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The Irish Plumbing and Heating Engineer, September 1964 (complete issue)

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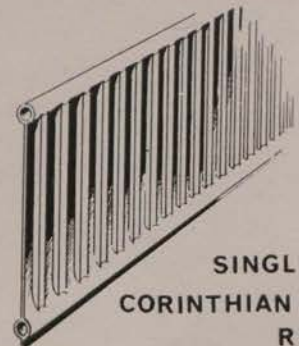
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ENGINEER

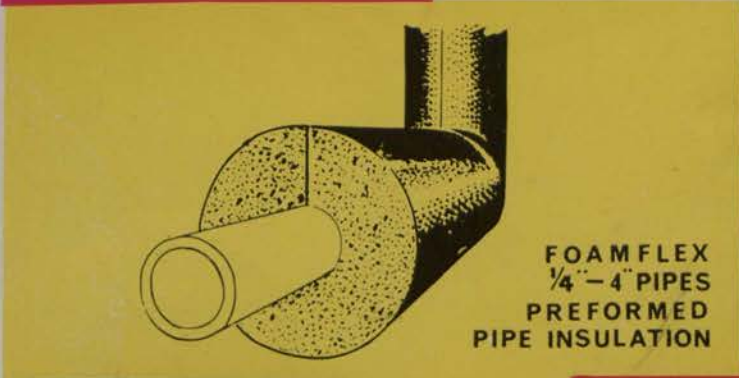


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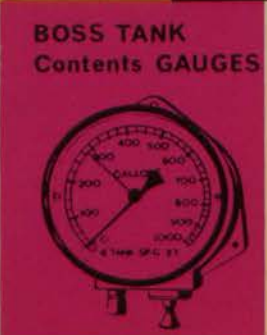
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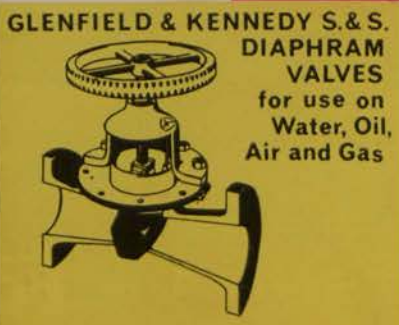


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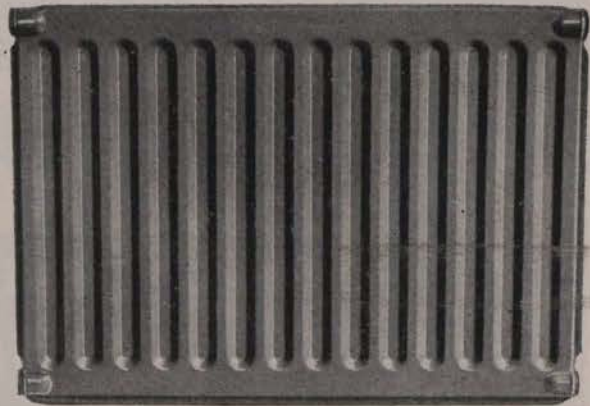
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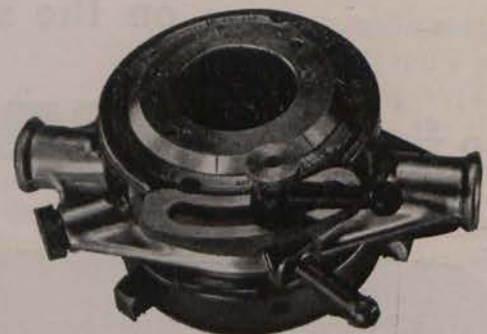
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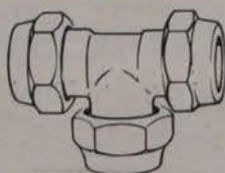
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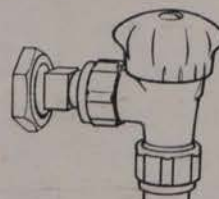
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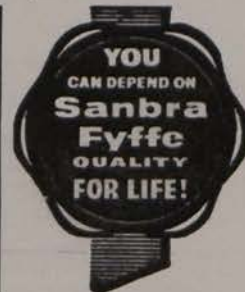
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TOTALLY NEW DESIGN—more compact, quieter, works in any position. Designed by the Sigmund Research Team.

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Get the full technical and terms story on these great new pumps. What you learn will probably make up your mind on the spot. So do yourself a favour. Don't commit yourself to any sizeable orders for anything else until you know about these.

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OUR GUARANTEE is clear and straight. It runs for two years. If

any manufacturing fault or mechanical flaw causes trouble, it's replaced and the Installer automatically gets at least £1.7.6 to help offset labour charges.

If the fault's been caused by misuse, the pump will be stripped down, cleaned, repaired, re-assembled and returned for a small set charge.

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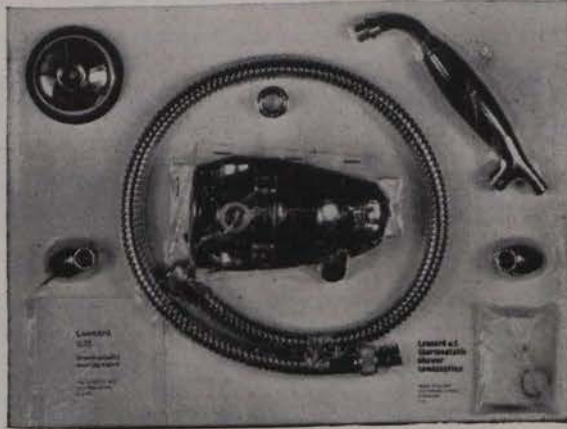
Our service engineers cover the country. They're on call to visit sites and service any International equipment. And they're backed in turn by a proper stores and service organisation.

You've got to buy some pumps. On the surface they may look alike. Talk to your International Rep. They're not alike. These are the ones to go for. Use your phone now.

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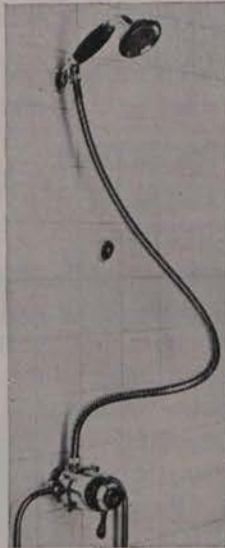
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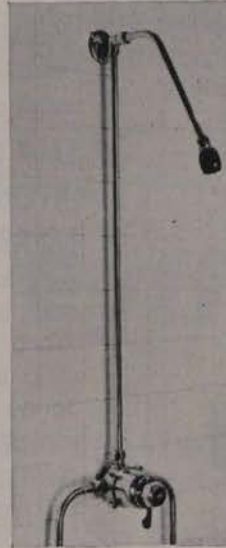
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built-in thermo-
static mixing valve
with flexible tube
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Leonard thermostatic showers are easy to choose, easy to buy, easy to install. Each shower combination is complete down to the fixing screws,

and cunningly packed for safe, whole and convenient delivery. The Leonard shower you choose is thermostatic. It includes a separate choice of the force of

the shower; it works off water pressures as low as 3' head. Leonard showers give you a choice from four standard combinations.

Oil tank gauge gives its own warning

A NEW device is available for home owners with oil-fired heating systems which gives an audible alarm if the stock of oil in the storage tank falls below a certain level. Known as the Arkon audio tank gauge, the device is simple to install and operate. It requires no maintenance beyond replacement of a torch battery at long intervals.

Besides functioning as a reminder when stocks need replenishing, the device can be used to measure the level of oil in the tank at any moment simply by sliding a pointer along a scale.



So that the gauge may be universally applied to tanks of any capacity (up to a maximum depth of 6 feet), it indicates percentage depth—not gallons—and has ten positions showing from 10 per cent. depth up to 100 per cent.

The user simply decides at what level of oil remaining in the tank it is wise to re-order, according to his needs and local delivery circumstances, and sets the sliding pointer at the appropriate mark on the gauge. When the oil in the tank falls to this present level, a high pitched buzzer in the gauge automatically sounds an alarm and continues to do so until the pointer is moved to a lower setting or to the "off" position.

The complete device comprises an aluminium probe, of a length to suit the particular tank and fitted with a flange for attaching to the top of the tank, a suitable length of multi-core cable and the gauge itself, which is a pale grey plastic box measuring approximately 5½ in. high by 2½ in. wide by 1½ in. deep. Arkon products are available here from Modern Plant Ltd., of Dublin.

trade Topics

O.B.C. LIMITED, of Vines Lane, Droitwich, with branches in Dublin and Belfast, have produced a new edition of their heating equipment catalogue. This edition, the 7th, is the most comprehensive ever produced.

Designed for easy reference, its seven major sections contain full details on boilers, radiators, automatic controls, oil line equipment, fittings, servicing equipment and installation materials; spares and reconditioned equipment. There is also a section dealing with technical information on design, methods, cost, etc.

The 184 pages contain details of well over 1,100 items of equipment and there are 650 illustrations and diagrams. Each major section has a colour index which helps in identification.

To be of as much service as possible to the central heating installer, O.B.C. Ltd. have also produced an order plan to be used in conjunction with their new catalogue. This consists of a box carton containing a pad of specially prepared order forms together with a number of pre-paid envelopes and postcards. This plan is convenient to use and saves time as well as giving a ready record of orders placed.

* * *

INTRODUCED to coincide with the opening of the heating season is

NEW HOTSPUR Mk. II BOILER INTRODUCED

B.S.A. Harford's latest edition to the field of domestic oil fired heating—the Hotspur Mk. II boiler. The boiler has been extensively restyled and overall dimensions have been reduced, making it more compact than the original Mk. I model, which it supersedes. The overall appearance of the unit has also been greatly improved by these modifications.

Maintenance and general servicing are made easy by the internal layout, which has been revised so that

IRISH PLUMBING & HEATING ENGINEER

Vol. 4. No. 6. SEPT., 1964.
THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing and ventilation industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

THIS month sees our Special Review feature dealing with one of the highlights of its twelve monthly schedule—the Annual Review of domestic oil fired boilers, burners and controls. Included in the survey are warm air heating systems.

In his Seven Deadly Sins series for domestic heating installers W. J. R. Couchman has reached the sixth part of this valuable work. This month he moves on to the important operation of ensuring that the pipework is correctly sized for its function.

Allen McDowell, our Northern correspondent, contributes another Northern Notes column.

Trade Topics review the month's news.

Editorial and advertising offices:
Callaghan Chambers, 13/15
Dame Street, Dublin 2.
Tel. 56465-6.

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

Belfast: Allen McDowell,
43 Horn Drive, Belfast 11.
Phone 614606.

trade Topics

from previous page

every component can be reached merely by opening the door. The graduated thermostatic control knob and boiler indicator lamps, originally on the outside cover, are now incorporated on an internal control panel, thereby not only providing against children tampering with the unit and altering its output, but preserving neatness.

The Hotspur Mk. II is available in four models covering the output ratings of 45,000, 60,000, 80,000 and 110,000 B.t.u./hr., fuel consumption at these outputs being 2.8, 4, 5.6 and 7.5 pints/hr. respectively. All models are of circular mild steel construction and are supplied with automatic electrical controls and high tension ignition, electrical consumption being 40/50 W. The over fire draught requirement is 0.02 in w.g. whilst the recommended fuel is of viscosity 28 sec. Redwood No. 1 at 100°F. (normal domestic kerosene).

The new model utilises the well-known Toridheet wallflame burner which is also of B.S.A. Harford manufacture. This burner, which uses its fuel as a lubricant, has many proven features.

* * *

J.L.C. Pumps and Engineering Company Limited of Coles Green Road, London, N.W.2, are manufacturing a new range of Full-way hot water accelerators for both domestic and industrial heating systems. The specially arranged construction of these units enables all sizes from 1" to 4" pipe flange connections to be supplied as either direct or belt motor drive.

NEW PUMP RANGE FROM J.L.C.

The advantage of this choice of construction means that in a straight-

forward system a direct drive unit may be used, but by the appropriate selection of a belt driven type of unit, by varying the pulley sizes, provision for a proposed extension or the isolation of different parts of a heating system, etc., can be incorporated when the system is initially installed. High and low-winter and summer duties are easily arranged.

Capacities for these units range up to 200 g.p.m. at frictional heads up to 16 feet. All units are designed to handle liquids up to 250°F. and are spigotted throughout to ensure accurate alignment and arranged to give maximum flexibility in duties. All units are provided with a top quality self-adjusting mechanical seal to ensure positive sealing throughout its working life. The units may be installed straight into the pipeline.

* * *

BY standardisation, production planning, and the use of stock components from the Donovan

DONOVAN ELECTRICAL DEVELOPMENT Range of proven contactors, relays, switches, and wiring accessories,

and standardised stocked enclosures, Donovan can provide a well engineered special purpose control panel with little delay and at a competitive price.

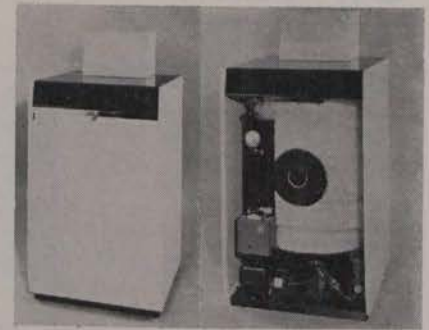
Given a clear description of operation of the machine tool, material handling equipment, process to be controlled or of any similar electrically, pneumatically or hydraulically driven group of devices, their engineers, specially trained in the application of "control," can quickly produce the schematic or "key" diagram from which the arrangement and wiring of the special control panel is decided.

Constructional details are provided on leaflet WF.1, and this is available from Roper Bros. Ltd., 5, South Anne St., Dublin.

* * *

THE announcement of the range of powerful new design Zone-A-Flow motorised zone valves was recently made by White Rodgers Ltd. Design and construction have assured a dependable and

MOTORISED W.R. ZONE VALVES



The new B.S.A. Harford Hotspur Mark II, boiler.



