity, medium pressure system of ventilation which is the current trend in design.

The BCB 152A fan is arranged for a vee-rope drive. It is manufactured in 13 sizes from 8½ in. to 60 in. diameter.

A particular feature is that alternative runners may be fitted within the same casing to meet specific requirements of different applications.

The casing of the single inlet BCB 152A is of mild steel and supported by bolting to the bearing pedestal with a



separate bolted foot on the suction side. An access door is provided for inspection and cleaning of the runner on fan sizes of 24½ in. diameter and above. The runner can be removed through the opening in the suction side of the casing after removal of the suction flare.

The runner blades are of the backwardly curved laminar type in heavy gauge high tensile steel, welded between the runner-sheet and conesheet.

● Peter Macfarlane and Son Ltd., engineers' agents and distributors, 23-27 Cupar Street, Belfast 13, have been appointed sole distributors for Northern Ireland for Fibreglass Air Filters and stocks of these are carried at the above address.

6 Good reasons why

A TRIANCO SOLID FUEL BOILER IS THE AUTOMATIC CHOICE FOR THE MODERN HOME

- 1 A Trianco Boiler is thermostatically controlled. You set the thermostat, the Boiler does the rest.
- 2 A Trianco Boiler is gravity fed automatically with small anthracite from a large integral fuel hopper permitting burning for up to 72 hours without attention or refuelling.
- 3 The Trianco Boiler is declinkered in 2 seconds by a simple lever movement. (No dust, no loss of heat). This is a Trianco Exclusive Feature. The clinker and ashtray only requiring emptying once or twice a week.
- 4 The Trianco Boiler gives more heat for less fuel and burns a wider range of fuel than any comparable boiler.
- 5 A Trianco Boiler will provide central heating and constant hot water, cleanly, economically and efficiently.
- 6 A Trianco Boiler is attractively designed in a choice of colours and is a fine engineering product, made to give years of trouble free operation and backed by a first class service.

Trianco Solid Fuel Domestic Boilers from 50,000 B.t.u. capacities. Larger Trianco Boilers up to 3 million B.t.u. (oil fired) and 2 million B.t.u. (solid fuel).

TRIANCO

For further details write or phone our TRIANCO agents in Eire:



5, Upper Fitzwilliam St.,
Dublin, 2.
Phone: 63061.

This Contractor illustrated report has been compiled by our own correspondent, who visited Olympia with the strong Irish contingent for the Second International Heating, Ventilating and Air Conditioning Exhibition.

SIGNIFICANT STRIDES BEING MADE

IN extending a welcome to all to this second International Heating, Ventilating and Air Conditioning Exhibition, I am sure you will not consider this welcome less genuine if I couple it with the claim that all concerned with this industry are making significant economic and technical strides," said Mr. R. Smith, A.M.I.E.E., Chairman of the Exhibition Advisory Committee, in his opening speech.

Technical advance was vital to the national economy. "Technical advance, however, is not in itself enough," he added. "It must be coupled with efficient production, sound marketing, and effective selling. Only by a combination of all these aspects can we increase our share of the world's markets."

For the future there was plenty of scope. Almost every industry required the treatment of air in some degree—from merely heating or moving it to the most sophisticated controlled condition. No less important is atmospheric control in offices, in hotels, in hospitals—in operating theatres is was particularly important, he said.

In the home, after a slow start, the people of Britain were beginning to accept central heating as a normal requirement and not merely a luxury for the few.

Said Mr. Smith: "Hevac is now recognised as a major international event. I am sure this Exhibition is a stimulant, not only to the designer and the manufacturer, but equally to the user, and therefore plays an important role in this industry in bringing forward the necessity and acceptance of air at its best."

J. H. Chislett, Esq. (right), Sales Office Manager, O.B.C. Ltd., discussing new pocket size "Heating Equipment Catalogue" with Mr. Peter Macfarlane, Director, Peter Macfarlane Son Ltd., distributors for Northern Ireland.



Mr. A. E. Morden, Esq., Combustion Equipment Ltd. (left) describing features of the Cory Grit Arrester to Mr. P. Liuzzi of Messrs. Halpin and Hayward Ltd., their Irish Agents.

Pictured at Olympia

Mr. F. Rhodes, Esq., M.I.H.V.E., Managing Director (right), and Mr. S. W. Fox, Order Dept., Richard Crittall Marine Ltd., demonstrating the recently introduced "Varivent" ceiling diffuser. Messrs. Heatovent Supply Co., 5 Up, Fitzwilliam St., Dublin, have been appointed agents in Ireland for the R.C.M. range of Air Distribution Equipment.



"HEVAC" was chosen as the occasion for the official launch of the new "Forceflo" Convectors manufactured by F. H. Biddle Ltd. The photograph shows Mr. W. D. Cowan (right) describing the noise levels at various speeds to Mr. J. J. Balding, Manager, "Irish Plumber and Heating Contractor".



Photograph shows Mr. J. Dunbar (left), Technical Director, Suxé Combustion Ltd., describing the "Moring" Boiler to Mr. J. J. Hussey, T. Heiton & Co. Ltd., Dublin. The boiler which was exhibited for the first time at the HEVAC Exhibition is suitable for burning Irish anthracite and has, therefore, aroused considerable interest in this country.

Mr. R. Dodd, Heating Division, Trianco Ltd. (right), discussing the control system of the Trianco Model D1000 Solid Fuel Boiler with Mr. Pat Noone, Heatovent Supply Co., Dublin.





GROHE *Thermostat*

with Temperature Gauge



Automatically Controlled Thermostatic Mixing Valves

Turn the gauge to the temperature required. Mixed Hot and Cold water of any temperature between 50° F. and 160° F. will be delivered automatically. The chosen temperature remains constant and no further adjustment is required. Detailed information is available from our Irish representatives.

Friedrich Grohe. Hemer.
Grohe Thermostat. Lahr.
Hans Grohe. Schiltach.

Agents
in
Ireland: **Norman Stewart Ltd.,**
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Dame Court, Dublin.
Telephone: Dublin 73086.



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"THE WALDORF SUITE"

JOHNSON AND SLATER

(VITREOUS CHINA)

(SANITARY FIRECLAY)

ALFRED JOHNSON & SON LTD.,
QUEENBOROUGH, KENT.

JOHN SLATER (STOKE) LTD.,
BERRY HILL, STOKE-ON-TRENT.

from page eleven

QUESTIONS ANSWERED

about to unscrew the headgear to re-washer the tap).

By turning the capstan in the shutting off direction, the spindle will travel downward but the spanner thickness will prevent the downward movement of the easy-clean cover, which will thereby prise the capstan turn off under the influence of the screw jack principle of operating the tap spindle as described. A simple application of a well known engineering principle and one quicker done than explained. It will get the stubborn capstan turns off quickly and safely.

Incidentally, when you fit a new tap do you first "break" the joint between head gear and body before setting the tap in place? Many a pipe has been wrenched off a wall and too many basins broken as a result of this simple job not being done. It takes but a minute in the convenience of the engineer's vice in the workshop but how I have "blessed" some of those who could not be bothered to do this and as a result I have had skinned knuckles, broken basin, or both when trying to washer these taps in place for the first time.

Each month this column will solve some of the everyday problems of the plumbing and heating engineer when our consultants deal with queries directed to "Questions Answered." All queries will be replied to and the most interesting published.

WATER DOES NOT GET VERY HOT

We have just fixed two multi-point gas water heaters in conversion of a large house into two flats. Water runs and the gas comes on but the water does not get very hot. What reasons would you suggest might be the cause.

INCORRECT adjustment of water and gas flows to the appliances could well be the cause of insufficient hot water at the outflow from the heaters. Most modern appliances require no adjustment of gas rate except to ensure that when operating there is a residual gas pressure at the inlet to burner of between 2ins. and 3ins. water gauge. If this obtains and flue connections are properly made, then the heating function of the appliance should be in order.

It must be remembered that the heat output is directly related to the gas burning rate and to the declared calorific value of the gas used. Most heaters of the multi-point type are designed to burn gas at the rate of 200 cubic feet per hour, or about 3½ cubic feet per minute. Thus, with gas at 500 B.t.u./ft. cube D.C.V., a properly regulated gas heater is capable of producing 200ft. cube x 500

B.t.u./ft. cube = 100,000 B.t.u./hour or 1666 B.t.u./minute (less about 15% heat loss to flue, etc.). This represents about 1½ gallons of water raised through 100 degrees Fah., and it follows that a greater amount of water could be heated to a lesser temperature from the same combustion conditions.

It may be that the water flow rate in the installation complained of is too high. It should be checked by stop watch and some water flow measuring device.

Will Suffice

A bucket hung on a spring balance does quite well. If the weight of bucket be noted before water delivers to it and subtracted from that weight of water and bucket after one minute's flow (or less, as necessary), then the poundage of water flow in a known time is obtained: the poundage divided by ten will give the gallons flowing in the noted time. This should not exceed 1½ gallons/minute if water at 140 to 150 degrees Fah. is required.

An equally important and just as fundamental check must be made of the gas installation. A multi-point

heater consumes 200 cubic feet of gas/hour. Two, in use at once, will consume at double this rate, obviously. The passage of gas into and through an installation is dependent upon the diameter of the service pipe in relation to its length, rate of flow of gas, the pressure in the street main, and on the capacity of the gas meter within the building. The meter capacity should be checked to ensure that it is capable of passing enough gas to supply all appliances likely to be in use at one time. This in turn may lead to examination of the service pipe size and possible replacement of this and the meter with larger sizes.

Checking

Finally, the installation pipe sizing needs checking. A multipoint heater needs a minimum ¾in. diameter gas supply pipe. If this is in excess of 10ft. then the next 10ft. should be 1 inch. Lengths greater than 20ft. may need to be 1½in. and so on.

