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

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# THE IRISH PLUMBER & HEATING CONTRACTOR



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

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

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

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*Shires*  
*for your convenience*

et al.: The Irish Plumber and Heating Contractor, November 1962 (complete

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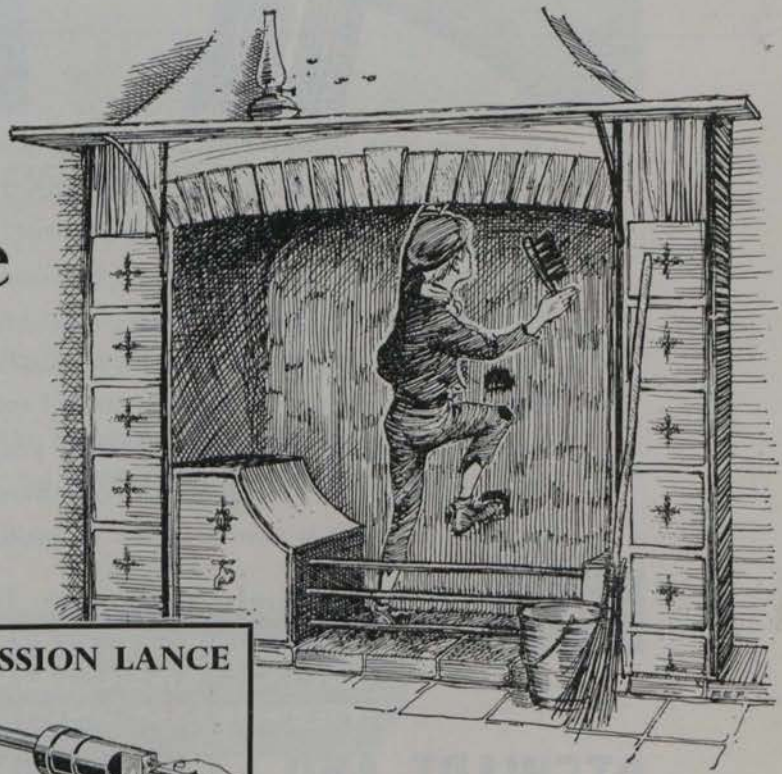
The **MONO** pump

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**FERRET**

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

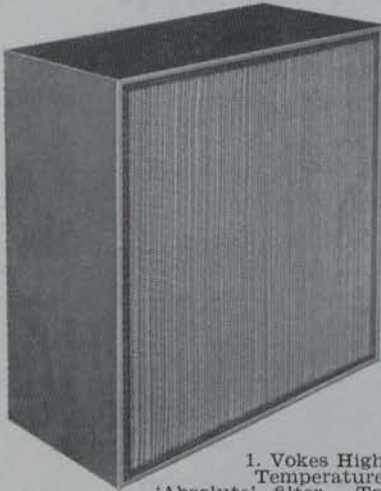
**Exhibition to be held at The Building Centre of Ireland, 17 Lower Baggot Street, Dublin, 2. 3rd to 7th December, 1962. Daily from 10 a.m. to 5 p.m.**



**FIRST MADE — FINEST MADE**

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

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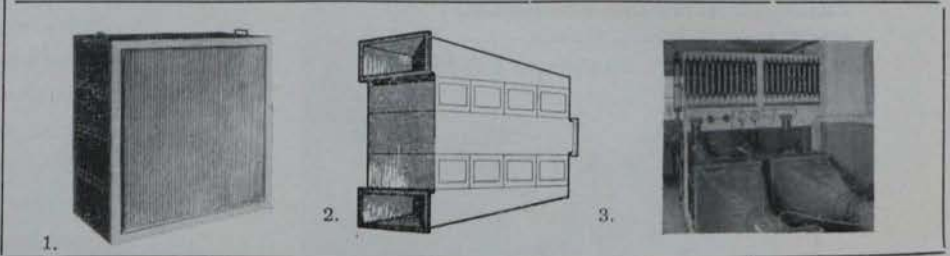
2. Vokes 'UNIPAK' system, available in many different sizes for a wide range of air volumes.