The new O.B.C. catalogue of heating equipment.

strong valve, weighing slightly over four pounds. It is operated by a shaded-pole motor that delivers many times the power available by synchronous motors commonly used in zone valves. Working through the gear train and valve stem, this motor provides positive opening and closing power. The motor and gear train are immersed in sound dampening, life-of-the-unit lubricating fluid and sealed in a sturdy metal case. Thus operating noises are reduced.

A new barrel-type valve is made of non-corrosive hard chrome-plated Monel. The stem is self aligning and effective seal off results in reduction of wear and friction loss. Two other features are the new convenient terminal panel and the visible automatic recycling manual operator.

Each valve is controlled by the "D'LUX-line" 125-202 three-wire low voltage thermostat, which is highly sensitive with a narrow differential, heat anticipated to match the Zone-A-Flow valves. It has sealed mercury contacts for protection against dirt and corrosion.

Valves, thermostats and transformers are supplied in a complete package and in various sizes.



THE 7 DEADLY SINS OF DOMESTIC INSTALLATION

—for Part Six see page Thirty-eight.

in brief...

FOR a development by the Twickenham Borough Council of 103 flats and maisonettes in nine blocks at Wick Road, Teddington, British Insulated Callender's Cables Limited have supplied Panelec butyl rubber insulated floor warming cables and a considerable quantity of mineral insulated copper sheathed wiring cables, including 1080 M.I. prefabricated units.

* * *



NEW to the Armitage Nuastyle quality metal fittings range are the A.1040 High Neck pillar taps. The introduction of these new taps brings high quality fittings into the kitchen, at the same time matching the already popular Nuastyle taps and mixer fittings. They are designed with quick clean lines having inclined heads for easier handling and cleaning. The high neck together with the raised nose make for the easier filling of buckets, etc. Anti-splash insert gives a smooth non-splashing stream. Taps are heavy chrome plated for a long and hard wearing life.

* * *

● VENNOR LTD., in association with their Irish distributors, Roper Bros. Ltd., 5 South Anne St., Dublin 2, announce new terms by way of increased discount for the Irish market. New design and techniques in the works have made available during the past two years the Vennerette time switch at a price of £4 19s. 6d. list, and in spite of a recent increase in the price of many time switches, this unit remains at this price. Needless to say Venner Ltd. are most confident in the future. A new catalogue has just been announced and copies will be available to the Trade in the very near future.

* * *

VAN DEN BOSCH Ltd., Europair House, Wimbledon, S.W.19, sole U.K. and European agents for Owens-Corning Fibreglas products, announce that the price of Fibreglas insulation for ducts has been reduced by up to 25%. New price lists showing the latest prices are now available.



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SIEVERT**
SWEDISH MADE

Propane Torches

**CRAFTSMEN KNOW THEY
CAN RELY ON SIEVERT**

...a burner for every job!

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9 burners plus 8 supports


Sievert propane gas burners ignite immediately and burn with an intense clean flame adaptable to all requirements from a small pencil flame to a powerful voluminous flame. Plumbers, Builders and Painters everywhere readily appreciate the advantages of the range of Sievert appliances.



HANDYMAN SET 3790


These sets of equipment are packed in a well-made, strong and attractively finished carrying case containing a range of equipment which enables most jobs to be undertaken.

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GAS DEALER

Use Sievert apparatus with Calor Gas Mk. 10 or larger size Gas Containers—for especially portable outfits use the small CALOR/SIEVERT Containers, both available from your local Calor Gas Dealer.



See the complete range of appliances at your local Calor Gas Dealer or for further information and literature write to:—

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KEEP PACE WITH DEVELOPMENTS—SIEVERT SHOW THE WAY

SPECIAL REVIEW

THIS MONTH

Domestic boilers, burners, controls;
warm air heating systems.

Boilers are now well proven

THE popular, elegant, and efficient domestic oil fired boilers have now proved themselves in many thousands of homes. Automatic ignition and fan assisted vapourising pot type burners are now almost standard items of equipment for jobs of up to 80,000 B.t.u./hr.

One or two manufacturers offer balanced fire units but the conventional flued models seem to be the most in demand.

Installers are learning that it pays to use one or other of the flexible flue liners. This to prevent condensate damage in brick flues and to improve overall boiler efficiency.

In estate development work the idea of central fuel stores with piped,

metered supplies to individual properties may come here. The arrangement removes the individual oil storage vessel which can sometimes be an eyesore. More important still, perhaps, it relieves the householder of the bother of ordering his individual fuel.

A new development in domestic oil-fired equipment is the Allied Ironfounders' fully automated cooker and hot water heater. Model OC will cater for 6-8 persons, whilst Model OCB caters for the cooking for the same number and, in addition, will provide 80 gallons of hot water per day. This must become a useful addition to the domestic range, especially

in areas where solid fuel availability is difficult or expensive.

Warm air heating continues in popularity. Gas, oil, solid fuel, and even electrically heated systems are available. The simpler systems retain the centrally placed heater position and stub duct to adjacent rooms. The trend is decidedly towards larger warm air systems with ducted distribution to remote rooms.

Forward looking manufacturers are now producing pre-fabricated ductwork in mild steel and in plastic materials. In properly planned new homes of the larger kind, and even in existing properties, ducted warm air systems are feasible.

In this equipment review

we take a long look at new developments in the fields covered by this special review.

(All claims are those of the manufacturers).

A NEW series of oil-fired boilers—the EOA series—has been announced by Thomas Potterton Ltd., Buckhold Road, London, in addition to their already extensive range in this field. With six outputs ranging from 400,000 to 900,000 B.t.u./hr., the EOA provides heating for medium size offices, schools, factories and a variety of other such buildings.

The new design of the cast iron waterway sections gives efficient heat transfer as well as making cleaning and servicing operations easy. These boilers are supplied with a pressure jet burner of use with class "D" (35 sec.) oil. They are intended for natural draught and a special integral draught stabiliser is incorporated in the design.

* * *

OF PARTICULAR interest from the range of Weldryte Ltd., manufacturing engineers, South Quay, Arklow, Co. Wicklow, is their Temp-O Type X packaged boiler burner—a high efficiency unit for the larger domestic central heating installation. It is fully automatic and designed to take up as little floor space as possible.

by poor flue conditions or lack of draught. In fact no chimney in the ordinary sense is required at all, whereas with most oil fired boiler an efficient chimney at least 16ft. high is essential.

The water capacity is small, ensuring rapid heat. Two thermostats are normally provided, wired in series to guard against failure. The burner is provided with special sequencing control giving pre and post purge. The ratings are 50,000 to 90,000 B.t.u./hr.; 90,000 to 150,000 B.t.u./hr.; and 160,000 to 220,000 B.t.u./hr.

* * *

DELMORE Heating Limited—a subsidiary of International Boilers and Radiators Ltd.—produce a range of vapourising natural draught boilers

which can be supplied either independent of electricity or with electric controls. The boilers have been designed for installation in the kitchen, are extremely quiet in operation and are completely odourless.

Models 30, 40, and 60 Domestic and De Luxe boilers are fitted with Teddington KBA/BA (capillary type) control valves. Models 30, 40, and 60 Electric and De Luxe Electric are fitted with KBA/DD solenoid operated valves for connection to mains voltage (a 6ft. length of 3 core cable is provided). A time switch can be connected to shut the burner down to low flame when required. Models 80 and 120 domestic and de luxe boilers are provided with electric control. The models are available in capacities up to 128,000 B.t.u.'s/hr.

Delmore are launching a new oil-fired boiler to be known as the Delstar wallflame; there will be two models—one 50,000 B.t.u./hr. output, and the other 70,000 B.t.u./hr. output. The Irish agents are Monsell, Mitchell & Co. Ltd.

PRODUCT REVIEW continued
page ten.

**NEW FROM
BSA HARFORD**



LIGHTWEIGHT

NEW OPIOMATIC JUNIOR pump for medium installations cuts weight from 24lbs to 18

B.S.A. Harford have packed all the reliability of the famous Opiomatic glandless pump into a scaled-down version weighing only just over 18 lbs.

All the features that made the Opiomatic Britain's biggest selling pump are here in the Opiomatic Junior; B.S.A. engineering; simple, accessible adjustment; push-button vent; clutch for freeing shaft; super-silent operation; high efficiency. And of course

the *proved* reliability — proved by actual *in-use* tests on every single pump before it leaves the factory. These are not sample tests — *every* pump is tested up to and beyond its design limits, and is guaranteed for two years. B.S.A. Harford are the world's largest manufacturers of Variable Output Glandless Accelerators.

To see the rest of the B.S.A. Harford central heating system, turn on.



NOW READ ON



NORTHSIDE HOUSE,
MOUNT PLEASANT,
COCKFOSTERS, HERTS.

PRODUCT REVIEW

from page eight.

THE LOW pressure diaphragm transmitting unit used with any of the ARIC standard diaphragm pressure gauges provides a self-contained system for use as a Hydrostatic Liquid Contents Gauge.

The Aric low pressure transmitting unit functions as a pressure responsive element and is connected by a capillary tube to a pressure gauge. The complete unit provides a sealed system which is filled with an inert gas at low pressure which provides inherent compensation for temperature variations.

Pressure on the liquid side of the diaphragm is automatically balanced by an equal gas pressure generated in the sealed system which causes the remote pressure gauge to read. The scale of pressure gauge can be calibrated in terms of liquid head, e.g., feet; meters, etc., or liquid contents, e.g., gallons, etc. ARIC (Ireland) Ltd., are at 6 Montague Street, Dublin 2.

* * *

THE "TORTOISAIRE" ductless warm air heating unit relies upon the naturally slow convection currents resulting from hot air rising. The outcome is a slow circulation of air with no draughts and no noise.

The basic "pack" consists of a heater unit with integral boiler, fitted stabiliser and Aladdin triple-stage (Sesto) burner; two 16" x 12" and one 10" x 8" adjustable delivery grilles, and three 24" x 6" fixed returned grilles—all with frames for fixing onto the chamber; 4" flue pipe to top of chamber; white, stove-enamelled access door with aluminium handle and strong welded frame; fire valve and filter; 25ft. $\frac{3}{8}$ " copper piping; 250 gallon oil tank and an electric immersion heater as an optional extra. The "pack," however, may be varied in any manner to suit particular requirements.

The "system" works for a brick (or any other conventional material) chamber situated so that three of its walls face onto different rooms. The heat emitted is controllable by adjustable grilles into the rooms selected, and either by leaving doors open or by fitting top and bottom grilles to other rooms from the main heated area. The manufacturers are Charles Portaway & Sons Ltd., who are represented in Ireland by Irish Technical and Production Co. Ltd., 25 Upper Mount Street, Dublin.

* * *

IDEAL STANDARD Limited, Ideal

Works, Kingston-upon-Hull, have announced the introduction of a new version of their "Paragon Elite" oil fired boiler. This incorporates an electric control box with plug-in facilities for clock control and a room thermostat. These boilers, known as the PEC series, are available in a range of four sizes from 35,000 to 65,000 B.t.u./hr.

There is also a small-bore version of this boiler with an "Ideal" rad-pump accelerator fitted behind the boiler below the smokehood. This is known as the PEC.S.B. boiler. The accelerator is pre-wired for plug-in connection to control box.

Externally the new boiler differs in having a boiler thermostat control knob graduated in degrees and two indicator lights fitted to the fascia. The red light shows when the boiler is electrically connected and the amber light indicates when the boiler is operating on a high flame.

The advantages of the electrical control unit are that the boiler is controlled with accuracy, giving comfortable and convenient central heating at the most economical possible operating cost; that a room thermostat and clock control are connected by simply plugging them in, and that the small bore model is available.

* * *

THE POWELL-DUFFRYN House-warmer air unit—Model WA-6—is essentially a concentrated, highly efficient heat exchanger, which is con-

nected to a 2-pipe heating (small bore) system in the same way as a radiator is—even in the two smaller models, to being mounted on the wall. The smallest Housewarmer, the WA-6 (output 6,000 B.t.u./hr.) measures approximately 20 x 10 x 5 $\frac{3}{8}$ ". The WA-14 (14,000 B.t.u./hr.)—24 x 16 x 6", has in addition a three output selector for 8,000, 11,000, and 14,000 B.t.u./hr. Both models are for wall mounting and finished in two-tone grey to harmonise in any surroundings.

The manufacturers, Powell Duffryn Heating Limited, Vale Road, Camberly, Surrey, also market a range of twelve different oil fired boilers from 45,000 to 220,000 B.t.u./hr.

* * *

THE TRIANCO "0/75" Oil Fired Domestic Boiler has a capacity of 75,000 B.t.u./hr. and is designed to meet the requirements for central heating and constant hot water supply in the small to medium sized house. It will heat eight to twelve or more radiators depending on their size, as well as constant hot water for bathroom, kitchen and washbasin.

Oil is burned by a specially selected automatic pressure jet burner of sturdy construction and simple to operate and maintain. The oil is atomised and automatically mixed with air in the correct ratio to provide complete combustion in conjunction with a combustion chamber scientifically designed as regards shape and size and suitably lined with refractories.

The burner is automatically con-

Continued page twelve.



The Potterton EOA Series 500 (see Review).



New from Ideal-Standard Ltd.—the Paragon Elite (see Review).



**NEW FROM
BSA HARFORD**

BIGGER INSIDE - SMALLER OUTSIDE

**The new BSA Hotspur boiler gives easier access for maintenance
-yet takes up less room**

Once you've installed a B.S.A. Hotspur boiler, bid it a fond farewell. You're unlikely to see it again for a very long time.

B.S.A. Hotspur boilers stay alight. They go on and on, like the pub bore (except that you can stop them when you want to and they don't make a noise). For the rare occasions when they need attention, the new Hotspur is designed to give really easy access to all parts. Remarkably, it's also *smaller*.

The heart of the Hotspur is the Torridheet wall-flame burner with built-in draught stabilizer. B.S.A. are the only boiler manufacturers who make their own burners. Its ingenious design uses the fuel-oil as a lubricant, giving years of trouble-free life.