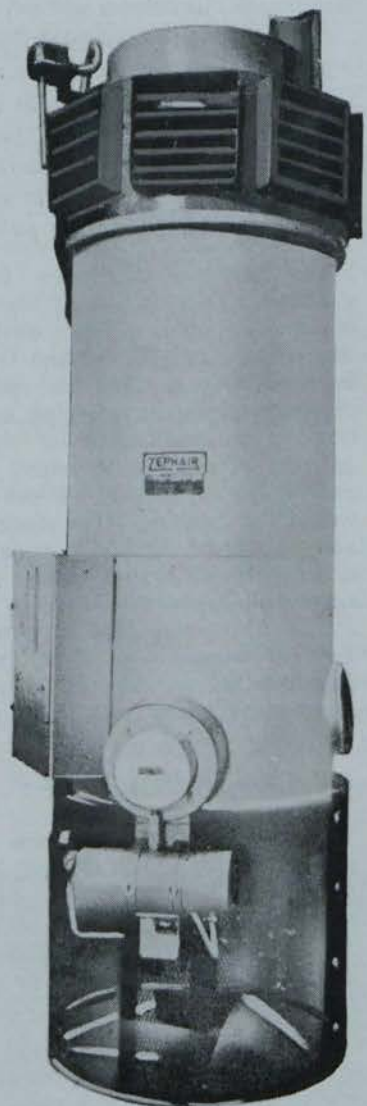
Gas, it should be remembered, flows under very small pressure heads; normally the pressure is less than ½lb./sq. in. Careful and adequate pipe-sizing is essential if this low pressure is to overcome frictional resistance within the installation and deliver gas at the required rate to allow full operational efficiency of the gas appliance, whether it be water heater, room heater, or cooking appliance.

NEXT MONTH

A. L. TOWNSEND ON— SANITARY APPLIANCES

Design of sanitary appliances.
Materials for sanitary appliances.
Fireclay sinks.
Ceramic lavatory basins.
Fixing taps to basins.
Ceramic W.C. pans.
The flushing cistern.
Traps for sanitary appliances.

The Irish Plumber and Heating Contractor.



**THERE'S WINTER-PROFITS
IN WARMTH FOR YOU FROM**

ZEPHAIR

INDUSTRIAL AIR HEATERS

These industrial heaters are going to be big sellers this year. Because they're really good value for money—and extremely efficient too. Here are some of the points that will make them this years favourite's:

- Cheap, quick and easy to instal
- No frost-damage risk
- Smokeless combustion
- Fully automatic
- Available for 45 or 200 seconds oil
- Close uniform temperature control

AND

PREMIER OIL BURNERS

These amazing S.F. Oil-burners are unique in the field of pressure jet burners in that they require no combustion chamber. Installation is quick, and easy, and they are completely smokeless. Sales-building features include:

- ★ 10% saving on fuel costs
- ★ No brickwork to replace
- ★ Stainless steel
- ★ Fully automatic
- ★ Photo-electric control

RATINGS : S.F.1. 60,000 to 200,000 B.T.U./Hr
S.F.2. 200,000 to 450,000 B.T.U./Hr
S.F.3. 450,000 to 950,000 B.T.U./Hr
S.F.4. 950,000 to 2,000,000 B.T.U./Hr

AGENTS FOR THE REPUBLIC:

WELDRYTE & CO. LTD.

ARKLOW, CO. WICKLOW



in type photocell control operates the oil burner. Axial flow fan is operated by contactor with overload and no-volt releases. A thermostat prevents fan blowing cold air during "off" periods of the burner. A manual over-ride is incorporated to allow the fan to blow cold air in the summer.

Econoil heaters are manufactured by Nu-Way Heating Plants Ltd., Droitwich, who have their Irish office at 5 Upper Fitzwilliam St., Dublin. The representative in Northern Ireland is Peter Macfarlane & Son Ltd., Cupar St., Belfast.

★ ★ ★

ROBUSTLY made, of neat clean appearance and high quality stove enamelled finish, Flexair convectors are available in sizes ranging from 18" long x 18" high to 68" long by 68" high, in 3", 5", 7", 9", and 11" depths. In free standing or concealed forms, outputs range from 1,000 to cover 20,000 B.t.u.'s/hr. ft. run. Heater batteries of aluminium finned copper tube construction are suitable for hot water or steam supply.

The manufacturers are Flexaire Ltd., Vauxhall Bridge Road, London, S.W.1, who are represented in Ireland by W. H. Leech, Esq., 414 Ravenhill Road, Belfast.

★ ★ ★

THE BAXI-OIL 30, a 30,000 B.t.u., self-contained, thermostatically controlled, warm air central heating unit, has been marketed by Baxi, Bamber Bridge, Lancashire. The unit can be easily fitted into a cupboard 21" x 19" x 90", and if positioned in the centre of the house, can fully heat by warm air circulation a house of 1,000 sq. ft. floor area through short stub ducts to room grilles.

★ ★ ★

THE SPIRAL Tube and Components Co. Ltd. have designed the new Hyduty '3' unit heater to meet the needs of the architect for a contemporary unit for modern factory heating. The unit contains the all copper spiral tube heating element comprising individual gilled tubes brazed into tubular steel headers.

★ ★ ★

THE NEW Forceflo Fan Convector manufactured by F. H. Biddle Ltd., Upper Grosvenor Street, London, features easily withdrawable nylon non-woven air filter bonderised with a synthetic resin, having an in-

SPECIAL SURVEY

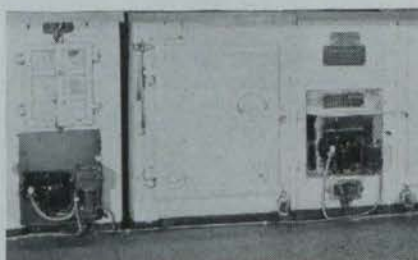
from page twenty

itial efficiency of 55 per cent. at a velocity of 300 ft. per minute, with an initial resistance under these conditions to 0.05" water gauge, which is fitted as standard to all units.

The filters are of permanent type and can be cleaned by vacuum suction or by gently beating, or in extreme cases, by washing in a detergent solution. The Irish representatives are Quadrant Engineers, 6 Mount St., Crescent, Dublin. Illustrated here is the Forceflo Model 37.

★ ★ ★

PERIMETER warm air heating has been produced for W. H. Thompson Ltd., Mallow, Co. Cork, in collaboration with Irish Shell. Before entering the heating unit the air passes through filters to remove dirt, dust and grime.



The warmed-filtered air is humidified for absolute comfort. Then the warmed-filtered-humidified air is delivered at or near the windows so as to cover the outside walls with a blanket of warm air. The superbly designed oil-fired furnace can be located anywhere in the house. The firm have in stock a wide range of conversions and we illustrate here the Esso Major.

★ ★ ★

THE VIKING Bel Air heater is equipped with a large window through which the flames are visible. The total maximum heat of the heater is 52,000 B.t.u.'s/hr., which is sufficient for the modern house or bungalow. Two electrically operated fans are incorporated in the heater to transport the hot air via light metal ducts to other rooms. Further details may be obtained from the Irish agents: Calumet Trading Co. Ltd., Upper Mount St., Dublin.

★ ★ ★

PARKINSON COWAN Industrial Products, Dolphin Works, Fitzalan St., London, have announced the introduction of two new unit air convection heaters. The T.50 has an output of 50,000 B.t.u./hr., measures 30 $\frac{3}{4}$ " x 18" x 31", weighs 130 lbs. net, and has a fan speed of 1420 r.p.m. Gas connection is $\frac{1}{2}$ " BSP. The T.100, with an output of 100 B.t.u./hr., measures 30 $\frac{3}{4}$ " x 30 $\frac{1}{4}$ " x 31", and weighs 200 lbs. net. Fan speed is 1420 r.p.m. and gas connection is 1" BSP.

They are complementary to the range of Parkinson-Schwank gas radiant heaters and both the radiant and the new convection heaters can be switched by the standard range of clock and thermostatic control boxes, allowing them to be used in the same heating scheme if desired.

★ ★ ★

THE DRUGASAR type JBN, is a balanced flue type heater available in several sizes and designed to give convected as well as radiated heat. The ducts are concealed within an asbestos cement wall liner cemented into the wall opening, a grille being fitted flush on the outer side of the wall. The grilles of the three largest models are provided with wind stabilising fins.

Available from Preston Ltd., Pearse St., Dublin, who are the Irish agents for the manufacturers, F. A. Borchardt Ltd., High Road, Chiswick.

★ ★ ★

CONTRARY to conventional practice, the combustion unit and heat exchanger in the Colt Turbo Static Units are isolated and insulated one from the other by two outer walls of the combustion unit through which the combustion air is blown. Thus heat loss through the walls of the combustion chamber to the main air supply is infinitesimal.

The combustion gases flow through the heat exchanger in the centre-flow to the main air supply so that maximum heat exchange is achieved in the shortest distance. The exceedingly high temperatures result in rapid heat exchanges and the gases are exhausted into the flue with only slight loss in pressure.

The Colt turbo-static heater is manufactured by Colt Ventilation Ltd., Surbiton, Surrey, England, and 5 Newcourt Avenue, Bray, Co. Wicklow.