3. The methylene blue test rig at Henley Park, headquarters of the Vokes Group.

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

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

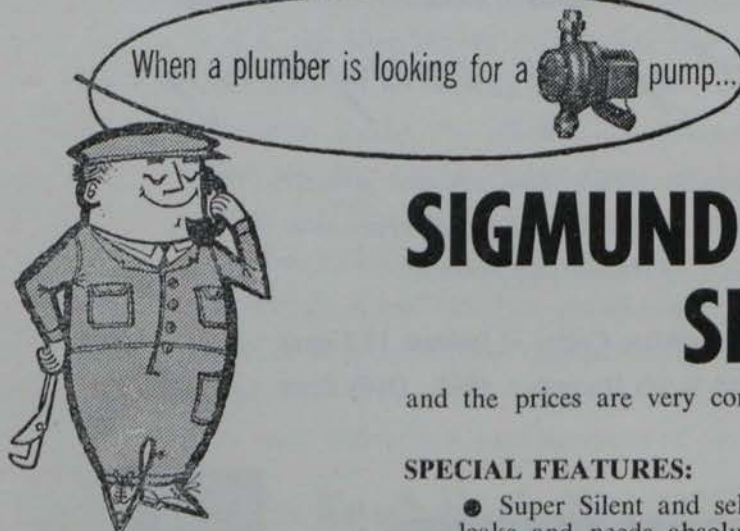
Vokes 'Absolute' filters are tested in accordance with BSS.2831 on a methylene blue test rig. Every filter is subjected to a stream of air containing particles of methylene blue 'dust' ranging in size from 0.1 to 0.5 microns, and rejected if its efficiency is less than 99.95%. Vokes is the only British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



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

## THE LEINSTER ENGINEERING CO. LTD.

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he cannot buy better than the

# SIGMUND THERMOPAK or SILENTFLO

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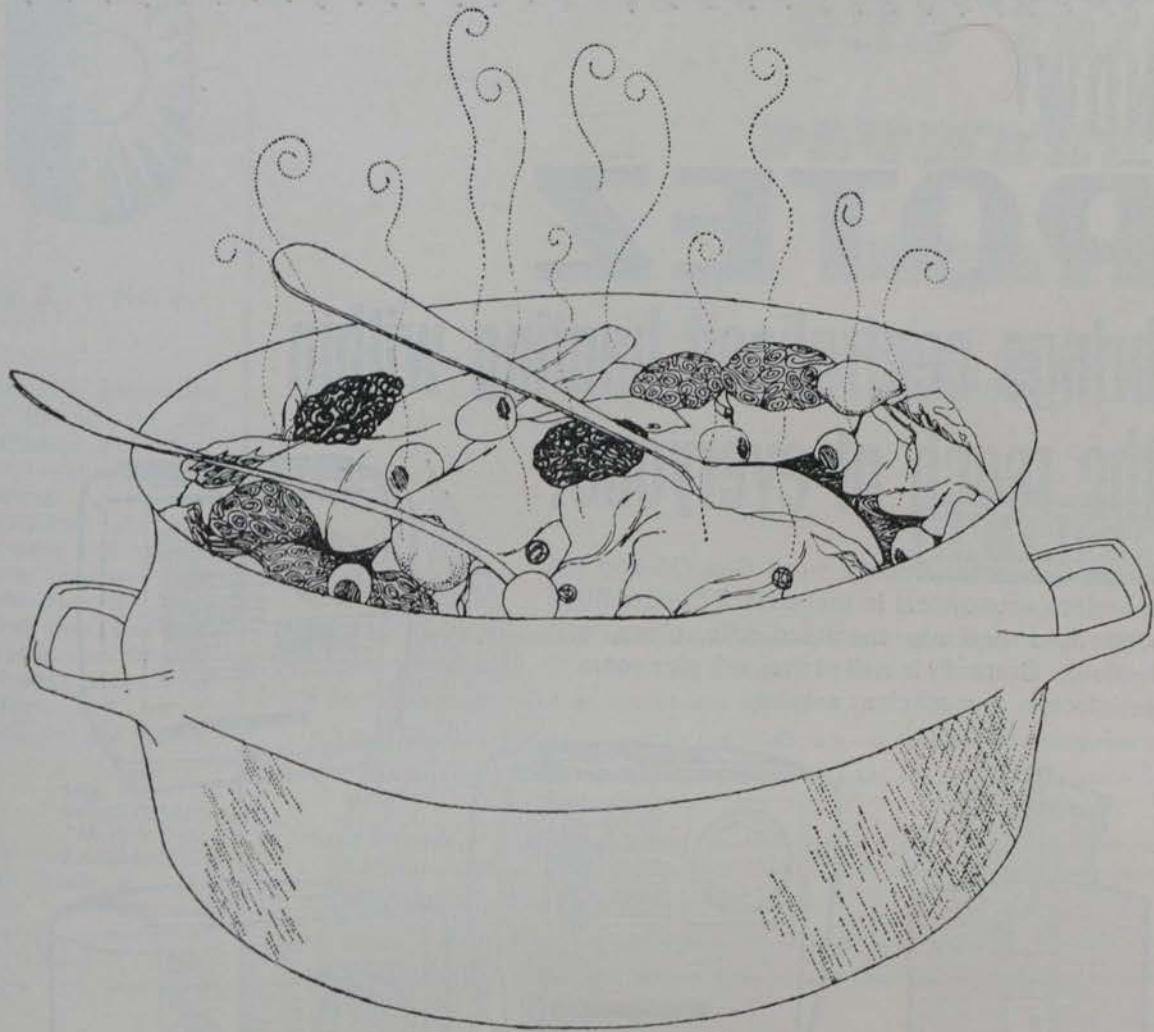
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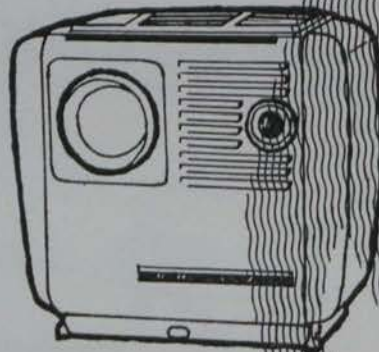
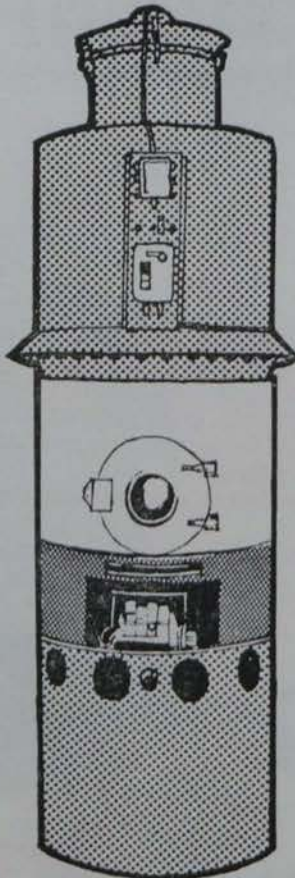