The Hotspur is styled to take pride of place in the kitchen, not to be hidden away in a dark hole. And did we mention that every single B.S.A. Harford boiler is *individually* fired and tested . . . ?

B.S.A.
HARFORD
Northside House,
Mount Pleasant,
Cockfosters,
Herts.

BSA
HARFORD

PRODUCT REVIEW

from page ten.

trolled by a thermostat working in conjunction with an electric control panel. Immediately the flame is established, the ignition spark is automatically switched off. The burner continues to operate until the desired temperature of water or room has been attained, when the thermostat will automatically shut off the burner. The manufacturers are Trianco Ltd., Imber Court, East Molesey.

* * *

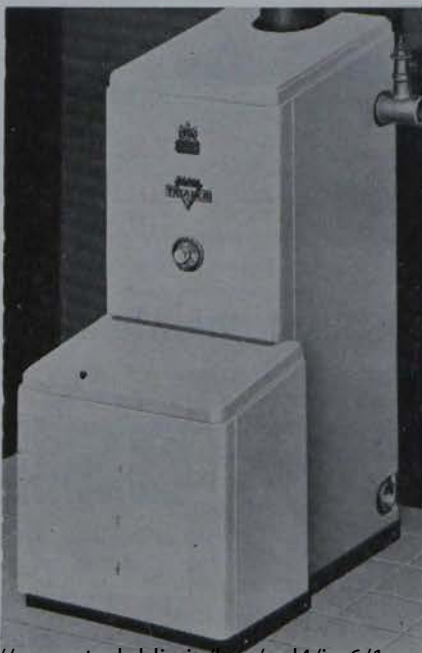
TRANE baseboard skirting heating is easier to install and incorporates Trane "decorator" styling. The cabinet, which is painted white, may be cut-to-length at the factory to eliminate the need for on-site cutting and fitting.

The Trane convector features a non-ferrous element coupled with heavy gauge cabinet construction. The exclusive dial operated damper provides positive, finger-tip control.

Trane Wall-fin is a line of all-purpose finned-tube radiation. Enclosures are available in two widths with a sloping top or front outlet. Five different types of element are available. The manufacturers are Trane Limited, Dunfermline, Fife, Scotland. The Irish agent is Mr. H. McGeough, B.E.

* * *

THERE are now 26 models in the Lincoln gas-fired range of units and



the latest addition is the LG-35E, which is available in two styles, high-boy and counter-flow. The furnace's main attraction is its compact neat appearance—it only measures 11" wide, 60" high, 24" deep—and as access is only required at the front

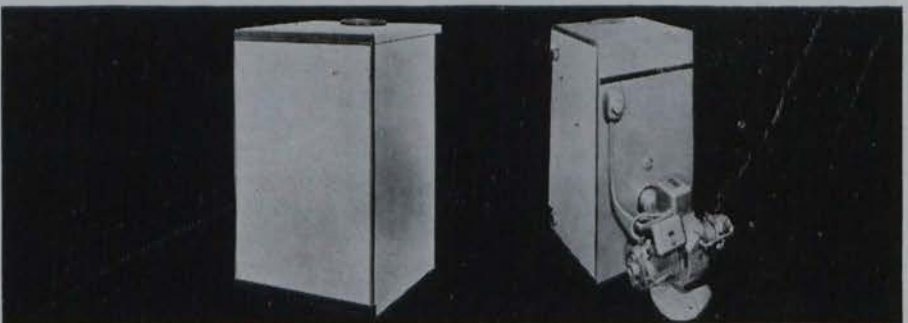
it can easily be concealed in a hall or kitchen cupboard.

Some of this unit's outstanding features are: washable nylon filters, easily accessible; independently plugged fan and limit switch, making

Continued page thirty-five.

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Every Wilson oil-fired boiler is fired and tested for you before it leaves the works. The outputs are guaranteed, *tested* outputs into water. Every Wilson radiator has a guaranteed emission figure—a figure calculated to B.S. : 3528 : 1962 by the Heating and Ventilating Research Association, Bracknell. All boilers are very accessible for your checking and cleaning—saves you time on the job. And if there *is* trouble with a Wilson installation, we do want to hear about it. Because it is not our custom to assume that the installer must be at fault.



Wilson Wallflame. Five models available with outputs from 45 to 150 thousand B.T.U. Advanced technical design without frills. The biggest selling wallflame boiler in the country.

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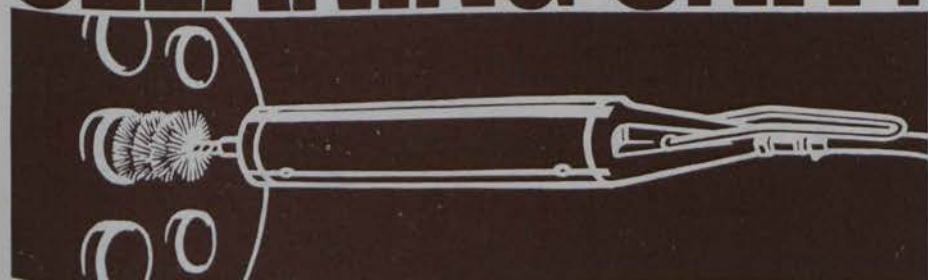
industrial heating & ventilating

IN IRELAND



No. 9 — Presented with the September, 1964, issue of the Irish Plumbing and Heating Engineer.

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Among the articles already planned are those on swimming pool services, acoustical design of ventilation systems, electro static filters, humidification, etc.

This month our special survey deals with heaters (unit heaters and air heating systems). The introductory article to the survey is by A. L. Townsend.

An equipment review in conjunction with this special survey deals with introductions and developments in the fields covered

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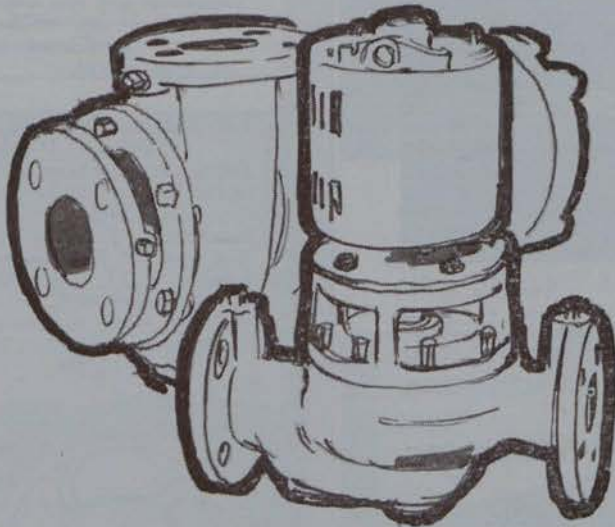
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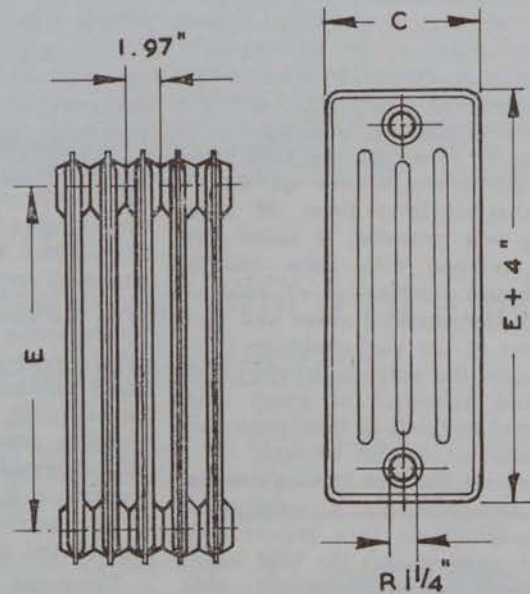
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MONTHLY SPECIAL REVIEW

Review of heaters (unit heaters and air heating systems).

IMPROVEMENTS, BUT OUTMODED METHODS STILL SEEN

OLDER industrial buildings often provided little more than protection from wind and rain. Insufficient attention was paid to cladding materials and as a result seasonal climatic changes promoted unpleasant and extreme temperature conditions within. In the absence of properly applied thermal insulation, the summer solar heat gains produced conditions which were in no way conducive to comfortable, and productive, working.

Similarly, in winter, the heat losses from the structure were on such a scale that whatever form of space heating was provided, it failed miserably to cope with these and the ever present infiltrations of cold air through the unsealed eaves and floor junctions of the wall claddings.

Happily, the position is now much improved, although in many cases outmoded methods of heat generation and emission can still be seen.

In general, forward looking managements recognise that a comfortable environment leads to a greater sense of well being among the staff and a measureable increase in work output.

COMFORT in factories demands specialised attention to ventilation and space heating. This can prove a costly business, both in capital and running costs, unless the engineer is called upon to advise at a very early stage in the design of a factory.

The engineer is prepared to recognise some of the siting and constructional problems which beset the architect and can advise accordingly—if consulted early enough.

We welcome the growing willingness with which architects now come to invite the H. & V. consultant to his design team just as soon as a sketch design begins to take shape. It is at this stage that the engineer, with his specialised knowledge of

heat generation, transmission and distribution, can most profitably help in the planning of the building so as to provide a heating system of reasonable capital cost, with flexibility of control and, above all, to provide a system which will function properly at a reasonable running cost.

It is at this early design stage that the engineer can consider, and draw the architect's attention to, the vital conditions which will arise.

THERE are few space heating systems which will satisfy all of these conditions but early consultation does enable all concerned to weigh the alternatives one against the other and finally arrive at a solution which will satisfy most of the conditions. The result will be a system which can be economically integrated with the building construction and economically operated to give the best of function with some predictable criteria as to performance and cost, both capital and operational.

The rapid development of electric power usage in machine motivation has almost entirely eliminated the steam driving plant and innumerable belt shaftings. With it has gone the steam which was commonly used in vast free-standing cast-iron radiators or in industrial type unit heaters. Gone too are the vast arrays of steam traps, valves, strainers, to the relief of the maintenance staffs, no doubt.

The smaller factories tend now to adopt a L.P.H.W. system with the

newer, improved, unit heater type of emission appliance.

Larger ones go for M.P.H.W. systems, operating at about 250° F. at 50 P.S.I., and enjoy the economy of relatively smaller plant and ancillary equipment which the greater emissivity at the higher temperature offers. Some really big factories even go so far as to employ H.P.H.W. with temperatures of as much as 370° F. at pressures of around 200 P.S.I. Where radiant heating in exceptionally tall factories is to be used, then such high operating temperatures at the panels becomes necessary if panel area is to be kept within structural and economic limits.

Hot water has taken over from steam as a means of heat transmission and with careful selection and placing of up-to-date unit heaters, this medium will continue to provide sound air warming-air moving systems.

FLEXIBILITY of control and quick response to varying climatic conditions and inside factory temperature requirements is a "must." Warm air systems provide these things. In addition, the movement of air, provided that unit placing and fan velocities are carefully chosen to avoid draughts, has an invigorating effect. Its value in summer usage, as air movement alone, should not be discounted.

A decided trend in factory heating, in factories large and small, is the direct warm air heating equipment which has been developed in recent years. Free-standing oil-fired air warming furnaces offer compact, automatic, trouble-free and effective heating. Suitably sized and sited, a few such appliances will show quick response to calls for heat, and the absence of extensive pipelines, boiler-



This special review article was compiled by technical expert A. L. Townsend.

Continued page twenty.



This is what makes the Turbo-Static such an efficient and reliable means of heating a factory

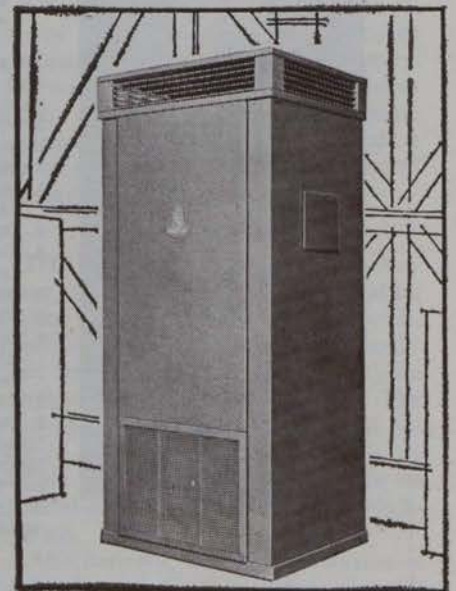
This is the Turbo-static combustion unit. Embodying an entirely different method of oil-firing it enables the heater to convert more fuel into useful heat than any comparable heater. It eliminates atmospheric interference with combustion. And it ensures that the electrodes, the burner and the combustion chamber walls are scrubbed clean continuously by high velocity air streams.

That is why a Turbo-static oil-fired air heating system is completely automatic and why, within minutes only of starting up, it achieves the required temperature level — throughout the factory. Automatic controls ensure that fuel is burnt

only when heat is called for. And the efficiency is constant, calling for no supervision or adjustment throughout the heating season.

Phone or write for details of the Turbo-static. You will find it costs

less to buy, install and run than any other heating system.



house, many smaller emission appliances, etc., makes for ultra simple application.

Oil supply presents no problems. Where only one heater is to be used, then its oil store tank is situated conveniently close by, usually outside the building. Where several heaters are to be installed, it is possible to have one conveniently situated main oil tank from which fuel is pumped to a higher and smaller tank from whence it can gravitate through small bore tube to the individual heaters.

DUCTED warm air distribution from direct air warming furnaces is feasible. Where floor space cannot be given to a number of smaller furnaces this is a solution. A larger unit or units may be sited at some convenient spot, obviously as central to the distribution zones as possible, and the warm air outputs conducted to all points by ductwork, which is easily accommodated at truss level.

The Colt "Turbo-Static" and the "H.T.V. Thermobloc" by the Wanson Company are typical examples of industrial direct air warming furnaces. Where floor space is absolutely restricted, then the Woods of Colchester

SPECIAL REVIEW

from page eighteen.