Continued page thirty-one

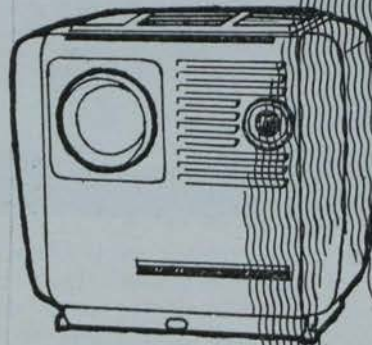
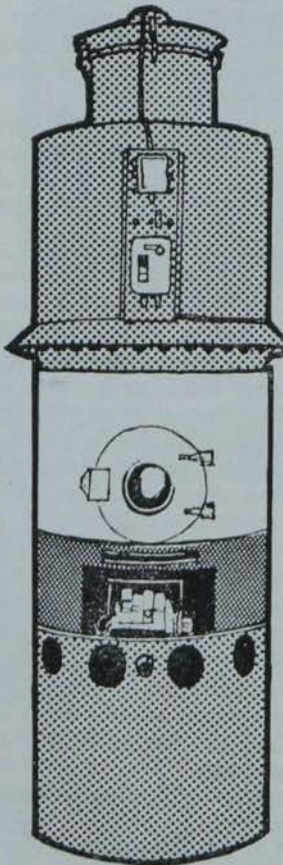
Twenty-nine

NOW!

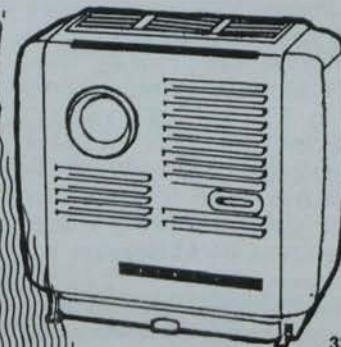
POTEZ

brings centralised heating within the reach of everyone!

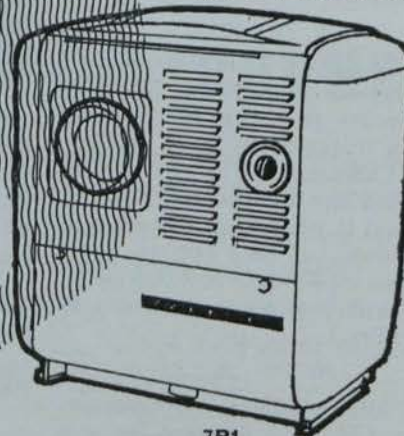
Potez Convector Heaters burn Gas Oil and are therefore economical in fuel cost. They are fitted with flues and are therefore safe, clean, and hygienic. Correctly installed they will give years of satisfactory and efficient service.



631
Output 25,000 Btu/hr
Hgt. 25", Wdt. 26",
Dpt. 20"
Price £40 17 0



331
Output 18,000 Btu/hr
Hgt. 24", Wdt. 25",
Dpt. 13" Price £32 4 0



7R1
Output 38,000 Btu/hr
Hgt. 30", Wdt. 25", Dpt. 22"
Price £49 11 0

5021
Industrial Model
Output 180,000 Btu/hr
Hgt. 88", Diam. 20"

Other Models will shortly be available. Trade enquiries are invited and should be addressed to:

TEDCASTLE McCORMICK & CO. LTD.
7 D'Olier Street, Dublin

SOLE CONCESSIONAIRES FOR **POTEZ** IN IRELAND
HEATING EXPERTS FOR OVER ONE HUNDRED YEARS

★ ★ ★

W. ERNST HAAS & Sohn manufacture besides small and medium size oil stoves, units of high thermal power such as the model "Milano," which is available in neutral colours and will therefore match any interior arrangement. It is economical in use due to two combustion chambers which can be operated individually or together as required. The manufacturers are represented in Ireland by A. H. Herne, 69 Middle Abbey St., Dublin.

★ ★ ★

RICHARD CRITTALL MARINE Ltd. (Great Portland St., London) have now introduced a domestic warm heat-

SPECIAL SURVEY

from page twenty-nine

ing grille to their range of air distributing equipment. Known as the "Decorvent," this new grille has been designed to keep the outlet pressure to the minimum since there is usually only a limited air pressure available with this type of domestic heating system.

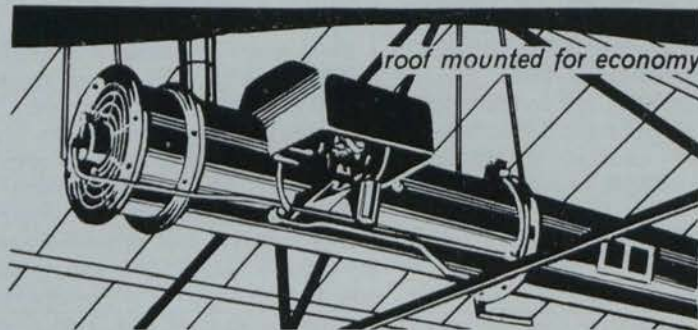
Special consideration has been given

to the low air velocity and angles of distribution. Similar attention has been paid to the combination of air volume and directional control in a minimum of housing depth which from the rear of the housing flange, in the fully open position, is only $\frac{1}{8}$ " overall. The blades are of aerofoil section, spaced to facilitate cleaning, and are controlled by a knob on the side of the vertical flange.

The grille is available in an extensive range of sizes and can be provided stove enamelled in any colour to suit interior decor. Matching fixed blade grilles are also available for recirculation purposes. The Irish representatives are Heatovent Supply Company, Upper Fitzwilliam St., Dublin.

★ ★ ★

WILLIAM SUGG & Company Ltd., Regency St., Westminster, have introduced the model F120/WH warm air heater, which is gas operated and designed for domestic wholehouse or selective heating for installation in new buildings with a small compartment to accommodate the unit (illustrated here).



LOW COST SPACE HEATING

need not use valuable floor space

- HEAT where you want it
- HEAT when you want it
- HEAT how you want it

ECONOIL Airheaters are light, compact sturdy units designed for roof mounting or mobile use. The warm air output can be spread either by a single diffuser, or a ductwork system with multiple outlets, as required).

(Units available from 150,000 to 380,000 B.T.U.s/hour).

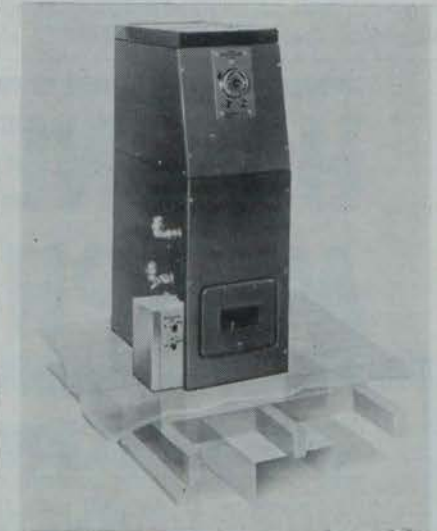


Prices from

£269

Write for leaflet EC/XC/19,
ECONOIL DIVISION,
NU-WAY HEATING PLANTS LTD.
(John R. Taylor Ltd.),
5, Upper Fitzwilliam Street, Dublin.
Phone 61653.

Head Office: DROITWICH, WORCS.



The combustion chamber is room sealed and accessories will provide for the use of conventional flue or Se-Duct common flue for multiple storey buildings. The low speed centrifugal fan is driven by a 70 watt output shaded pole motor through a belt drive with adjustable pulley to provide speed variations to suit differing duct resistance requirements.

The manufacturers have invited all interested parties to send plans of dwellings where consideration can be

Continued overleaf

Thirty-one

The Irish Plumber and Heating Contractor.

given to the installation of their new F120/WH Halcyon Domestic Air Heater and they will complete 1½" scale layouts of installation, showing where the heater can most advantageously be sited, together with full details of the distribution of the warm air ducts. The Irish agent is Mr. W. Cole, "Dunblane," 7 Whitebeam Ave., Clonskeagh, Dublin.

★ ★ ★

FROM THE WARM AIR heating equipment of Thomas Potterton Ltd., Cavendish Works, Buckhold Road, Wandsworth, S.W.18, we note a "Potterton" 35 GS warm air unit circulator installed in a private house, and a typical outlet grill in a lounge being served by the Potterton 35 GS warm air circulator. The agents in Ireland are W. P. F. Hume Ltd., Hyndford St., Belfast.

★ ★ ★

AERIALITE electric warm air central heating system is a compact heat producing unit fitted into any convenient enclosed space and distributes warm or cool air through ducting into selected rooms. It is controlled by a time switch and room thermostat, so as to ensure that warmth is obtained

SPECIAL SURVEY

from previous page

when it is required with maximum economy.

Air passes into rooms quietly, without creating draughts, through registers which blend into decorative schemes.

Overall control of the unit is by the Aerialite Time Control panel, and a room thermostat. From Aerialite Ltd., Castle Works, Stalybridge, Cheshire.

★ ★ ★

BASTIAN & ALLEN Ltd., Ferdale Terrace, Harrow, Middlesex, have recently introduced the ConStar controlled output electrical thermal storage heater for the industrial, commercial and domestic markets. Automatically controlled for comfort and low heating costs, the ConStar introduces a new concept in off-peak heating—fan assisted convection from stored heat.

The ConStar employs three speed fans which induce a regular flow of air through the storage medium and an assisted convection flow of warm air into the room. The heater also

incorporates a built-in thermostat.

Maximum air temperature at the outlet of the heater is automatically governed by a thermostatically controlled air bypass, which regulates the volume of air passing through the heat core. Bastian & Allen are represented in Ireland by Hendron Brothers (Machinery) Ltd., 9 Little Denmark St., Dublin.

★ ★ ★

THERMOLIER Unit heaters—a Mather & Platt product—are designed to direct warm air to working level and at the same time prevent stagnation of the air. The Louvres are individually adjustable, and automatic temperature control can be introduced by fitting a thermostat into the power supply to the fan motor.

Five sizes of heater are available and cover a thermal output range of 35,000 to 350,000 B.t.u. per hour. All units in the range operate on steam or on high-pressure or low pressure hot water. The motors, which are specially designed for fan duty, are totally enclosed and protected against the penetration of dust and moisture into the windings. The manufacturers are Mather & Platt Ltd., Park Works, Manchester.