"in-line" furnaces, which are mountable at high level, actually in the main warm air distribution duct, offer an alternative and useful solution to the problem of space—especially in the case of heating existing industrial buildings.

Commercial buildings jostle one with another in all large towns and cities. The demand for office space grows and present buildings just cannot cope. Land costs and land availability dictate vertical development wherever new town office blocks are proposed.

TALL buildings present their own very special engineering services problems, not least heating and ventilating. Here, however, natural forces seem to have rendered more clear the need for air warming—and cooling—to serve both the ventilating and space heating services. At high levels, wind pressures are frequently such that windows cannot be opened. This eliminates natural ventilation and so mechanically propelled, treated air is essential. Since air is also a useful

heating medium the trend in tall commercial buildings is for some form of high velocity, ducted, air conditioning system of which there are many variations on two main basic themes.

In one system both hot and cool air is separately ducted to individual mixing appliances located under office windows or, in circulation spaces or large general offices, to ceiling mounted ones. By thermostat control the two air streams are blended to give the requisite temperature condition within the space. Provision is made for re-circulation of vitiated air to affect some economy of operation.

The other basic system comprises one air distributive system together with L.P.H.W. or M.P.H.W. supplies to heat exchangers in the distributive appliances sited in the offices, usually arranged along the building perimeter on all floors.

In summer chilled water is passed through the heat exchangers and "tempered" air along the ducts.

In winter, hot water is passed to the heat exchangers over which the treated, ducted air passes on its way to the room.

Thermostatic or manual over-riding controls may be used to make final temperature adjustment in each individual office space.

THE latter, single duct system is usually the cheaper to install. Both systems require a boilerhouse which would be of similar dimension to that needed for conventional L.P.H.W. heating, and space is required for the air treatment plant. Brightsides Engineering Company are among the many concerns who have developed these systems, which are being successfully used in many new commercial buildings.

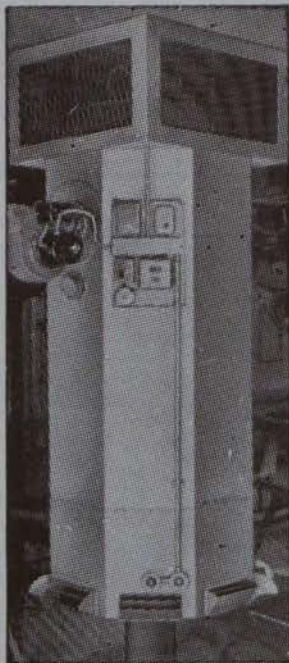
The application of the high velocity warm air systems is not restricted to tall buildings. Buildings of more traditional style may be so heated, as many are, in busy towns where street traffic noise prohibits open windows and thereby demands other than natural ventilation.

When early man first learned how to make fire he no doubt used it to fill his cave with warm air. The Roman improved on this by ducting the warmed air to the spaces they wished to heat. Following upon a thousand years of seeming indifference to comfort in the field of heating and ventilation, we seem to have come a full cycle for air warming in industrial and commercial application is deservedly a popular and growing trend.

Efficient heating for even
the most difficult structures

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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.

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"Hainault" heaters are manufactured at Hainault, Ilford, Essex, and are widely used in heating installations throughout Great Britain and Ireland.

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THE NEW Bahco Air Handling Unit, KSG, is intended for ventilation applications and incorporates a mixing chamber filter and heater battery. The unit can be arbitrarily positioned so that each section may be installed in the best available position in the ducting system. Its primary use is to supply warm air for home heating, but it may also generally be applied to heating applications. The fan wheel is direct driven and the motor is fully insulated against vibration, being mounted on a sound insulation casing which results in ultra-quiet operation.

The Bahco packaged unit, KSA, is designed to be applied in the latest plant systems employing higher distribution pressures. Efficient sealing between the unit sections and rigid flanges employing the new Bahco Seal combine to ensure that the unit is suitable for working with high pressures. The fan section is separately insulated against vibration. Air-flow noise, which is inevitable at high working pressures, is efficiently reduced by using the Bahco Standard Silences pattern, DLE, where the ducting system's own attenuation is insufficient. The manufacturers are Bahco Ltd., Bahco House, Goswell Road, London.

* * *

ELTRON (London) Ltd., Accrington Works, Strathmore Road, Croydon, manufacture electric duct air heaters in both standard and special sizes. These are designed for heating and air conditioning plenum systems or for re-circulating drying ovens, with temperatures of up to 600 degrees C. Case sizes and wiring arrangements are to customers' exact requirements. Single units can be made with loadings in excess of 500 K.W.



One of the Eltron units

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

Two types of air heater can be supplied—the open coil type, constructed from 80/20 nickle chrome elements, supported on insulator bars, or the sheathed type. The sheathed type consists of a helically coil resistance wire centrally located in a solid drawn sheath or tube, and can be made of mild steel, stainless steel, monel, or titanium, depending on the requirement. Special materials being recommended for process heating, "Eltrofin" finned elements are supplied for certain applications.

For oil burner installations electric preheaters are manufactured. These include electric, steam electric, or water electric, oil line and outflow heaters.

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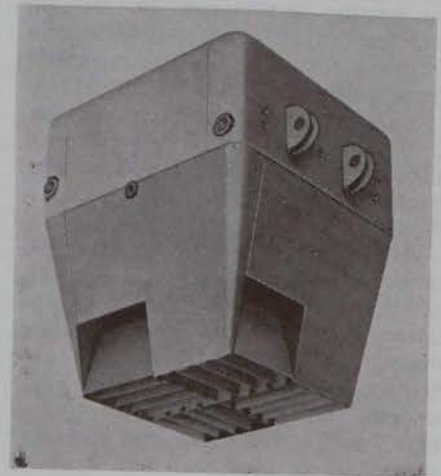
THE NEW range of Coppered Unit Heaters has been designed and built on the conception of offering a basic unit which can be added to with various fitments and refinements so as to present to the heating engineer and architect the widest possible range of types and sizes, yet retaining the cost advantages of standardisation.

The Downstream type of Copperad Unit Heater provides a generally downward air discharge and is particularly recommended for mounting at considerable heights, or for locations where air distribution in four directions is desirable.

When operating on low temperature hot water the motor, which has windings designed for operation in high temperatures, can be mounted satisfactorily above the heat exchanger. The hot air which will surround the motor when the fan is not running will not in any way damage the windings or the bearings. Illustrated here is the Downstream model D2. The manufacturers are Copperad Ltd., Colnbrook, Slough, Bucks.

* * *

THERMOLIER Unit Heaters are suitable for use with steam or hot water supply. The motor, designed for fan duty, is mounted on vibration-



The Copperad Downstream Unit Heater.

absorbing pads, and carries a fan of modern design, with mild steel blades riveted to a die-cast aluminium hub. Motors are supplied for standard A.C. voltages, single or three phase. Flameproof motors can be supplied, for certain sizes of units to special order.

The manufacturers—Mather & Platt Limited, Park Works, Manchester—state that the design of the heat exchanger ensures maximum heat conductivity between primary and secondary heating surfaces. The copper tubes are expanded into aluminium gills, and belled and ferruled into $\frac{1}{8}$ " thick mild steel header plates.

The gills are spaced eight or four to an inch. The latter spacing is less liable to choking in dusty atmospheres and also allows the choice of a lower leaving air temperature. The unit is tested to 300/lb./in.² hydrostatic pressure. When automatic temperature control is required a thermostat can be supplied to control the fan motor power supply.

* * *

THE NEW series of X19 and X24 space heaters from Nu-Way Heating Plants Ltd., Vines Lane, Droitwich, Worcestershire, may be permanently roof mounted or alternatively may be supplied with a trolley unit. The roof mounted unit is ideally suited for works departments when, especially during cold weather, warm air can be circulating within minutes of switching on.

Alternatively, the mobile version is ideal for work areas where heat is required in only one particular section at a time. During summer time

The Irish Plumbing and Heating Engineer

the heating section can be isolated and the fan unit used to provide cool fresh air circulation. The minimum B.t.u. rating for the Model X19 is 150,000 B.t.u.'s/hr., and the maximum, 250,000 B.t.u.'s/hr. The rating for the Model X25 is 300,000 B.t.u.'s/hr. minimum and 380,000 B.t.u.'s maximum.

Also from Nu-Way is the ZL range of pressure jet oil burners, which are offered as standard or optional equipment on many leading makes of oil fired boilers and air-heaters; and provide the user with smooth, efficient combustion combined with good looks and ease of access for servicing.

* * *

ALL HAINAULT oil fired air heaters are delivered as self-contained units with automatic oil burner control box incorporating flame failure device, fan thermostat and limit thermostat. All internal wiring is completed and ready for connection to the electrical supply.

Hainault heaters require no specially constructed foundation, and are generally stood directly on the workshop floor. After erecting the flue pipe, all that is necessary is to run an oil feed line from the oil storage tank

PRODUCT REVIEW

from previous page

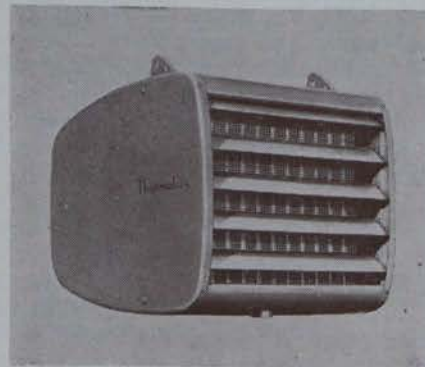
to the burner, and make the electrical connection to the supply.

Apart from the room thermostat, which accurately controls the temperature, a time clock can also be incorporated which will automatically start and stop the heater at any pre-determined time. Where an absolutely clear floor space is required, the manufacturers—Hainault Engineering Co. Ltd., Fowler Road, Ilford, Essex—make a range of suspended units. The air heaters are essentially oil fired units employed in the direct heating and distribution of air and not indirectly through the medium of hot water or steam.

* * *

THE LENNOX forced air oil down-flow furnaces—series OHR7—are designed specially for commercial establishments or residences where air is distributed under a suspended floor or ducted through a concrete slab. The furnace blower has enough capacity to handle almost any ventilating application.

Twin heat exchanger and Hi-



The Thermolier Unit Heater from Mather & Platt.

Performance oil burner combine to give these units a high efficiency. The efficiency exceeds 80 per cent. and actual tests show 10 per cent. CO₂ with zero smoke under normal operating conditions.

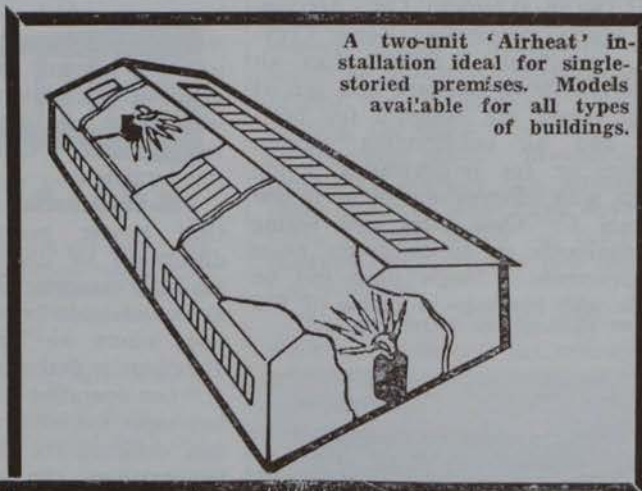
An entirely new time start blower control assures positive blower operation within 60 seconds after a burner on cycle. This is accomplished by a heater warp switch which is built into the control and activated by the burner circuit. This feature eliminates any auxiliary blower starter con-

Continued overleaf

W. J. THOMPSON LTD.

Mallow - Co. Cork

Distributors in Ireland for free-standing heating by AIR HEATING LTD. and overhead suspended heating by OVER HEAD HEATERS, INC., DETROIT, with outputs up to 1,500,000 BTU/hr. for commercial and industrial purposes.



A two-unit 'Airheat' installation ideal for single-storied premises. Models available for all types of buildings.

SHAFCONAIRE

SUSPENDED GAS AND OIL FIRED FURNACES BY OVER HEAD HEATERS, INC., DETROIT

—18 models designed to meet every commercial and industrial heating requirement—the most economical way to adequately heat commercial or industrial buildings.

Also! KRESKY OIL HEAT FULL PERIMETER WARM AIR HEATING EQUIPMENT FOR DOMESTIC INSTALLATIONS

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PHONE: MALLOW 21



the ultra quiet and unobtrusive way to supply all the heat that's needed

biddle/forceflo

THE trim and elegant Forceflo is very specific in the way it meets the demand for warm air heating without noise. Forceflo quietness is tested throughout the audible frequency range and has a *guaranteed* noise criteria rating for any operating condition.

The standard Forceflo unit is only 28 in. high by 9 in. deep. There is a variety of other sizes too; and the design range includes free-standing, concealed,

remote and ceiling-mounted models. Unit output is up to 62,000 Btu/h.

Forceflo — all the heat that's needed and in the neatest, quietest possible way.



biddle

F. H. BIDDLE LTD., 16 UPPER GROSVENOR STREET, LONDON, W.1.

Thermal (Ireland) Limited, 85 Lower Baggot Street, Dublin, 2. Telephone: 61237.
Mr. S. Stewart, 20 Kells Hill, Carrast 5, N. Ireland. Telephone: Belfast 655759.



The model X 19 roof mounted heater from the Nu-Way Heating Ltd. range. from previous page.

trols. Adjustable blower-off setting is 70 degrees to 110 degrees.

Also of interest from the range of Lennox Heating Co., Ltd., Croydon Airport, Croydon, Surrey, are the OHR4 series of forced air oil heaters, down flow; the OSR7-84 down flow forced air oil heaters; the OH4 and OH6 series up-flow forced air oil heaters; and the OHW 1-48 up-flow, forced air oil furnaces.

* * *

THE well-known range of oil-fired air heaters from Harris Engineering Co. Ltd. has been extended to include a heater of 340,000 B.t.u./hr., and one at 500,000 B.t.u./hr. These heaters incorporate the new suspended flame principle of combustion which ensures a permanently clean flame and a high standard of combustion efficiency at all times. Their complete range of oil-fired air heaters is from 100,000 to 1 million B.t.u./hr.

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Limit switches
Liquid level alarms
Motorised valve controls
etc., etc.

MERCURY TUBE and SILVER CONTACT types. Indestructible polystyrene floats. Floatgear also in stainless steel, copper, mild steel and polythene. Deliveries ex stock.

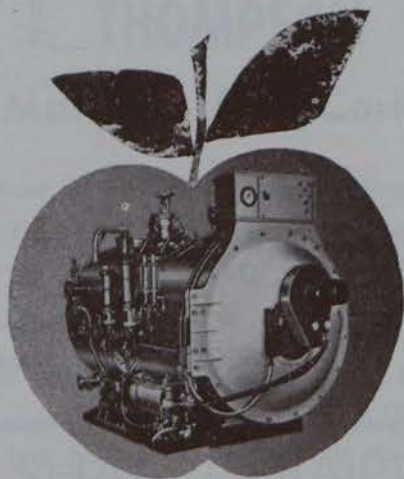
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Stocked by most Electrical Wholesalers

Available from the Manufacturers



GIRDLESTONE PUMPS LTD
WOODBIDGE, SUFFOLK, ENGLAND
Tel.: WOODBRIDGE 660.



A BOILER A DAY . . . leaves John Thompson Glasgow Works for installation somewhere in the British Isles. There are more Thompson package boilers currently being commissioned than any other type or make. These are the facts behind Britain's most successful range of oil-fired package boilers—the best-selling 'Multipac' and 'Demipac' Ever since their arrival on the steam raising scene, these fully-automatic oil-fired units have consistently proved first choice for many thousands of consulting, heating and maintenance engineers. The 'Demipac'—supplying from 500 to 3,500 lb/hr of steam—is designed for the manufacturer who wants a relatively small amount of steampower but who still requires the benefits of completely automatic control. Ideal for garages, greenhouses, laundries, hotels and all types of small process and heating duties. For complete facts and figures of the highly successful 'Demipac' Package Boiler, write JOHN THOMPSON PACKAGE BOILER DIVISION, LILYBANK WORKS, LONDON ROAD, GLASGOW, E.1.

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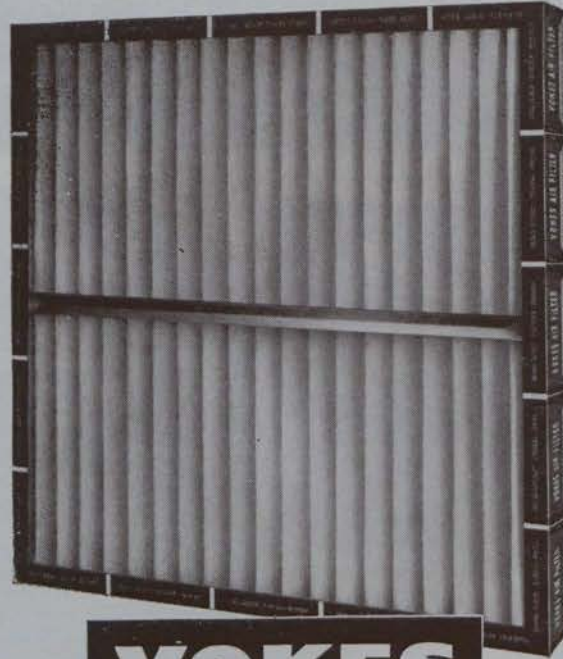
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AN apprenticeship scheme relating to the skilled engineering trades came into operation this month and will be operated by an apprenticeship committee under the authority of the National Apprenticeship Board. The scheme will apply to all apprentices and to their employers in the skilled trades in the engineering and metal industry throughout the country.

From now on, a boy entering into apprenticeship must be at least 15 years old and must have passed the Day Group Certificate Examination (Vocational Schools) in metal work or woodwork; mechanical drawing; Irish or English; mathematics or mechanics and heat or magnetism and electricity, or art or rural science. An Intermediate Certificate Examination (Secondary Schools) pass in mathematics, Irish or English and science will also suffice.

COMBATS ATMOSPHERIC POLLUTION

with guaranteed 96%
efficiency at minimum cost



VOKES

*Super-Vee**

Vokes Super-Vee is an inexpensive, expendable air filter which, because of its unique medium, can offer up to 25% greater capacity compared with similar filters of the same size. This medium, impregnated with a specially developed adhesive, combines high filtration efficiency (guaranteed 96% against Aloxite 50 Test Dust) with long life. Unaffected by moisture, non-cracking, and resistant to fungal growth, it is ideal for the collection of sooty or tarry deposits, without any danger of Fibre migration. Vokes Super-Vee, which is fully interchangeable with other filters of its type, is already widely used in applications such as paint finishing plant, chemical laboratories, textile plant, distilleries and heating and ventilation installations. Write for details of how it can give you high filtration efficiency at lowest possible cost.

THE
LEINSTER ENGINEERING CO.

LIMITED

158-159 CHURCH STREET, DUBLIN.



HIGH EFFICIENCY aluminium radiators launched by Powell Duffryn Heating Limited almost a year ago have already proved ideal for use in schools, shops, offices, showrooms and conference halls.

Besides being attractive and efficient, H.E. radiators are economical to use, having only a sixth the water content required for the average panel radiator of the same heating surface. They also give a greater heat emission than steel panel radiators, say P.D.

A major feature of the radiators is the built-in regulating valve which is fitted during fabrication. This special development gives a precise twin action control in that it both regulates the heat and balances the system, eliminating the need for a separate balancing valve.

* * *

ON ACCOUNT of its durability, high heat emissivity and resistance to the effects of temperature, pre-coated aluminium sheet has been selected—

PRE-COATED ALUMINIUM SHEET

—after a series of stringent laboratory tests—for use as the radiation panelling in a new range of industrial radiant heating strips.

The material, known as “Duralcote,” manufactured by James Booth Aluminium Ltd., of Kitts Green, Birmingham 33, is to be used on all future radiant heating strips manufac-

ALL THIS INSIDE THIS



THE British Steam Specialties Ltd. mobile Exhibition aroused keen interest during its tour of the country early this month. After its arrival in Belfast the unit went on to visit Dundalk, Carlow, Thurles, Cork, and the Dublin area.

The Exhibition trailer was fully fitted out with a complete range of B.S.S. products, including valves and fittings for steam, water, gas, etc. There was also a section dealing with industrial and domestic heating.

Whilst the Exhibition was in this country, it was under the direct supervision of the Dublin Branch Manager, Mr. David Wheeler. He was assisted by Mr. Liam Dillon, Mr. John Rowden and Mr. Brendan Stack.

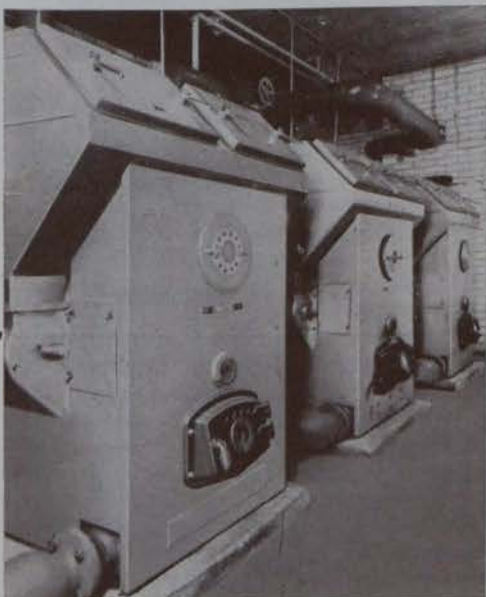
Our picture shows Mr. Dillon chatting to a visitor to the Exhibition. Our top-of-the-page illustration shows various parts of the display.

tured by Frenger Ceilings Ltd., 7-12, Tavistock Square, London, W.C.1.

Frenger industrial heating strips—known as Frengerstrip—are supplied in standard lengths of ten feet or twenty feet and in widths from one foot four inches to four feet. The strips incorporate a series of grids fed with hot water and low pressure steam, the heat being radiated by means of the “Duralcote” panelling clipped to the underside of the coils.

THE Standard & Pochin Bros. Ltd. Evington Valley Road, Leicester, have announced the retirement of their Managing Director and Secretary, Mr. J. Day, after 46 years of service with the Company. Mr. Eric Heywood Smith, A.M.I.H.V.E., M.I. Plant E., and Mr. Malcolm P. Hunt., A.M.I.Mech.E., have been appointed Joint Managing Directors.

*The warm hearted tale
of 280 old folk
5 gardener-handymen
and 15 boilers named Allied*



County Architect R. F. FAIRHURST, Dipl. Arch. (L'000) A.R.I.B.A.,
A.M.T.P.I. Installed by T. H. HASKETT, LITTLEDEAN.

It happened when the Gloucestershire County Council built five homes to house 280 old people—like this one at Arle, near Cheltenham. Old people need warmth more than the young. Like the young they need constant hot water. These homes had to make sure they got both—without heavy fuel bills. Because each has only one gardener-handyman to do all the man's work from fuse mending to flower raising, these homes also had to have a heating and hot water system as work-free as possible. This was the tall order the County Architect Department handed to Allied Ironfounders. They chose Allied for many reasons—not the least being that Allied offer the biggest choice of large boilers—oil-fired, gas or solid fuel. And that they could rely on Allied for the most experienced advice. The happy ending to the story came in the form of 15 Allied Automatic Magazine anthracite boilers—one for hot water and two for central heating in each home. Over the past year, with its terrible winter, each set of boilers has never needed more than one hour's attention each day and has used much less fuel than expected. (In Arle House the total consumption was just over 82 tons for the year.) *Similar Allied boilers have recently been installed in 31 Schools, 8 Welfare buildings, 6 Police Stations, 5 Council Buildings, 10 Clubs, 17 Factories, 19 Hotels and 13 Churches.*

INDUSTRIAL BOILERS ARE MADE BY **ALLIED IRONFOUNDERS**  27

Allied Ironfounders Ltd Industrial Heating Division Cadbury Road Sunbury-on-Thames Middlesex Tel: Sunbury 5577

AIR POLLUTION REGULATIONS ARE CONSIDERED

THE Department for Local Government are considering regulations to deal with air pollution. It is not believed to be a serious problem in Ireland, as it is in areas across the Irish Sea, from where the warning of possible danger has come.

In the near future the extent of air pollution in this country will be known. The air the Dubliner breathes is being analysed daily and monthly to ascertain the gravity of

the pollution which already exists and what trend it is following. When this is known counter steps can be taken.

Regulations were provided for in the Sanitary Services Act of 1962. The various operations aimed at reducing pollution will be directed at a national level through the regulations, for it is a problem which

cannot be tackled effectively by local authorities in isolation. Since 1961 Dublin Corporation, in common with other local authorities, have been collecting data from tests on the air and sending it to the Department for Local Government. A ring of five testing stations was set up in the Dublin area.

Country Lead

Cork and Drogheda took a lead in air testing in this country in 1958 and as a result their figures on pollution are more consequential than those from other areas.

The results of tests on atmospheric pollution are taken over a minimum period of five years because they are dependent on rainfall and other climatic conditions. While tests over a month or a year may indicate heavy pollution, due to abnormal weather conditions, their significance might become irrelevant in a five-year statistical table.

An official of Dublin Corporation said that among possible steps to be taken to alleviate pollution would be a licensing system affecting premises which contribute to the problem.

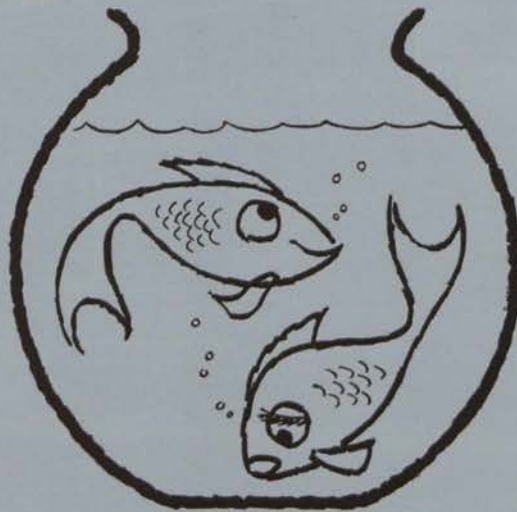
No Powers

He added that at present they had no powers to deal with pollution and there were no controls as such of any kind.

A technical expert on air pollution said that there were two kinds of devices being used for measurement in this country. One was a deposit gauge which collected atmospheric matter reaching the ground and the other was a gauge which analysed the air for smoke and sulphur dioxide.