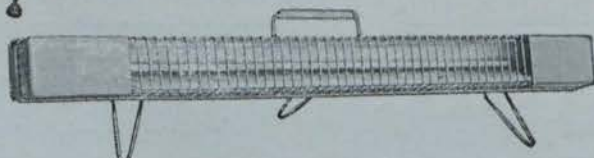
HOT NEWS! MORPHY-RICHARDS

Planned Warmth home heaters

No doubt about it—you'll never get another sales chance like this . . . because Morphy-Richards know exactly what every chilly customer in the country wants. Quality . . . appearance . . . economy! As well as a full range of domestic radiant and convector heaters Morphy-Richards are in the forefront with the latest in fan and infra-red heaters.



Infra-red heaters
£5-19-6.



Bermuda fan heater
12 Gns.



KELLY & SHIEL LTD

UNITED WORKS, DISTILLERY ROAD, DUBLIN 3

from previous page

AVAILABLE here through their agent, Mr. H. C. Maguire, of 3 Blackheath Gardens, Clontarf, Dublin, are the products of the trans-Atlantic Edwards Engineering Corporation, which include the Edwards base-board radiation system.

This system combines convection, radiant and perimeter heating providing a blanket of uniform heat. An appliance styled boiler provides the hot water for the system.

The system is supplied in lengths from 2 feet to 20 feet. Units, covers and extension "fill-in" pieces are all pre-cut.

★ ★ ★

WE list here and briefly describe part of the vast range offered by Kelly & Shiel Ltd., of Dublin and Cork. From EKCO we note: The complete range of Thermovent convector and convector/radiant heaters (floor, wall and inset mounting), all variable-thermostat controlled and of contemporary design.

Fan-Dair, the well-known tangential domestic fan heater which pro-

vides an instant current of warm air all over the room and has proved a most economical method of domestic space-heating.

We also note that Morphy-Richards have provided two supreme new fan heaters for use in the home or office.

The Bermuda has wall or floor mounting, with directional air flow, and the California is designed to throw a current of warm air into every corner of the room immediately it is switched on.

The Kenwood Activair fan heater is also available from Kelly & Shiel Ltd.

Right—A still from the Potterton film

Pottertons make films

THOMAS Potterton Ltd., heating equipment manufacturers, have completed two films which are now available for general distribution.

The first, "The Heart of Heating," largely deals with the factories and production methods of Thomas Potterton Ltd. This film, made by Dermal Productions Ltd., lasts 18 minutes and is available in 16 mm.

The second film, "House Warming," is a fully animated cartoon film covering, amusingly, the history of home heating from the ice age up to the comfort standards of to-day. "House Warming" was produced by



the De La Rue Films and Publications Department, and lasts nine minutes and is available in 16 mm. (35 mm. also soon).

Both films are in full colour with optical sound tracks and are available on loan, free of charge, from J. D. Rice, Public Relations Officer of Thomas Potterton Ltd., Buckhold Road, Wandsworth, London, S.W. 18.

**THIS WINTER'S
BEST-PAYING
PROPOSITION**

**THERMODARE
NIGHT-STORAGE HEATERS**

**IT PAYS
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THEM!**

You'll pile up profits—you'll make sure of bumper sales—when you display this winter's best-paying proposition—Thermodare Night Storage Heaters. These heaters are exactly what your customers are going to need this winter—so be sure to display them. We will supply you with hard-selling, point of sale leaflets—give them to your customers when you recommend Night Storage Heaters. They'll do a first-class selling job for you—and that means more of those all-important profits



THERMODARE NIGHT STORAGE
HEATERS are manufactured by

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FINGLAS, DUBLIN 11.

'PHONE: 71801



**PLUMBERS, HEATING ENGINEERS
TOOLS; WELDING EQUIPMENT**

JOB METHODS REVOLUTIONISED

ALTHOUGH automation has become a byword in the industrial world, we in the plumbing and heating industry still depend on the skill and ability of the individual craftsman for the successful completion of our contracts.

We have no substitute for the human element, and so the finished work will always reflect the degree of skill in the hand of the plumber or fitter involved. We can, however, augment this skill by providing him with the latest in tools and machines. It is no coincidence that the meteoric rise of some of the well-known firms in the industry and their reputation for high-quality work is due, in no small measure, to the progressive outlook of their management in regard to the provision of modern equipment.

This trend is very evident in the heating field—for instance, the use of portable electric tools such as drills, grinders, hammers, etc., has revolutionised job methods. In particular, the angle drive drill for working in confined spaces has proved a boon, especially for the installation of small bore heating.

Shot-fired

FOR PIPE clipping and fixing pipe hangers we have, of course, the old and well-tried plugging equipment, but the shot-fired projectile or steel nail has come into its own in recent years.

With this tool it is possible to fire a holding device into a steel girder without the necessity to drill and tap—a considerable time-saver on big jobs.

Again, we have the almost universal use of the hydraulic bending machine, which has now made obsolete the forge fire with its ritual of heats and sets for the bending of steel tubes. A recent trend with this type of bending machine is the use of motorised equipment, thereby reducing the heavy work associated with the bending of the larger diameter pipes.

Time saver

ANOTHER advantage with some recent models is the double-acting hydraulic ram, which releases the tube from the former without using wedges or hammer. Many craftsmen will, no doubt, fully appreciate the saving in time and temper with this improvement.

Of particular value to the plumbing trade is the developments in copper tube bending—we now have available portable machines operated by a ratchet gear, so reducing manual effort to negligible proportions. Most units of this type are designed to bend $\frac{1}{2}$ in. to 2 in. BS.659 copper tube, and can be fitted with a detachable mandrel to produce bends free from any trace of flattening, wrinkling or throating.

Motorised screwing machines have also proved their worth on the larger jobs, particularly where many short screwed nipple pieces are required. Most machines of this type have cutting attachments, so that they serve a double purpose by providing speedy preparation of pipe lengths.

Development

A RECENT development in this field is the pipe cutter which

simply requires a chain to be wrapped around the pipe, pressure applied, and the pipe is cut. No turning or gripping in a vice is required, and the actual operation takes from one to two minutes, depending on the pipe size.

The ubiquitous blowlamp, so long a faithful friend of the plumber, has also encountered opposition! The small portable gas cylinder with its rubber hose and attached blow torch, has proved a blessing to many, particularly for annealing, pipe soldering, and similar work.

In Germany, Italy, Spain, etc., this equipment is in common use in the plumbing trade and has almost completely eliminated the blowlamp.

In the design of modern hand tools such as wrenches, hammers, hacksaws, pipe cutters, stocks and dies, etc., etc., the emphasis is on the production of a tool which is properly balanced and comfortable to use. A trend, too, is the development of wrenches with jaws so angled as to enable the most awkwardly situated nut or pipe to be tightened.

Welding Equipment

IN CONSIDERING the many changes of technique and equipment with which we have been faced over the past decade, perhaps the increase in welding as a method of pipe jointing has been the most spectacular. The interest shown in the recent welding articles published in this journal indicate the extent to which the process has developed.

In general, oxy-acetylene gas weld-

ing still holds pride of place due to its adaptability and the low initial cost of the plant, but where flame cutting is involved to any great extent, the use of oxy-propane has proved a rival.

The buyer of gas welding and cutting equipment is indeed faced with a varied selection of light and heavy-weight blowpipes, cutting torches, regulators, etc., and the final choice lies with the individual preferences of the welder.

Prefabrication

WITH regard to electric arc welding, this process has not, so far, been used to a large extent by the trade, but for the prefabrication of pipe units or headers in the base workshop it has many advantages—speed, less possibility of distortion, elimination of the necessity to pre-

SPECIAL SURVEY

from previous page

heat in many cases, absence of cylinder renewal, etc.

With arc welding equipment, we have the choice of a generator giving direct current, or a transformer giving alternating current.

Alternating current welding is at present gaining considerable ground, due especially to cost factors, and low maintenance, as there are no moving parts. The running costs of this type of plant is also lower.

Where, however, the arc welding of copper and copper alloys are involved, the D.C. generator is still the only suitable plant. This is particularly so with the Argon-arc welding of

deoxydised copper and its alloys. The final choice of plant must again depend on full consideration of the type of work likely to be encountered.

Other types

THERE are, of course, many other types of arc welding—submerged arc, for instance, where the automatic feed of electrode and flux enables the continuous welding of hundreds of feet without the necessity for a stop. However, at the moment there is very little scope for them in the industry.

The testing of welds is, so far, a matter of turning on the pressure and keeping our fingers crossed with many of us, but some of the larger firms may find that X-ray or Ultrasonic inspection of the welds on large diameter pipelines would be an econ-

Continued overleaf



This special survey—another in a series on important aspects of the plumbing and heating trades—has been compiled by technical expert John G. Bolton.

The pleasure of your company...

is requested at an Exhibition of Hilmor hand operated portable machines for bending Electric Conduit and light gauge copper tube. All machines demonstrated daily by Hilmor Staff operators.

Exhibition to be held at The Building Centre of Ireland, 17 Lower Baggot Street, Dublin, 2. 3rd to 7th December, 1962. Daily from 10 a.m. to 5 p.m.



FIRST MADE — FINEST MADE

Further details of the Exhibition can be obtained from your local stockist or: Hilmor Ltd., Caxton Way, Stevenage, Herts, England.

The Irish Plumber and Heating Contractor.

Special Survey—from previous page

omic proposition, especially where high pressures are involved.

To conclude this brief survey of tools and equipment for the plumbing and heating industry, it can be said, with truth, that the modern craftsman is more dependent on good quality tools and machines than ever before in the long history of the trade.

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

THE "BULLFINCH" Kosangas Torch, recently introduced into this country, is proving one of the plumber's most useful tools. With a range of seven burners, it provides instant heat to cover a wide range of heating-soldering and brazing jobs.

A special fitment is supplied incorporating two sizes of copper bits for soft soldering and a paint burning head is used as an easy paint stripper. More than 500 units have been sold since its introduction and full details and demonstrations may be had from Welding Services Ltd., 14-16 Amiens St., Dublin.

WOLF Electric Tools Ltd., Pioneer Works, Hanger Lane, London, W.5, have now introduced the new Double Insulated Two Speed $\frac{1}{2}$ " capacity Heavy Duty Drills, types D1-X24 and D1-X24c. These machines, with the correct speeds for $\frac{1}{4}$ " and $\frac{1}{2}$ " drilling, are tough and reliable yet light and comfortable to handle.

The speed change is made quickly and simply by a push button and the angles switch handle gives perfect control. The machines particularly appeal to on site workers as it means carrying one machine instead of two. The firm is represented in Ireland by P. E. O'Brien & Sons, Ltd., 83 Lower Gardiner St., Dublin.

★ ★ ★

WELL KNOWN for their specialist service to the Trade are Industrial Gases (I.F.S.) Ltd., through whom British Oxygen Co. Ltd. and British Industrial Gases Ltd. products are available. These include wide ranges in the fields of electric arc welding plant, accessories and electrodes; pipe cutting equipment; tools; welding plant and equipment; and welding and brazing rods and fluxes.



● Unidare welding rods at packing stage.

MR. P. J. COWLEY, Associated Institute of Welding, an Instructor on Welding Techniques at the College of Technology (Bolton St.), is Manager of Welding Rods Division, Unidare Limited, Finglas, Dublin. Speaking of his company's products he said: "The types of electrodes which we produce cover a fairly comprehensive range and they do generally provide for a very large part of the over-



● Mr. P. J. Cowley, electrodes in the country. In light of the demand for other types to meet the requirements of an expanding industry here, we shall plan our future activities in the field of arc welding electrodes.

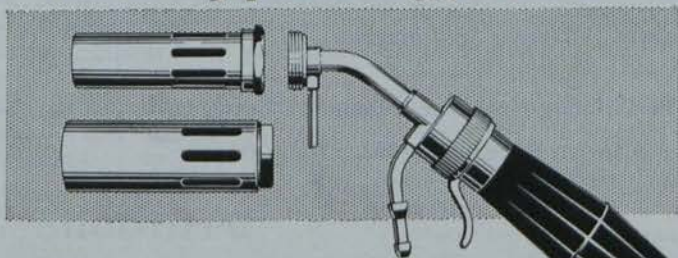
"As large users of arc welding electrodes ourselves in the various forms of fabrication carried out within our organisation, we feel that we can justifiably claim first-hand knowledge of the conditions and circumstances met with in the welding of varying types of steel and also the characteristics to be looked for in the welding rod, and that experience gained from the use of our own electrodes will serve to ensure that a constant check under normal operating conditions is kept upon the high standard achieved in their manufacture.

"One big advantage which we feel we have in the manufacture of welding electrodes, is that the steel wire prior to being processed is manufactured within our own works here from the raw material; thus it means that full control of quality commences very early in the raw material stage and can be followed through the completion of the electrode."

Product Review continued page forty-three.

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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WELDING DIVISION, SALES DEPARTMENT

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The Irish Plumber and Heating Contractor.

WATER SUPPLY SOURCES IN RURAL DISTRICTS

IN THE April, 1962, issue of the Contractor a special survey was made of the many and varied pumping appliances on the Irish market.

This, in turn, has led to the writer receiving many queries on the problems involved in the installation of these pumps, particularly in rural areas. It has also brought to light the fact that some members of the trade are not fully conversant with the basic principles underlying the provision of a satisfactory water system. In this series of articles it is intended to deal with some of the points raised, and we will therefore commence with a look at the various sources from which water may be obtained.

This brings up the merits and drawbacks of shallow wells, deep wells, artesian wells, springs, streams, and rivers. In most rural areas the well is the usual source, and we will consider it first.

Wells

WE OFTEN speak of wells as being shallow or deep, but these terms can be misleading as they do not refer to the actual depth in feet, but simply to the stratum through which the well passes. In fact, it could happen, though rather unusual, that a shallow well might be deeper than a deep well!

In Fig. 1 it will be seen that a typical geological cross section of the ground indicates that it is built up in a series of layers or beds, some of which absorb water, rainfall, readily, while others have no soakage whatsoever. In technical terms these are called pervious and impervious stratum.

Shallow wells are those which obtain their water from the first pervious stratum, whereas a deep well is one which has been dug through the first stratum, and the succeeding impermeable stratum so that the water is obtained from a lower level.

It may be asked here "how did the

the
author

John G. Bolton

Lecturer in Plumbing and Heating at the College of Technology, Bolton Street, Dublin.

water reach this point if it is covered by a watertight layer?" Well, it may have entered through an outcrop as in Fig. 1, or percolated through a fault or crack which may have occurred in the upper impervious layer. All strata have, at some period in the earth's history, been subject to major or minor movements so that these faults or cracks develop.

It is obvious that in wells of this type a lining must be provided for some distance downwards to prevent the inflow of subsoil water through the side, otherwise the whole advantage of good filtration is lost.

Artesian wells

AN ARTESIAN well is one which is bored through at least one, but usually more, impermeable strata so that it taps a water source which has been well filtered in its percolation through the ground. The name derives from Artois in France (in ancient times called Artesium), where the first wells of this type are reputed to have been made in 1126.

In wells of this nature, and where the basin-like inclination of the strata is well defined, the water may rise freely in the borehole to or near ground level—in some cases rendering the use of a pump unnecessary. However, on most jobs, the provision of some form of pumping appliance

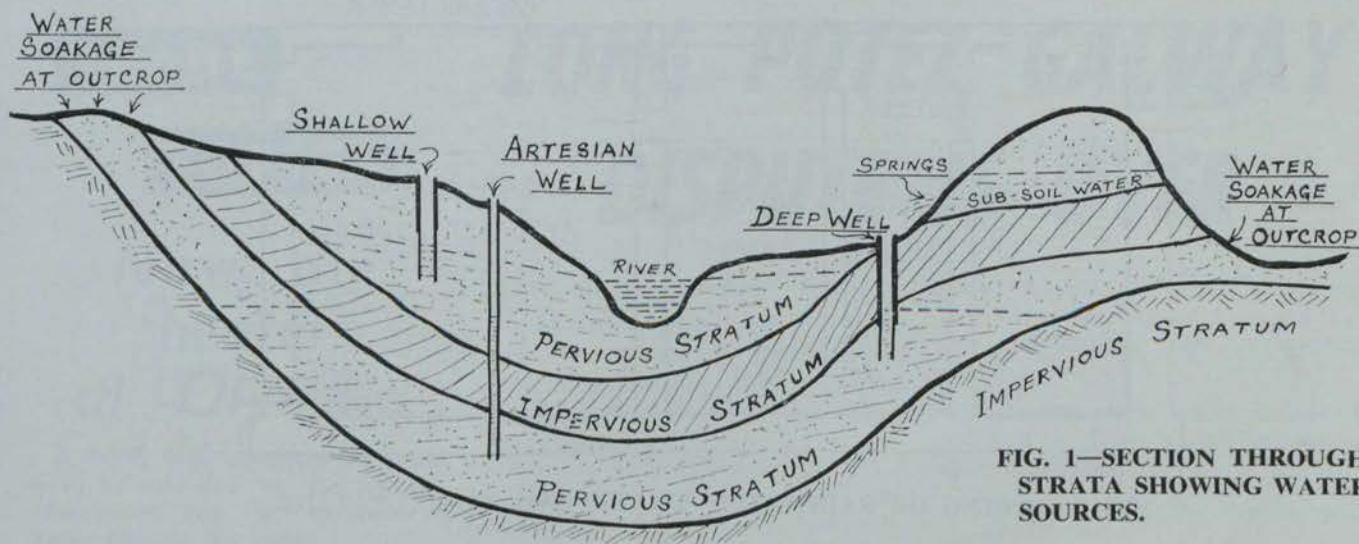
will be required if a satisfactory flow of water is to be assured at all periods of the year.

While it is obvious that water from deep and artesian wells is more wholesome, due to better filtration and therefore less likelihood of pollution, it does not follow that shallow wells are to be condemned outright—in fact, it would be safe to say that over 50% of the existing Irish wells are of the shallow variety. With this type of well, the point to bear in mind is that it should be as far as practicable from any possible source of contamination. This is particularly so where septic tanks, cesspools, earth closets, etc., are installed. The Building Byelaws demand a minimum distance of 60 feet from any such source, but the further away the well is sited the better.

Carried away

IN CONNECTION with this aspect, it is also important to keep in mind the direction of flow of the subsoil water so that any possible pollution which might be conveyed by it will be carried away from the direction of the well. Finally, the best advice of all is to avoid the use of shallow wells, if at all possible, but if you must do so, take precautions.

As already mentioned, it is important to prevent any inflow of sub-



from previous page

RURAL WATER SUPPLY SOURCES

face or subsoil water into a well, and to do so it is necessary to line the first 10ft. or so with a waterproof concrete casing so as to seal off any openings. While 10ft. is mentioned, it is a minimum, and the casing can, with advantage, be continued much further, depending on well depth. The top of the well should be concreted and finished with a slope away from the opening. This can be provided with a galvanised cover to allow for inspection and repairs.

On modern systems, the pumping plant is usually installed in a specially built pump house or an outhouse near the dwelling, and this simplifies matters by leaving a clean finish to the well top, thereby preventing contaminated matter gaining access to the water.

Springs

SPRINGS are often thought of as an excellent source of water supply, and in many instances this is correct because spring water is of a high quality due to the fact that it has travelled long distances before flowing from the ground. Springs owe their origin, in most cases, to some particular formation in the ground, hence the water issuing from them has undergone considerable filtration and is pure and fit for human consumption.