● THE AWARD for "Enterprise in New Product Development" made on the results of a national competition run in conjunction with the Scottish Industries Exhibition, 1964, has been won by Cape Insulation and Asbestos Products Limited for their achievements in the development and successful large scale manufacture of Rocksil—a rockwool material for thermal and acoustic insulation. M. A. Boylan Ltd. are the Irish agents.

fish don't swim in oil...



so oil tanks are
not made of glass
so that you can
see the fish
so when you want to
know how full or
empty a tank is ...

you
consult a

NORMOND

tank content
gauge

(and retain your sanity)



Send for sensible leaflets and prices

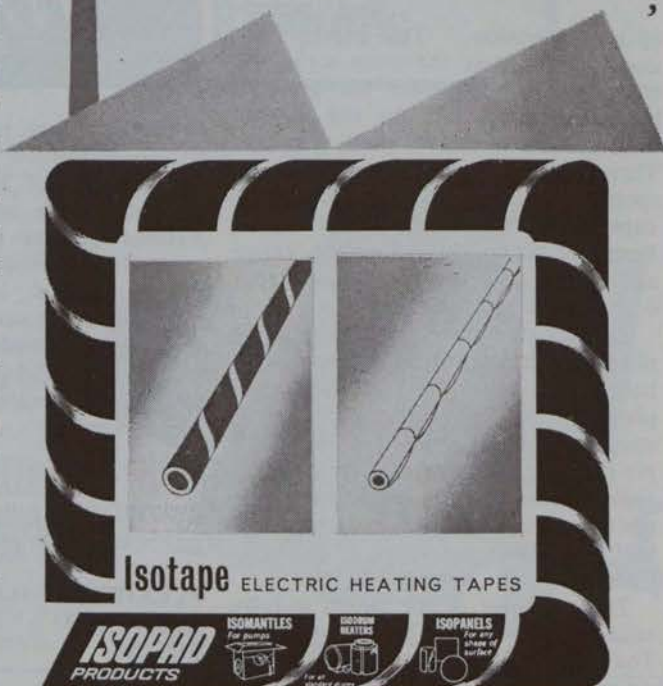
NORMOND INSTRUMENTS LTD HYDREX WORKS, PARADISE ROAD, RICHMOND, SURREY, Telephone: RICHmond 1128

STOP PIPES FREEZING

NOW is the time to ensure 100% FROST PROTECTION

Even thorough lagging will not stop pipes freezing in extreme temperatures. But so long as ordinary main's power is available nearby, Isotapes will give 100% protection. Installation is quick and simple, needing only minimum lagging; thus overall cost is very reasonable. Power consumed is negligible—the more so when an Isopad thermostat is used—and they will last for years.

Isotapes for frost protection have an electric heating element protected by a robust plastic cover, with connections at one end only. It is traced below or wound around the pipe, then lightly lagged. It gives off a gentle heat just sufficient to keep the pipe and contents above freezing point. Made in many standard lengths and for various temperatures they are fully described in catalogue I TA/64, a copy of which is yours for the asking. Manufactured by world leaders in electric surface heating, Isotapes are made to exacting specifications. Expert advice is free and an experienced specification and installation service is available to the larger user.

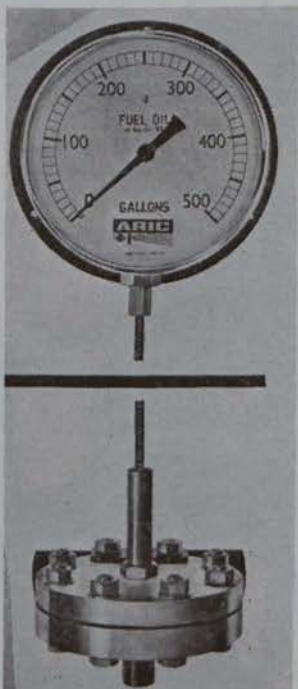


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IP74A/FRO2

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Our wide range of ARIC Instruments cover all types of measurement and control of pressure and temperature.

★ YOU HAVE INSTRUMENTS FOR REPAIR ?

Why not call in ARIC and make use of our wide repair facilities here in Dublin.

★ YOU HAVE INSTRUMENTS ON SITE THAT REQUIRE MAINTENANCE ?

Our highly skilled outside maintenance unit can repair on site.

ARIC TRANSMITTING PRESSURE GAUGE WITH STAINLESS STEEL DETACHABLE DIAPHRAGM



ARIC (IRELAND) LTD., 6 MONTAGUE STREET, DUBLIN 2. TEL.: 53821/55510

ARIC INDICATING PRESSURE CONTROLLERS

Two pointers are used moving over the same scale; the black pointer indicates the pressure being measured, and the red pointer indicates the switch set point pressure. Three different types of pressure responsive elements are used: diaphragm capsule stacks, metallic bellows, or Bourdon tubes, depending on range and duty covering a range from 0-10" W.G. to 10,000 lbs./in.²

Capsule stacks are manufactured in phosphor bronze or beryllium copper, bellows in brass, and Bourdons in phosphor bronze, beryllium copper or stainless steel. Various types of simple contacts, microswitches or mercury switches are used, depending on the electrical duty imposed on the switch and/or the pressure range of the controller.

The set point of the switch is fully adjustable over the operating range. The calibrated setting determines the operating point of the switch and the reset operation occurs at a differential pressure which is governed by the type of switch used. Fixed differential



switches factory preset from 2% to 50% or adjustable differential switches with a range of 3% to 80% can be supplied. The minimum change in pressure required to cause the switch to reset is dependent on the type of switch specified, and the calibrated range of the controller. Two switch units can be fitted in each controller which can be independently adjustable or tandem operated according to the model selected.

* * *

PROVIDING fully automatic oil-fired air heating for either commercial or industrial installations is the Commercial-Aire 500 by PowRmatic Limited of Berks, one of the company's range.

The Commercial-Aire 500 features a five sequence complete firing system



One of the ARIC indicating pressure controllers. (See report).

and has an output of 500,000 B.t.u./hr. Three warm air discharge heads are fitted, each turning through 360 degrees, allowing complete versatility of distribution.

An induced draught fan is standard equipment in the unit, which is also fitted with a draught proving control. The control panel incorporates a time clock and the heat source is a time-tested PowRmatic Model "C" pressure jet oil burner.

GREAT NEWS for Heating Engineers!

AT LAST A DIVERSION VALVE for effective 3-WAY MIXING that is **100% EFFICIENT** **HIGH QUALITY** **LOWEST PRICE** MADE TO MEET YOUR DEMANDS BY

Provides temperature control of small bore HEATING circuits, while constant higher temperatures in DOMESTIC hot water supply can be maintained.

Plus GENEROUS TRADE DISCOUNTS

MIL

6 BRANCHES THROUGHOUT IRELAND



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

CLYDE

Fully Automatic Oil Burners

HEAVY OIL

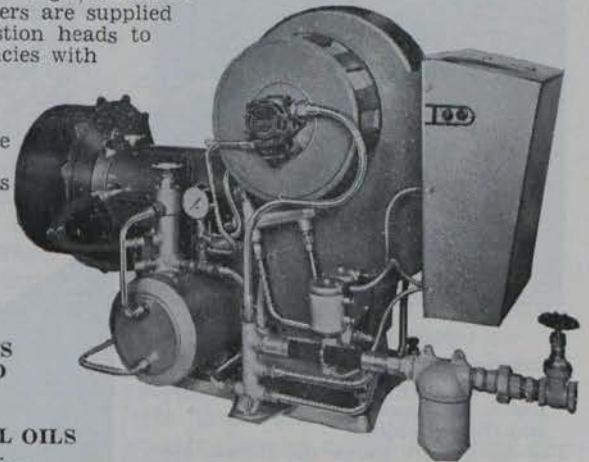
Suitable for 200/950 seconds fuel oil, these burners can be supplied for on/off or high/low flame working. All high/low burners are supplied with "COMPOSITE" combustion heads to give high combustion efficiencies with maximum turn down ratios.

LIGHT OIL

Complete with photocell flame failure control, thermostat and control box, these burners are silent running and are suitable for light gas or diesel oil.

- ★ FULLY AUTOMATIC
- ★ THERMOSTATICALLY CONTROLLED
- ★ ELECTRONIC CONTROLS
- ★ EASY TO INSTALL AND MAINTAIN
- ★ SUITABLE FOR LIGHT DIESEL OR HEAVY FUEL OILS

Write for further details to:—



CLYDE FUEL SYSTEMS LTD.

80 Holywood Road, Belfast. Tel.: Belfast 65365/6.
Branch at Londonderry.

CLYDE FUEL SYSTEMS (IRELAND) LTD.

6 Mount Crescent, Dublin. Tel.: Dublin 66489.
Branches at Cork, Limerick and Longford.

The MONO AUTOMATIC PRESSURE WATER SET

has an ideal capacity range for the average household



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- ★ STEADY PRESSURE AT ALL OUTLETS
- ★ NO OIL OR GREASING
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- ★ ALL EQUIPMENT ON ONE UNIT

The MONO pump

MONO PUMPS LIMITED (Incorporated in England)

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Telephone: DUBLIN 70843

MP308



NOVEL TOOLS

These are the two devices reported in our July issue edition of Trade Topics, under the heading "Answer To Installation Problems."

The top picture shows the Delway foot-operated cutter for tongued and grooved floorboards. Below it is the Delway floorboard lifter. These novel tools are available from National Agencies of Dublin.

MR. BLANEY, Minister for Local Government, said earlier this month that the advent of piped water to the woman of the house "heralds a revolution" in living conditions and would eliminate much of the drudgery associated with life in rural areas in the past.

MINISTER ON PIPED WATER SUPPLIES

Mr. Blaney was opening the second stage of the north Sligo regional water supply at Mullaghmore, Co. Sligo, and said that the total investment by the Council would amount to £500,000 for major schemes in the Lough Easkey and Lough Gill areas. The efforts of the Council, however, could only go so far.

"It will be up to the people concerned to connect to the schemes provided for them and to avail themselves in full of the generous grants which are given for work like this. By the aid of such grants and other incentives, I have sought to create conditions under no home need be without piped water, whether in an area served by a public scheme or not."

The new scheme for private water supply and sewerage installations includes special incentives to persons to co-operate in the provision of those

trade Topics

orous development of these schemes in Co. Sligo," he said.

The Mullaghmore scheme included the laying of nearly 18,000 yards of pipeline and the construction at Mullaghmore, 200 feet over sea level, of

the home. They also feature rapid heating for domestic hot water supplies all the year round. These units offer big savings in installation costs—they arrive ready for connecting up and call for no re-decoration or chimney.

The Mini-Pressure Jet boiler, featuring the Perkins Atomjet oil burner, is available in a Junior model (50,000 B.t.u./hr.) and a 100,000 B.t.u./hr. Senior. The advanced Atomjet burner uses 35 sec. gas oil. These Perkins products are available through Oil Fired Homes (Ireland) Limited of Dublin.

* * *

BAXI-GAS, a self-contained, gas-fired warm air central heating unit with an output of 30,000 B.t.u.'s/hr., is now being marketed by Baxi, Bamber Bridge, Preston, Lancs. The unit, by warm air circulation through ducts to room grilles, provides full central heating to most houses, flats and bungalows having two or three bedrooms. For larger houses the unit can be used selectively to give full heating in a number of rooms or will provide background heating upstairs and full heating downstairs.

The unit is compact, its neat white enamelled cabinet containing the fan, heater and all principal working parts, measuring only 31 inches wide, by 26 inches high and 18 inches deep. This makes it easy for wall mounting flush with the ceiling in the kitchen or for any other convenient, unobtrusive position, such as under the stairs.

A feature of the unit is a unique fault tracing circuit incorporated in the control system which provides a quick check and simplifies repairs should a fault arise. A thermostat in the living room or lounge automatically controls the Baxi-Gas burner, the householder setting the dial to the temperature required. A time clock mounted in any convenient position can be pre-set to provide heat when required.

If, for reasons of economy, it is desired to reduce the output from 30,000 to 25,000 B.t.u./hr., this can be done easily.

Star

2496 Deck Pattern Pillar Cock

Bath, Sink &



SPERRYN & CO. L
MOORSOM STREET WORKS - BIR

SOLE AGENTS in the Republic of Ireland or Lennox Heating Co. Ltd., of Croydon, are Home Heating Systems, of the Beeches, Kilmacud Road Upper, Dublin 14.



C. B. SHERIDAN, Dublin
10, Herbert Place, Dublin
agents for the Republic of
Telephone 66283.

RECENTLY added to the Redfyre range of heating appliances is a new warm-air unit designed specifically for system built homes. Able to supply domestic hot water as well as heating, it is extremely flexible. Designed for installation in the central section of the house, this Redfyre Domesticaire 50 Unit/Oil consists of a Redfyre Centramatic 50 series 2 boiler (53,000 B.t.u.'s/hr.), a circulating pump, radiator type heat exchanger, fan, ducting and outlet grilles, time switch and room thermostat.

Thermostatically controlled, the Redfyre Centramatic 50 is fully automatic—the fan assisted, vapourising burner lighting by electric ignition and extinguishing as required by the thermostat. Designed and made by Redfyre Ltd. of Thorncliffe, Sheffield, this unit can be assembled to fit in with any industrialised housing design. It can also be adapted for the conventionally built home. It can be supplied as a fully assembled unit or in component for assembly on site and with or without cladding.

* * *

MEYNELL & Sons Ltd., Wolverhampton, have introduced two separate controllers which are being handled in this country by the Com-

PRODUCT REVIEW

from previous page.

pany's stockists and representatives, Quadrant Engineers, 167 Strand Rd., Sandymount, Dublin, and in Northern Ireland by C. G. Williamson, 21, Mayfair, Arthur Square, Belfast.

The first is a thermostatic temperature controller for small bore central heating systems, which enables the radiator supply to be kept at a lower temperature than the domestic supply when both are off the same system. A thermometer is now included in the basic retail price.

The second is the "Meynelmix" Thermostatic hot and cold water mixing valve for showers, etc., with an automatic safety device. A feature claimed to be unique has been designed to give an added safety factor to the thermostatic system, whereby in the unlikely event of the system breaking, there is now an immediate and automatic opening of the cold water port by means of a spring-loaded piston.

This spring loaded safety device is a relatively simple mechanism which the manufacturers have decided to incor-

porate without adding extra to the selling price.

* * *

A NEW warm air heater unit has been introduced by Hi-Vee Heating Limited—the Mini direct drive Hi-Vee Unit. With an output of 35,000 B.th.u.'s per hour and an associated air volume of 400 CFM, the unit will provide full house heating for the smaller dwelling plus domestic hot water working off a boiler of suitable size.

Cool air circulation in summer at the rate of two or three air changes per hour is also possible. The unit occupies approximately three and a half cubic feet of space and stands 33" high. A quiet running centrifugal fan with integral direct coupled motor is fitted and is complete with electric speed controller. With a throw away type filter fitted as standard, the makers claim an available pressure of 0.25" water gauge to overcome duct losses. The Irish agents for Hi-Vee Heating Limited are Ennis Engineering Co. Limited, 55 Mary Street, Dublin. The Mini Unit is complementary to the Company's 50,000, 70,000 and 100,000 B.th.u.'s units, and makes the firm's range quite comprehensive.