Although, as mentioned, the water

is normally pure, it can be easily polluted. The writer, on one occasion, was told by a farmer of the wonderful spring he had in his farmyard—special mention being made of the fact that it never ran dry. On inspection, it was found to consist of a small pool at the foot of a tree and within twelve feet of a manure heap! Strange to say, the farmer and his family were in perfect health, due, no doubt, to having built up a resistance to the polluted water—but one can imagine the effect of this beverage on a stranger.

As a spring will vary in its output from time to time—especially in summer, some means of storage must be provided to ensure a constant supply. A suitable tank, together with a filtration arrangement, is illustrated in Fig. 2.

Streams and rivers

THE MAIN danger with water supplies from sources of this nature is pollution, and this may arise from a point much further upstream—for instance, it is not unknown for waste and other noxious matter to be discharged into the river and thereby cause heavy pollution downstream. Although this is strictly forbidden by the Rivers Pollution Act, I'm sure we all, at some time or other, have come across this form of pollution, and it

seems that an automatic chlorinator fed with a chlorine solution (Na OCL) is the only answer if the water has to be used for domestic purposes.

Rainwater

IN PARTS of the west of Ireland, the main source of supply is rainwater. This, of course, requires storage, and it will be necessary to construct a tank of suitable capacity. Government publications specify 1,500 gallons or 3,000 gallons if sewerage is being installed at the same time. In rural areas the tank can be of waterproof concrete, limewashed on the inside and fitted with a cover to prevent pollution.

It must always be remembered that fresh rainwater is peculiarly susceptible to deterioration. Another point to watch is that the tank be sited on the shady, or north, side of the house to keep the water cool.

It is unusual in most cases to build the tank underground, but if preferred it can be constructed at ground level. As rain falling on a roof becomes contaminated with dust, leaves, bird droppings and other impurities, it is desirable to run the first flush of water to waste, so allowing the clean remainder to go to the storage tank.

Continued overleaf

The Irish Plumber and Heating Contractor.

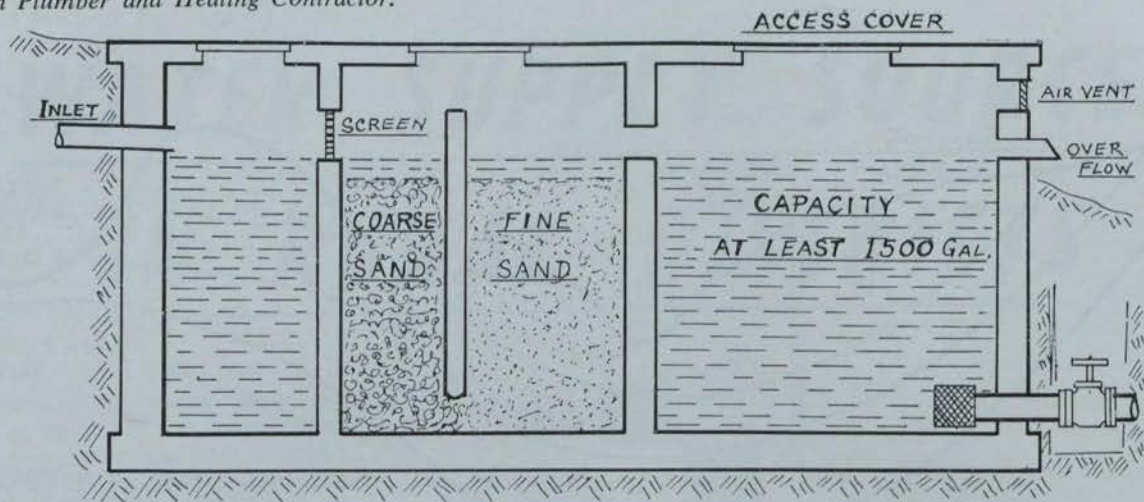


FIG. 2.—SPRING OR RAINWATER FILTER AND STORAGE TANK.

from previous page

WATER ANALYSIS

HAVING taken a brief look at the main sources of water supply, we will now place them in the approximate order of their suitability for domestic use: 1—Artesian wells; 2—Deep wells; 3—Springs; 4—Mountain streams or lakes; 5—Stored rain-water; 6—Lowland rivers; and 7—Shallow Wells. Shallow Wells are always to be suspected, unless, as already pointed out, extreme precautions are taken to site them away from all possible contamination.

A specification of a good quality water is that it is colourless, sparkling, odourless, cool, free from sediment or suspended matter, and pleasing to the taste.

If it is suspected that impurities, organic or otherwise, exist in the water, a sample should be sent to a qualified analytical chemist—usually the local city or county analyst.

The sample should be taken in a glass bottle holding about half-a-gallon and fitted with a glass stopper. The bottle should be first rinsed out two or three times with the water to be examined, and then submerged to a depth of 6in. or so, in order that dust or other surface matter will not be drawn into it.

The bottle should be filled to within 1-16 in. of the stopper, which is then replaced and sealed with wax.

With the bottle should be sent the following details:—

- Place, date, and time sample taken.
- Source (well, spring, river, etc.).

- If from well, state depth and type.
- Distance from nearest septic tank, drain, etc. Also state distance from farmyard or manure heaps.
- Other possible sources of pollution

(suspected traces of lead, iron, copper, etc.); also any other details which might be helpful (for instance, age of well and how it is lined, etc.).

In our next issue, we will discuss pumping appliances, and their suitability under different conditions.



Pour OXYPIC, the **guaranteed** leak repair preparation, into a hot water installation and seal leaks, no matter where they are, in **30 minutes!**

Faulty fittings, bad threads, sand holes, any leak through any cause is sealed economically and quickly. No dismantling needed; no patches or welding; no need to even **find** the leak; no trouble at all!

*OxyPic prevents rust and scale. It can also be used as an active leak preventive.

N.B.—Unsuitable for domestic or draw off systems. Retail Price £1 per tin C.O.D., money refunded if not satisfied.

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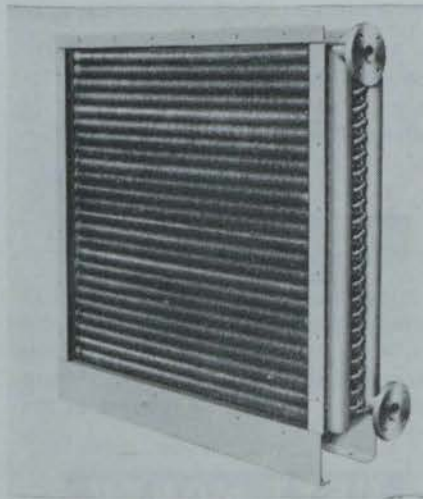
TRADE

TOPICS

New air heater at Olympia

A NEW high efficiency air heater is to be exhibited by the Swinton, Manchester, firm of Matthews & Yates Ltd., at the Hevac.

The Cyclone copper gilled tube air heater is designed to meet the increasing trend towards high pressure hot water systems for industrial heating. The heater is constructed of horizontal small bore copper gilled tubes connected to vertical steel headers to give a single or multi-pass arrangement and complete with flanged steel plate



● The new Cyclone high efficiency air heater seen at HEVAC.

casing. Heaters can be supplied with supporting feet for self-support or, alternatively, without feet for bolting direct on to the ends of an air washer, drying cabinet or ducting. A variety of sizes is manufactured, and heaters may be supplied with one or two rows of tubes. When necessary they can be bolted together to form batteries, having any number of rows of tubes, thus providing an extremely wide range of heating capacities and sizes.

LONG POTEZ GALWAY DISPUTE IS OVER

THE dispute at Potez Industries Ltd., Galway, has ended. Agreement was reached at a conciliation conference at the Labour Court, Dublin, recently, work to be subsequently resumed.

The dispute began on August 30, when 70 members of the Amalgamated Engineering Union walked out of the factory. A union spokesman said that this action had been taken over the management's insistence that they become members of the I.T.G.W.U. A factory official said the matter was an inter-union affair.

On August 31 the strike was declared official and the management

stated that the men had automatically terminated their employment and that new applications for employment would be accepted.

The management on September 4 obtained a High Court injunction against picketing.

On September 7 the factory was closed.

On September 16 the Bishop of Galway, Most Rev. Dr. Browne, appealed to the parties to settle the dispute. On September 20 it was announced that the Labour Court was to intervene in the dispute, and on October 9 the pickets were withdrawn from the factory in view of the conciliation move by the Labour Court.

RAD FACTORY MAKES OVERNIGHT MOVE

OVERNIGHT a factory in Bray has been switched to Santry (Co. Dublin) and the whole operation was carried through so expeditiously and efficiently that the employees were not even an hour idle.

The firm is that of Candair Rad Ltd. Mr. Christopher Freeman, 39-year-old managing director, said: "The Irish firm is the direct result of a new home heating system introduced into the British market two years ago.

"Their system sold so well that they found it impossible to obtain sufficient supplies of the radiators used in the system so they decided to manufacture their own."

Concessions

The main reason why they chose Ireland for the factory was because, apart from tax concessions, they found it easier to obtain a factory here. In addition Irish labour is reasonable and good so that they could make a first-class article cheaper

than elsewhere, even allowing for shipping and transport costs.





Mr. Freeman is so pleased with his workers, who were recruited in Bray, that he has arranged transport for them to Santry and in addition has set up a canteen for them.

The Bray factory has been in operation only since May and the increasing demand for the products necessitated the move to more commodious premises.

From Trianco

TECHNICAL Sales Literature produced by Trianco Ltd., East Molesey, Surrey, has been welcomed by engineers, merchants and architects. Their technical catalogue containing individual data sheets for their boilers, is a comprehensive and informative publication. Irish Agents: Heatovent Supply Co., 5 Upper Fitzwilliam St., Dublin 2.