THE MANUFACTURERS OF
THE



OIL HEATING EQUIPMENT
NOW INTRODUCE THE LATEST IN
PRESSURE JET

OIL BURNERS!

Here is one from the new series (3 models covering a range of .43 to 11 Imp. gph)

MODEL DOMESTIC B

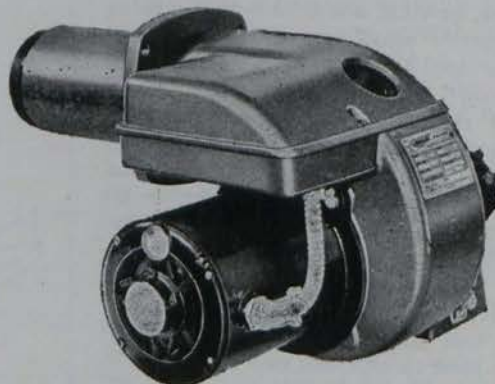
Measurements: L., incl. blast tube = 18"; W = 20¼" = 11¼"
Capacity: .83 to 3.83 Imp. gph.

Easy to install—no refractory lining or firebox in boiler required. Absolutely no risk of pulsations due to very high air pressure obtained through special secondary air flow arrangement. (Pats. pend.).

For further particulars, write to:

Patton Engineering Enterprises

30 ST. ANNE'S ROAD, DUBLIN, 9. Telephone 46042.



PART SIX


the 7 deadly sins of domestic installation



LAST month we discussed radiator sizing and our provisional pipe sizing appeared as fig. 1 below. We now move on to the vitally important operation of ensuring that our pipework is correctly sized for its function.

For unit length, a pipe of a given size will impose the same predictable resistance to the flow of water at a given rate. Thus it is possible to predict accurately the resistance of the pipework in a heating system; knowing this frictional resistance, one can use the optimum size of pipe and the correct size of pump.

However, up to now we have been discussing B.t.u.'s and radiator surface, and it is, perhaps, an abrupt transition suddenly to start talking about heat in terms of water so perhaps this is a good point to describe how the transition takes place.

 In Part 3 of this series the B.t.u. was defined as the amount of heat required to raise the temperature of one pound of water by one degree F. It follows, therefore, that a pound of water cooling one degree F. will release, or emit, one B.t.u. In designing domestic small-pipe heating systems it is usual to allow for a 20 degree F. "drop" or difference between flow and return. This means that each pound of water releases 20 B.t.u.'s in its journey round the circuit. Thus **Heat requirement in B.t.u./hr.** = 20 gives the quantity of water, in pounds, to be circulated per hour; divide this by ten and the answer will be in gallons per hour. Using this method we can go on to our pipe sizing. We need to establish two figures.

ing pipe losses, from the pumped side of the heating system.

(b) The resistance of the major circuit, that is the circuit with the greatest resistance.

In this case the major circuit is probably the one serving the lounge radiator. In some cases the major circuit is hard to define on sight and two circuit resistances may need to be established in order to find the greater. Knowing (a), we can establish how much water the pump needs to move. Knowing (b), we establish the head against which the pump will need to operate, and also we ensure that we are using the right size of pipes. If the pump develops enough head to meet the frictional resistance of the major circuit, then, provided the quantity pumped is sufficient, it follows that there will be more than enough head for any smaller circuits. In the same way, if a tank is six feet above ground and it will supply, say, a tap five feet above ground, it follows that it will also supply taps at four and three feet above ground provided enough water is available. I stress this because people have been

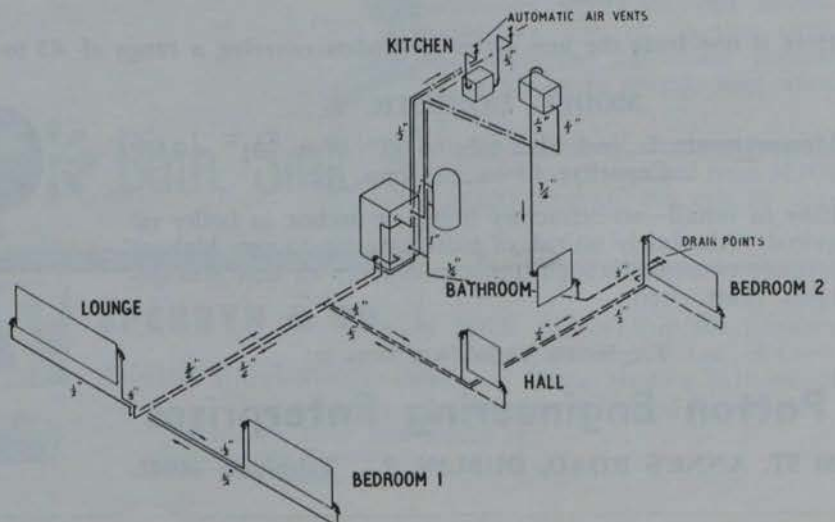
known, to add the resistances of parallel circuits. This is wrong.

In order that the system may be properly balanced it is important that the resistance of any lesser circuits should be increased, using lock-shield valves, to equal the resistance of the major circuit. This is sometimes overlooked on one-pipe work; on two pipe work, since every radiator is separately restricted, and never by-passed all circuit resistances can be effectually controlled; this was also discussed in Part 4.



From the radiator schedule the total heat requirement for the radiators and convector work out at 32,860 B.t.u./hr. This figure does not include the bathroom radiator, which is not under the influence of the pump. Pipe losses must be added; we know that the losses from exposed pipes in the lounge and Bedroom 1 total 1,710 B.t.u./hr. The losses from the under-

Continued opposite



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.
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- 4 The Trianco Boiler gives more heat for less fuel and burns a wider range of fuel than any comparable boiler.
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- 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).

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MESSRS. BAXENDALE & CO. LTD., Capel Street, P.O. Box 56, Dublin.

domestic installation

from previous page.

floor pipes, which will be lagged, together with the losses from the remainder of the exposed pipes, total, if I have got my homework right, approximately 3,800 B.t.u./hr.

Total heat requirement, on the pumped side of the system, therefore, will be:—

| |
|--------|
| 32,860 |
| 1,710 |
| 3,800 |

38,370 B.t.u./hr.

Therefore the pump will be required to move 38,370 = 1,919 lb. per hour

20
or 192 gallons per hour. Many pump manufacturers rate their units in gallons per minute; this figure, of course, would be 192 or just under 3 1/4 g.p.m.

60
So much for the amount of water needed.



As stated above, the lounge circuit is probably the major one, but it is worth noting that the hall and bedroom 2 circuit, though less heavily loaded, has a longer run of 1/2" pipe and so may have a deceptively high resistance.

To establish the resistance of any circuit we need to know:—

- (a) Length and provisional size of pipe (we have this).
- (b) Flow required to meet heat requirements.
- (c) The friction factor for the required flow at each stage.

This friction factor is available with minor variations, from several textbooks. It is normally given in inches water gauge, usually per ten feet of pipe. It is worth noting that if flow rates exceed 950 lbs. per hour, for 1/2", 2,000 lb. per hour for 3/4", or 3,750 lbs. per hour through 1" copper pipe a noisy circulation may result.

I will not reproduce a friction loss table here but will merely take factors as required from the source that I generally use. Note that one-third is added to all pipe lengths to allow for the extra resistance of fittings.

Continued overleaf

domestic installation

from previous page.

Calculations are as follows (using the radiator sizes established last month):

| Lounge Circuit | Actual Length. | Notes. | Load B.t.u./hr. | Factor per 10ft. | Factor Length + $\frac{1}{3}$ rd (approx.) |
|-------------------------------------|---------------------|--|-----------------------|------------------|--|
| Stage 1: Lounge rad. to 1st branch. | 12' $\frac{1}{2}$ ' | Bare pipe ... Rad. (73 x 167) ... Forward ... total ... | 540 12191 12731 | 4.4" w.g. | 7.04" w.g. |
| Stage 2: 1st to 2nd branch. | 32' $\frac{3}{4}$ ' | Lagged pipe Bedroom 1 Rad. and bare pipes Total ... Forward ... total ... | 992 8555 22278 | 1.8" w.g. | 7.56" w.g. |
| Stage 3: 2nd branch to boiler. | 14' $\frac{3}{4}$ ' | Lagged and bare pipe ... Hall and bedroom 2 rads & pipe ... Final total ... | 682 10949 33909 | 3.8" w.g. | 7.22" w.g. |
| | | | | Total | 21.82" w.g. |

Before we decide that this is the maximum resistance it might be as well to have a look at the Bedroom 2 circuit. Having demonstrated the method I will not take space to go through this again in detail, but the total resistance for the first two stages works out at just over 18" w.g., and the third stage, common to both circuits, will be 7.22" w.g. as before. Thus we find that **this** and not the lounge, is the major circuit. I will not point the moral!

Totalling the three stages of this circuit, therefore, we find that the provisional pipe sizes are correct and that the pump will need to deliver 3 $\frac{1}{4}$ g.p.m. against approximately 26" w.g. We should not use a larger pump; this would circulate too much water and could cause noise.

So far, despite the editor's little reminder at each paragraph, I have not mentioned the "deadly sin." It is this: Human nature being what it is, we all tend to take short cuts in design. Technical developments, such as variable head pumps, are a great

help and may save design time. But take care that you don't find yourself taking so many short cuts that you are eventually just installing by guess-work.

In our next article we will discuss boiler sizing. The bees are buzzing in my bonnet already!

ATTENTION MANUFACTURERS, SUPPLIERS!

Each month The Irish Plumbing and Heating Engineer will contain a comprehensive survey of the month's trade news under the "Trade Topics" heading.

We invite contributions to this column by way of news of new product introductions, of product promotions, of developments within your organisations and of appointments, to list a few.

READER ENQUIRY SERVICE

Please send me particulars of the following, as seen in the pages of this journal:—

NAME AND ADDRESS:

POST TO:
IRISH TRADE AND TECHNICAL PUBLICATIONS LTD.,
13-15 DAME STREET, DUBLIN 2.

Unanimous-Whichever way you look at it the **LYNX** is today's most popular cistern



HIGH LEVEL

Lynx high and low level cisterns are made of tough durable black Duranite that won't craze, is non-corrosive. The Kingfisher syphon mechanism, made of polythene, gives a powerful flush, is non-corrosive, unbreakable. It can be used in both hard and soft water areas. The Lynx conforms to BSS 1125 and Water Works specifications, and is available in the following capacities: 2, 2 1/3 gallons.

Every genuine Lynx has the name engraved on the cistern

Other Shires products are the Uni-Lynx close-coupled suite, cistern fittings, plastic flushpipes and the Polyfloat cistern float.

Available from all recognised builders' providers in the Republic.

GOOD LOOKING
The Lynx's clean cut lines are an example of contemporary styling at its very best.

PRACTICAL
The Lynx is the easiest to install; the concealed fitting is neat and simple.

EFFICIENT
Discreetly quiet with the most dependable mechanism ever.



LOW LEVEL

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in brief...

THE PIPEWORK Engineering Division of Stewarts & Lloyds has been awarded a contract by Foster Wheeler Ltd. for the erection of mechanical equipment and the fabrication and erection of pipework for Gulf Oil's lubricating oil plant at Europoort, Rotterdam. The value is approximately £388,000 and the Division was in competition with other companies throughout Europe. The straight tube involved will be supplied by the parent company and fittings and other ancillaries by Welding Fittings & Flanges Ltd., an associated company of Stewarts & Lloyds.

* * *

LUWA (UK) LTD., London, announce that they have entered into an agreement with Gebruder Herrmann of Cologne whereby Luwa (UK) Ltd. have been given the sole rights in the U.K. and Ireland for the sale of equipment manufactured by Herrmann. The extensive know-how of Herrmann will be fully available to Luwa (UK) Ltd. Included in the Herrmann range are air and gas dryers, also Ozone generating equipment.

* * *

ELLIOTT-AUTOMATION Limited announces the appointment of Mr. Brian G. Daly, B.E., A.M.I.E.E., as Manager of the Elliott-Automation Technical Centre in Dublin.



Mr. Daly, who is 34, was born and educated in Tramore, Co. Waterford, and graduated in mechanical and electrical engineering at University College Dublin, in 1952. Before joining

Elliott-Automation, Mr. Daly was Instrument and Electrical Engineer at the Whitegate Refinery.

The Elliott-Automation Technical Centre at 32b James Street, Dublin 8, provides an on-the-spot advisory engineering service covering all forms of instrumentation, industrial control and automation equipment. It also provides a permanent base for the service and maintenance of Elliott equipment installed in industrial plants throughout Ireland.

* * *

S.P.P., Sigmund Pulsometer Pumps, have supplied equipment to "humili-ty" the elephants and rhinos at London Zoo! An S.P.P. hydro-

pneumatic booster plant has been installed in the basement of the new Elephant and Rhinoceros House of the Regent's Park Zoo to maintain water pressure in the House's humidifying equipment.

* * *

THE Dublin branch of O.B.C. Ltd., distributors of central heating equipment, has a new telephone number. The new number and the branch address is: O.B.C. Ltd., 379 South Circular Road, Rialto, Dublin 8. Telephone 53026/7/8/9.

* * *

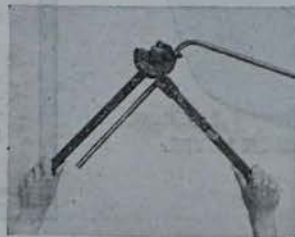
FOLLOWING the recent introduction of their new range of corrosion-resistant plastic fans, Air Control In-

stallations Ltd., Ruislip, Middlesex, have produced an eight-page leaflet describing the complete range. Copies of this leaflet, Publication No. F.309, are available on request from A.C.I.

* * *

ALL the 3,000 watt electric fan heaters tested by the Consumer Association magazine, "Which?", made the test room comfortably warm in under 3 hours, but they would make your head much hotter than your feet. With all the 2,500 watt heaters the room was nearly comfortable in 3 hours and the temperature at head level was not uncomfortably higher than at floor level.