WHATEVER THE JOB...

Tanks	Pipes	Boilers	Ducting
Fibreglass Flexible insulation	Fibreglass rigid sections	Fibreglass Crown 200	Fibreglass Filmed insulation
			

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Fibreglass has a very high insulation value. It is simple to handle, fire-safe, vermin and rot-proof. You can get these forms of insulation delivered in the quantities you want when you want them. The sole distributors of Fibreglass heat insulation products in the Republic of Ireland are

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**Fibreglass
Limited**

21 MERRION SQUARE DUBLIN

TRADE

TOPICS

AT HEVAC

THE "SILAVENT" (seen at the Hevac) system has been designed to extract polluted air from the toilet bowl before it can escape into the air you are breathing. The extracted air is harmlessly dispersed outside the house or building.

The system comprises a toilet seat with a collector fitting at the hinge location. A polythene tube connects this to a special extractor fan mounted on an outside wall.

It is of British design and manufacture and is marketed by Murphy-Richards (Installations) Ltd., 50 Conduit St., London, W.1, in collaboration with Robert McArd & Co. Ltd., of Denton, Manchester, manufacturers of "Celmac" products.

● Mr. D. H. Sullivan, Green Park, Coleville Road, Clonmel, Co. Tipperary, has been appointed agent in Ireland for the Beeston Boiler Co. Ltd. of Nottingham.

NEXT MONTH

Next month the Contractor will include a special picture report of the Engineers Association Annual Conference Exhibition, at which there were many exhibits of interest to the Trade.

NEXT MONTH

A CENTRAL HEATING COKE BOILER

with enamel jacket, for sale, Robin Hood 62 RN 5 sections, 117,000 B.T.U.'s, in exceptionally good condition. Very reasonable.

BOX IP.48.

13/15 Dame Street, Dublin, 2.

SPECIAL SURVEY —from page thirty-six

Plumbers', heating engineers' tools, etc.

ILLUSTRATED here is the Marquette Redi-Spot power pack combination hand portable, an arc welding transformer designed and built to produce the optimum volt-ampere ratios for automatic operation of the Gun and best possible spot welding results.

There are three "heat settings" for welding light, medium, and heavy gauge steels. Standard models are 115-230 volt, 50C. A.C. It is furnished complete with 8ft. heavy duty power cord and with three-prong polarizing plug—a 15ft. work lead with Quik-Tite Clamp.

Also available with the unit is the Redi-Spot welding gun which features a "feed lock" mechanism which controls the electrode burn-off, automatically interrupting the arc when the proper penetration and metal deposit has been made.



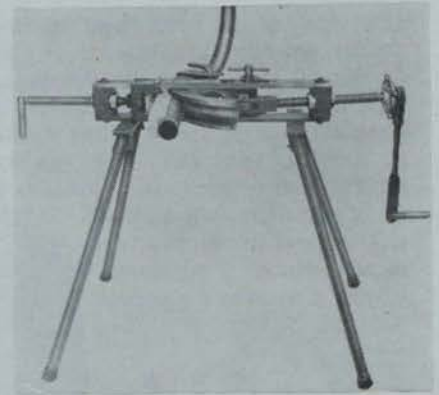
Radi-Spot welding involves intense heat concentrated for a brief instant in a very small area, thus virtually eliminating warping or distortion of the work. From E. P. Barrus Ltd., Brunel Road, Acton, London, who are represented in Ireland by Monsell, Mitchell & Co., Ltd., Townsend St., Dublin.

★ ★ ★

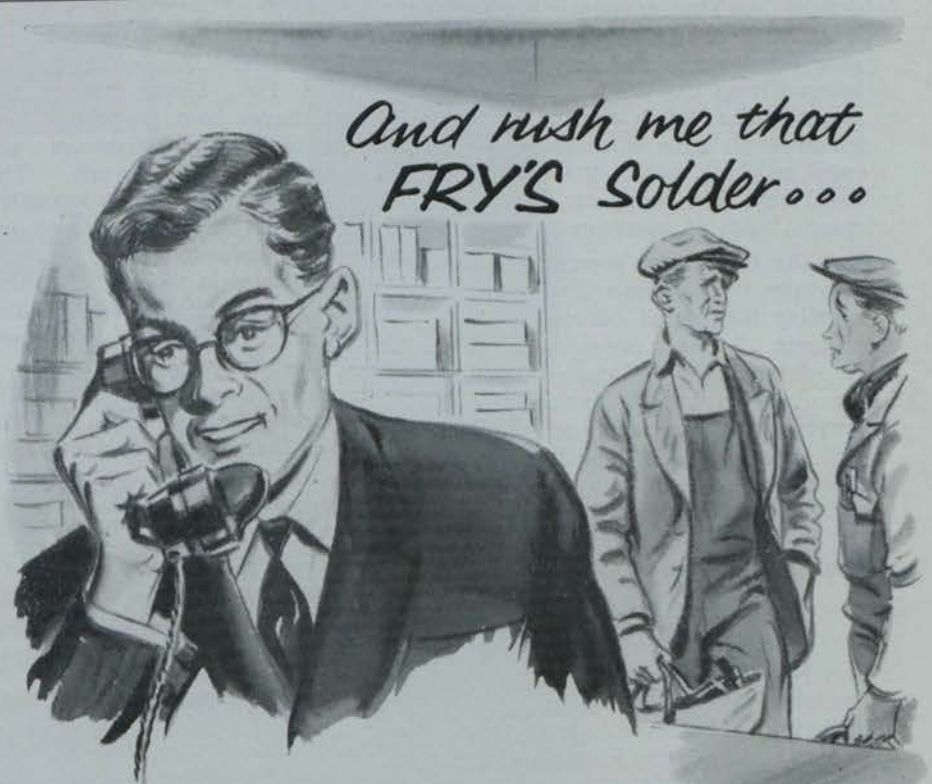
HILMOR Ltd., Caxton Way, Stevenage, Herts., have produced a machine of new design with Rotary bending action through a robust operating screw and with the additional advantage of being able to produce both left-hand and right-hand bends. The P.P. 5B can be supplied

as a standard compression bender or with a detachable Mandrel Attachment, as an optional extra.

Also of particular interest is the lightweight bender, type GL Minor, with a capacity of 1/2" and 3/4" diameter copper tube. It can be carried in a tool-bag and is particularly suit-



Continued overleaf



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The Irish Plumber and Heating Contractor.

able for small bore heating and similar types of installation.

Hilmor Ltd. have a permanent exhibition of bending machines and sample bends at the Building Centre in Dublin, and will stage an exhibition and demonstration there early in December, when staff demonstrators and technical advisers will be in attendance. Full details are given in the Company's announcement on page 34.

★ ★ ★

THE NEW Rawlplug Vibroto RV.3 drilling machine announced recently is an addition to the range of Rawlplug power tools and has been developed from the RV.1, which it replaces. The RV.3 consists of two independent units—the motor and speed reducing unit, and the Vibroto head, both combining to give three specific types of operating.

1—As a vibratory power drill with provision for two intensities of blow enabling high speed penetration into concrete. 2—As a purely rotary drill for drilling tile, brickwork, stone, etc. 3—As a high torque general purpose drill for wood, steel, plastics, etc., using appropriate drill for each purpose.

Enquiries should be made direct to the Rawlplug Co. Ltd., Rawlplug House, Cromwell Rd., London.

★ ★ ★

A NEW flux, Fry's "T.77," is now available to manufacturers for the soldering of chrome plated metals. From Fry's Metal Foundries Ltd., Tandem Works, Merton Abbey, London, whose Irish office is at 197 Pearse St., Dublin.

★ ★ ★

LASTING repairs can be made to almost anything with David's Isopon. Kits are available from garages and accessory shops. A free 37-page booklet is available from W. David & Sons Ltd., 20a Spenser Grove, London, N.16.

★ ★ ★

FULL POWER return and increased effective ram area combine to make the Tubela H.3P.R. an efficient and up-to-date tube bending machine. A roller contact between pump handle and high pressure plunger produce

SPECIAL SURVEY

from previous page

wear and fatigue is now incorporated in all standard pump units.

Developing over 8 tons thrust at 5,000 p.s.i., the H.3P.R. is designed not only for bending all classes of steam and gas pipes but also for bending the thicker wall tubes being increasingly used in industry where higher pressure and temperatures are required. From the Tubela range of the Tubela Engineering Company Ltd., Fowler Road, Hainault, Ilford, Essex.

★ ★ ★

IRISH TECHNICAL and Production Company Ltd., Upper Mount St., Dublin, have been appointed representatives and distributors for Odest Swedish oil burner sets. The "Mini" type is supplied in attractive zipped plastic carrying case and includes: CO2 indicator, liquid draught gauge calibrated in inches, both these items made of unbreakable plastic; smoke pump indicator, 0-900 degree F dial type thermometer.

The firm also supply the Odest pointer draught pocket gauge supplied in leather carrying case with telescopic nickel plated draught tube, 4" long extended. The calibrator is in inches.

★ ★ ★

WOLF Electric Tools Ltd. have also introduced a special angle drilling attachment for use with their SD4c



and WD34c machines, to be known as Type SBA.34. The unit allows drilling (maximum capacity 1/2" dia.) right down at floor level, tight into a

corner, or level with the ceiling. It is eminently suitable for small bore heating installations.

The angle of the shaft is permanently set at 30 degrees, allowing the power unit and hands to be well clear of adjacent surfaces and projections. Wolf state, however, that full pressure can be put behind the drill point at all times. Attachment to the drilling machine is simple and does not necessitate removing the chuck. Special threaded masonry drills are available. Wolf Ltd. are represented in Ireland by P. E. O'Brien & Sons Ltd., 83 Lower Gardiner St., Dublin.

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Phone: Christchurch 1522/3.

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“OPIO” ACCELERATORS
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RADIATOR VALVES
OIL TANK CONTENTS GAUGES
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UNIT HEATERS
CONVECTORS
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“VELAN” STEAM TRAPS
“VEE-REG” VALVES

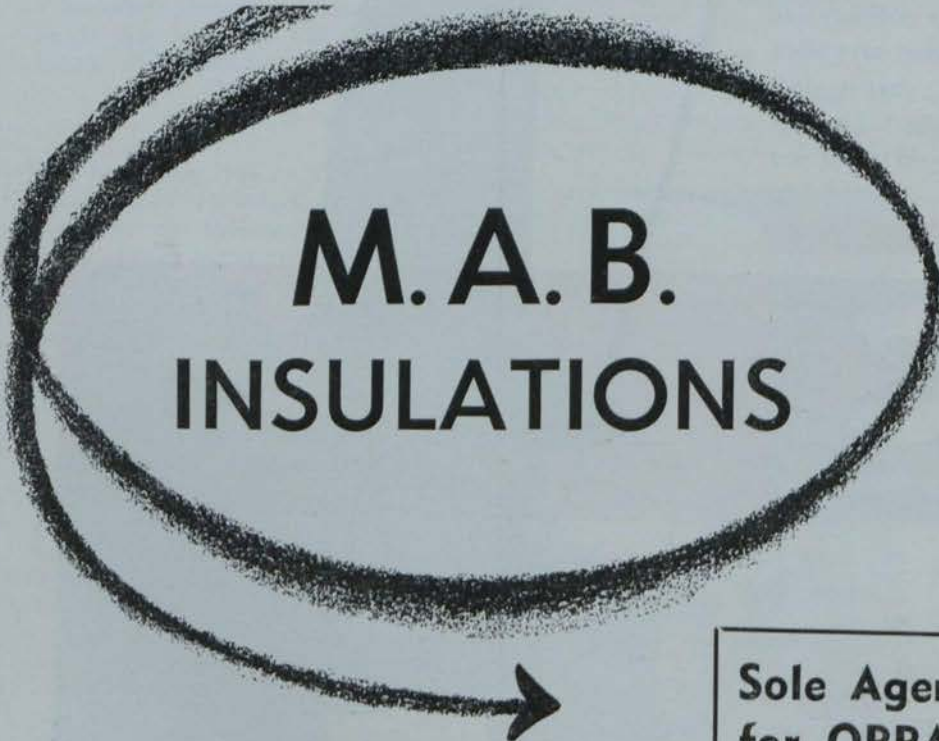
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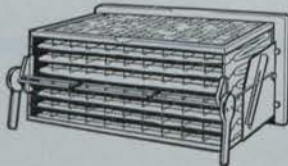
<https://arrow.tudublin.ie/bsn/vol2/iss7/1>

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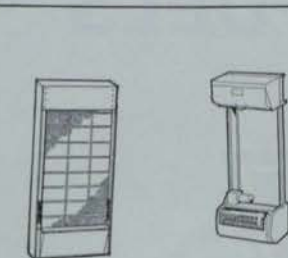
Sole Agents in Irish Republic
for **OPPANOL** Waterproofing
for Insulated Pipe Lines



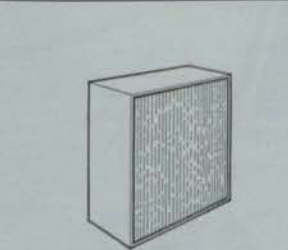
The anonymous critic who traced this comment obviously knows that all Vokes air filters, having been tested in accordance with BSS.2831, are of guaranteed high efficiency. Research into new filter media is constantly being carried out in our large, well-equipped laboratories, and as fast as industry makes the use of entirely new filtration techniques necessary, Vokes are providing solutions to their problems. In addition, we have a staff of specialist technicians who are always available to help with any air filtration queries. Take advantage of our years of experience in filter manufacture, and if you accept our proposals on any specific installation we will unreservedly guarantee the performance in all respects.



The K.600 'Kompak' is the most widely used air conditioning filter in the world. With a normal rating of 600 c.f.m. and an initial resistance of 0.15" w.g., it has a consistent and guaranteed efficiency rating of 95% against Aloxite 50 dust (BSS.2831). Vokes K.600 is extensively used in air conditioning and air intake installations of factories, offices, laboratories, stores, test houses, etc.



The Vokes S.C. (self cleaning) Rotary Viscous Air Filter for cleaning large quantities of air with minimum pressure drop where efficiency in the region of 98% is adequate. Special filter panels constantly circulate in a trough of oil and the only servicing required is the periodic removal of sludge and maintenance of the correct oil level. Capacities from 3,000 c.f.m. Initial resistance 0.35" w.g.



Vokes 'Autoroll' in automatic or hand operated forms, combines high efficiency and large dust holding capacity with low operating and servicing costs. The filter medium is fed from the top spool across the air flow aperture on to the lower spool, this and replacement signals being automatic in the electric model. Capacities from 6,150 c.f.m. Initial resistance 0.2"—0.45" w.g.

Vokes 'Absolute' Filters give such an exceptionally high standard of filtration that they are widely used by the U.K., A.E.A. and industrial research units, providing protection against radio-active dust, bacteria and other submicronic particles. Each filter is rigorously tested by the methylene blue dust cloud method, and rejected if its efficiency is less than 99.95%. Efficiencies of 99.99% are attained by some models. Capacities from 35-1,000 c.f.m.



VOKES make the world a cleaner place to live in!
Comprehensive literature covering all Vokes filters is available on request from the Sole Agents.

THE LEINSTER ENGINEERING CO.
LIMITED

TENDERS

LAOIS COUNTY COUNCIL:

COUNTY Home, Mountmellick: Notice to Heating and Electrical Contractors.—Tenders are invited for:

- (a) Complete low pressure hot water heating and Domestic hot and cold water installations;
- (b) Complete electrical installation at the above, all in accordance with the Specification and Drawings prepared by Messrs. J. V. Tierney & Co., Consulting Engineers, 15/16 Duke Street, Dublin 2.

Form of Tender, Specifications and Drawings may be inspected at the offices of the Laois County Council or at the offices of the Consulting Engineers during normal office hours. Copies of the Contract documents and Forms of Tender can be obtained from the Consulting Engineers on payment of a deposit of £10 10s. 0d., made payable to Laois County Council (refundable).

Sealed tenders, priced in ink and enclosed in sealed envelopes endorsed on the outside: (a) "Tender for Heating Installation, County Home, Mountmellick," or (b) "Tender for Electrical Installation, County Home, Mountmellick," should reach the undersigned not later than 12.00 noon on Friday, November 9, 1962.

E. J. FENNELL, Secretary.

Laois Co. Council, Courthouse, Portlaoise.

Date: 18th September, 1962.

★ ★ ★

MONAGHAN COUNTY COUNCIL:

EMYVALE Water Supply Scheme.—Tenders are invited for:—

- (a) Supply and Delivery of Pumping and Chlorination Equipment, and
- (b) Erection and Installation of Pumping and Chlorination Equipment

in a new Pumphouse at Emyvale, Co. Monaghan, in accordance with the Drawings, Specification, Schedules, and Form of Tender prepared by Ed. Ralph Ryan, M.E., B.Sc., M.I.C.E.I., Consulting Engineer, 1 Mountpellier Tce., Galway, from whom the documents may be obtained on payment of a deposit of £15 15s. 0d. (returnable).

The Contract provides for the Supply and Delivery and for Erection and Installation of a Pumping Installation comprising electrically - driven pumps complete with control gear. Each pump shall be capable of delivering 1,200 gallons per hour against the estimated maximum head. It also provides for pipework within the Pumphouse, suction pipes, automatic control gear and the electrical installation.

Sealed tenders on the form provided, endorsed "Emyvale Water Supply Scheme—Pumping and Chlorination Plant," should be delivered to the undersigned not later than 12 o'clock noon on Saturday, October 20, 1962.

Signed: D. P. O'CONNOR, Secretary.
County Offices, The Hill, Monaghan.
21st September, 1962.

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M. A. Boylan Limited

A subsidiary of The Cape Asbestos Company Ltd.,
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*Also full range of plastic materials
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Instantor Works, James's Street, Dublin, 8.

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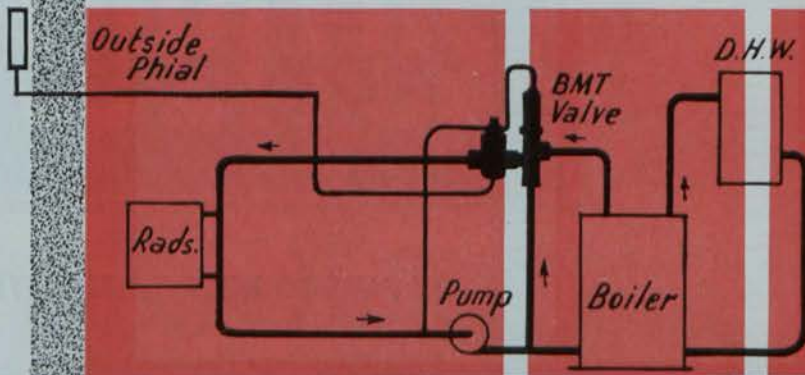
In small-pipe heating the simplest—and most economical—way to give efficient, fully automatic control is to install the Satchwell BMT. In response to a temperature sensitive phial *outside* the building, the BMT mixing valve prevents temperature changes *inside* before they can occur. This way, inside temperatures remain constant whatever happens outside, with considerable savings in fuel consumption.

For more information on the Satchwell BMT—just write to Rheostatic.

ONLY the BMT reacts to every change in the weather

ONLY the BMT gives fully automatic control of small-pipe systems

ONLY the BMT ensures maximum efficiency, by controlling all the heating. Not even the water in the pipes is left uncontrolled.



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