PORTABLE TUBE BENDERS



LIGHTWEIGHT BENDING TOOLS

Types GL.0 and GL. Minor

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

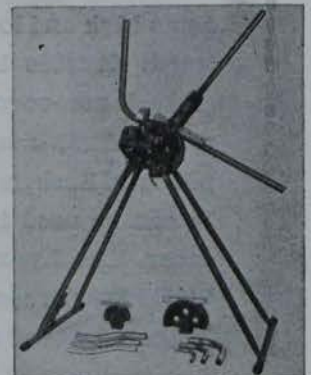
CAPACITY: GL. 0— $\frac{1}{4}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " dia. copper tube.
GL. Minor— $\frac{1}{4}$ " and $\frac{1}{2}$ " dia. copper tube.

FOLDING STAND MODELS

Types GL. 2B and GL. 3B

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

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



EASY-WORK RATCHET BENDER

Type RP. 5B

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

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

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

FIRST MADE



FINEST MADE

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

in brief...

AIRPEL LTD., Chalfont St. Peter, Gerrards Cross, Bucks, announce the introduction of the Airpel-Vandi Humidifier which is designed to re-humidify the dry air created by night store heaters, electric radiators and central heating installations. The Airpel-Vandi Humidifier, which is manufactured in Denmark, consists of an elegantly styled container which houses a special filter wick. The unit attaches to a radiator by means of simple hooks and evaporates nearly 2 pints of water into a room every 24 hours—sufficient to alleviate such dry heat characteristics as damage to woodwork and furniture, respiratory discomfort, dry skin and scalp, and failure of indoor plants.

* * *

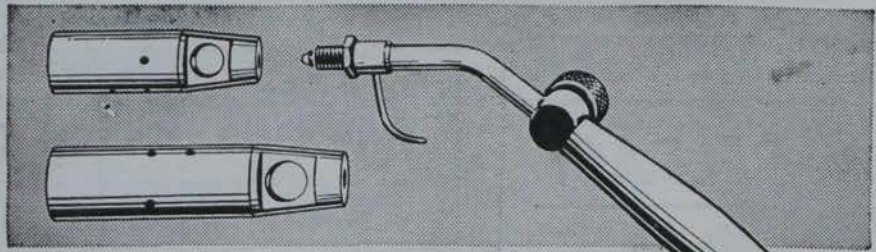
AMONG the new exhibits at the Building Centre of Ireland in Dublin are:—Unidare Ltd., who now exhibit their Hydodare plastic piping in standard and heavy gauges. This is a flexible polythene tubing intended primarily for cold water service. B. Lilly & Sons have installed a display of door furniture and casement fasteners. Rennert & Co. G.M.B.H. have also installed a display of chromium plated brassware featuring their latest range of pillar taps and water mixers for kitchen and bathroom.

* * *

MESSRS. Kunkel-Voba GmbH, of Aschaffenburg am Main, Western Germany, manufacturers of measuring instruments and high-precision equipment, advise us of the publication of their revised catalogue on gauges and gauge-blocks. Besides the usual range of gauges, this publication illustrates a number of new types which will be of assistance to the engineer for measuring and checking purposes, both in the course of manufacture and during final inspection. A wide range of variations in the difficult field of mechanical gauging and testing are included in this very comprehensive survey.

* * *

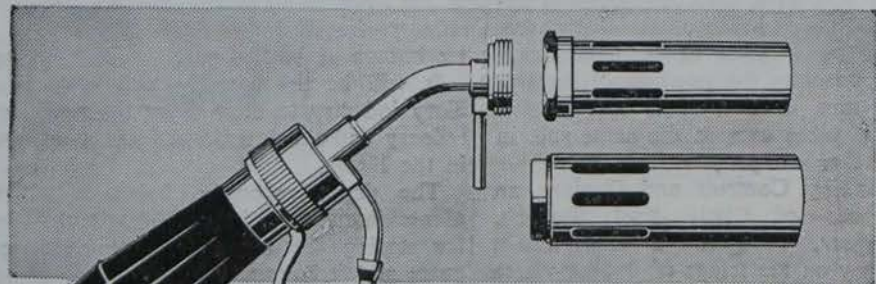
TO ENSURE a phased supply of quality castings at lower cost, Walker Crossweller & Co. Ltd., of Cheltenham, Glos., have introduced their own pressure diecasting plant to produce castings in brass for components used in the manufacture of the company's range of Leonard thermostatic mixing valves and Arkow instruments, and for the Mira shower mixing tap produced by a subsidiary company, which will



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

Kosangas Blow Torches

for every plumbing job!



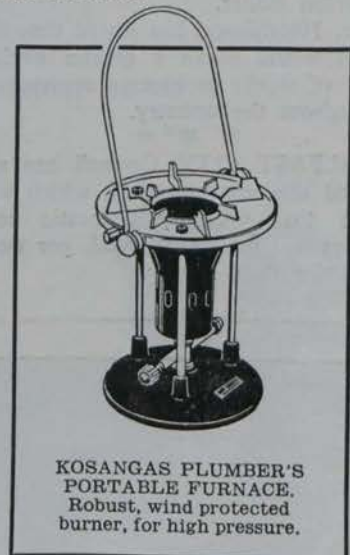
Bullfinch Mark II Blow Torch. New, patented, trigger valve, leak-proof, never needs adjustment. Micrometer bye-pass, saves £££'s on gas. Complete range of burners.

Make full use of the wide range of Kosangas blow torches, available for plumbing work. They're much more efficient than the conventional type.

The Kosangas TH3 and TH4 are designed for paint burning, pre-heating and soldering. The Bullfinch Mark 2 has a wide variety of heads, including soldering attachment. In conjunction with the small portable Kosangas cylinder, use Kosangas blow-torches for:

- PAINT BURNING · PRE-HEATING
- SOLDERING · ROOF FELTING
- JOINTING OF PLASTIC PIPES
- ANY OTHER HEATING NEEDS

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



KOSANGAS PLUMBER'S PORTABLE FURNACE. Robust, wind protected burner, for high pressure.

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BIG MERGER BY BELFAST HEATING FIRMS



the Belfast gas supply a couple of months ago . . . Did I mention dearer gas in the city a few paragraphs earlier?

* * *

RADIATION Gas Fires Ltd., announcing the latest version of the Crystalglow, the country's first glass-fronted gas fire, claim that the fire will provide all the room heat a householder needs, not only more efficiently than an old-fashioned coal fire or electric fire, but at much lower cost. This glass-fronted fire is also claimed to be cheaper to run and able to heat a room more quickly than conventional open-fronted gas fires.

The new fire, the Crystalglow Mk. II., is said by the company to be technically the most advanced gas fire on the market. It has an official efficiency rating of 69 per cent., which is the highest acceptable efficiency consistent with the clearance of products in the flue in the varying installation and weather conditions normally met with.

* * *

AIRSCREW-WEYROC Ltd. have appointed Messrs. P. & D. Macfarlane Ltd., Cupar St., Belfast, as their sole agents and technical representatives in Northern Ireland.

Already well known in the province, Airscrew fans are presently being installed in the ventilation and air conditioning system of the Royal Victoria Hospital—yet another feather in the cap of this widely established company of fan manufacturers, who also lend their skill to the aircraft industry.

And the appointment of P. & D. Macfarlane Ltd. follows the increasing demand for their air conditioning plant. Heavy demands for Airscrew-Weyroc fans has meant that their organisation, as well as the works, has had to expand in recent years.

A comprehensive catalogue is available covering the wide range of centrifugal and axial flow fans and includes some very useful technical data of particular interest to consultant and ventilation engineers.

* * *

● THINGS are really warming up in Stormont—two new Ruston Thermax boilers are being installed at Parliament Buildings.

Allen McDowell

An attempt to have the matter referred back to the gas committee for further consideration was made by Alderman Wm. Boyd.

He said he thought the increases for the smaller consumers had come as a great shock. He believed the public had been led to understand, whether deliberately or inadvertently, that following the opening of the new Shell refinery at Sydenham they were going to have a cheaper supply of gas—not dearer.

* * *

A £130,000 PLANT is being established at Sydenham to develop one of the by-products of the new B.P. oil refinery—liquified petroleum gas, better known as bottled gas.

It will be the second major auxiliary industry to stem from the new refinery and the first bottled gas plant in the North.

The depot presently being built alongside consists of four 50-ton tanks for storing the butane and propane gases and it is expected that the new venture will go into operation within the next two months. At present all bottled gas, both for industrial and domestic use, has had to be imported from English refineries.

Both gases—natural products of the refining process—will be piped to the new depot and stored under pressure. B.P. liquid gases have been marketed for some time in the province as Bottogas and a spokesman said they would continue to use the name.

Note: The first by-product of the refinery, petroleum gas, was linked to

TWO Northern Ireland heating firms have merged to form one of the largest supply sources of central heating equipment in the Northern province.

Heating Controls and Devices Ltd., of Dundonald, has acquired control of W. P. F. Hume & Co. Ltd., Hyndford St., Belfast, in a merger which took effect on September 1.

Each company will retain its separate identity, however, although there will be a joint management organisation. Mr. Robert Hutchinson, managing director of the Dundonald firm, assumes the position of director in Hume & Co., while Mr. Patrick Hume takes over in the same role in the other company.

Heating Controls and Devices, an associate of Clyde Fuel Systems, Glasgow, occupies a Government factory on the fringe of Belfast where they manufacture many types of heating control equipment. Hume & Co. are the agents for the famous Potterton Boiler.

Mr. Hutchinson has stated that the union would mean a greater availability of stocks to heating contractors throughout the country.

* * *

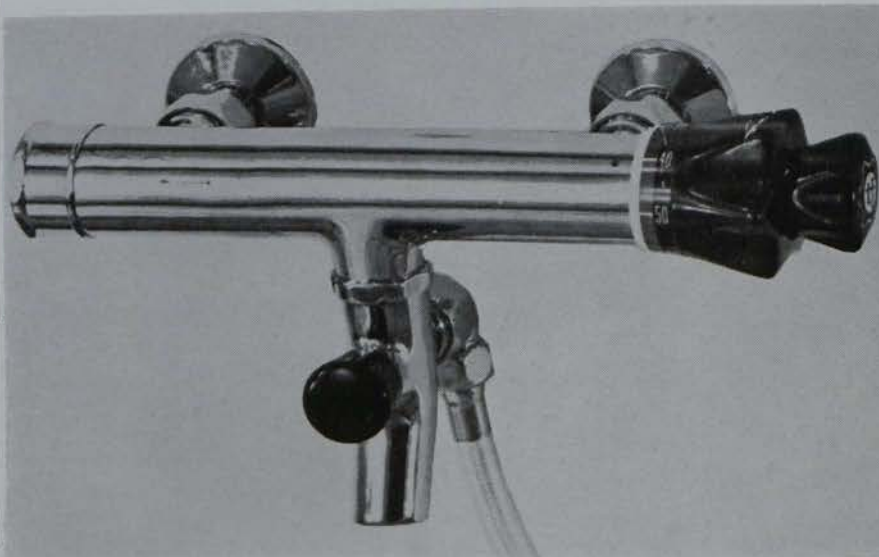
BELFAST CITY Council has approved the new gas tariff, which will mean that ordinary domestic consumers will pay roughly 6d. per week more for their supply.



● Pictured here are the directors of P. & D. Macfarlane Ltd.—Mr. Peter Macfarlane and his son, Dugald. The company has secured another important agency. (See report).

temperfix

TEMPERFIX—the last word in thermostatically controlled water mixers. Models available to suit all—Hairdressers, housewives, surgeons, hoteliers, etc. User cannot be scalded—valve closes if either supply fails. Set the dial to temperature required and be certain you get only that temperature. Variations in supply pressures do not effect it. Only two controls—one to set the temperature, one to control the flow volume. It will operate on a very low head of water, and hot and cold supply pressures need not be equal. Stocks now available from all reputable Plumbers Merchants.



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**A NEW
PRODUCT**

"THE DUBOIS PLASTIC TRAP" (Regd.)

**A NEW
PRODUCT**

Provn. Pat. No. 38070/60.

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



Orthodox Shape!
Smooth Bore Tubular construction.
Outlets can be turned through 220°.
A two-piece trap at a one-piece price.
Outlet on 'S' trap turned to inlet forms
a through-bore bottle trap.
Frost and damage resisting.
Light weight = lower transportation costs.



Manufactured by:—

THE DU BOIS COMPANY LIMITED
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Meet the BIG Supermatic family...

all 18 of them

It's most useful and highly profitable to deal with such a versatile and practical family of 'Wall Flame' Oil-fired Boilers as Supermatic — the biggest, fastest-growing and most successful yet produced.

For one thing, you're able to satisfy *all* your customers, whatever their individual requirements may be—for the wide Supermatic range includes as many as 13 standard models *plus* 5 de luxe versions. Since their outputs vary from 44,000 to 300,000 BTUs, there's no problem in obtaining the *right* Supermatic boiler for the smallest or biggest heating jobs. Installers and householders don't need to make do with inferior, unsuitable or uneconomical substitutes—because you can always get them *exactly* what they want. In

addition, you can increase your profits by selling them sleek, highly efficient Supermatic Skirting Radiators—specially designed to operate best with Supermatic 'Wall-Flame' Oil-fired Boilers.

What's more, you can bank on *immediate deliveries*—thanks to our no-delay, *same-day dispatches* from huge stocks always maintained at our Eastbourne works.

It's more than likely that you will soon be ordering more Supermatic Boilers and Skirting Radiators than ever. Why? Because this year, we have more than *doubled* our publicity expenditure—to stimulate more public interest, attract many more customers to your door and boost your profits substantially.

It PAYS to ORDER Supermatic—INSTALL Supermatic—RECOMMEND Supermatic—SELL Supermatic

Fill in and post this coupon TODAY!

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 Hampden Park, Eastbourne, Sussex

Please send me full particulars of your Supermatic Oil-fired Boilers and Supermatic Skirting Radiators and details of your trade terms.

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