# NOW!

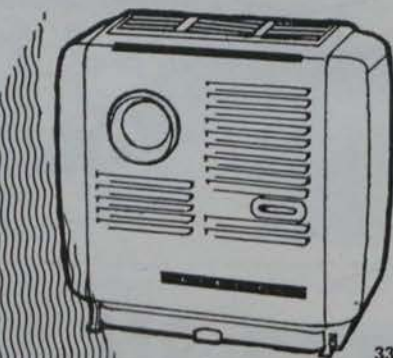
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Output 18,000 Btu/hr  
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**7R1**  
Output 38,000 Btu/hr  
Hgt. 30", Wdt. 25", Dpt. 22"  
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**5021**  
Industrial Model  
Output 180,000 Btu/hr  
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Other Models will shortly be available. Trade enquiries are invited and should be addressed to:

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HEATING EXPERTS FOR OVER ONE HUNDRED YEARS



Vol. 2. No. 8.

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

Published monthly by Irish Trade & Technical Publications. Annual subscription, 21/-, post free. Single copies, 1/9, post free.

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NOVEMBER, 1962.



# THE IRISH PLUMBER & HEATING CONTRACTOR

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PICTURED ABOVE at the recent exhibition of gas appliances in Cork arranged by the Cork Gas Company in collaboration with Radiation Limited:— Mr. S. L. Doyle, Director and Secretary, Cork Gas Co.; Mr. J. Ronan, Chairman, do.; Ald. S. Casey, T.D., Lord Mayor; Mr. B. Haughton, Director, and Mr. A. Purdie, General Manager, Radiation Parkray, Ltd.

## Radiation ducting seen at Cork

**T**HE NEW flat-pack Ductair metal ducting developed by Radiation Parkray Limited simplifies and greatly reduces the cost of installing ducting for warm air central heating systems. From 20 standard components and only nine basic shapes, the installer can make all ducting normally required. The ducting was seen at the recent Cork Gas Company exhibition (October Contractor).

Where only one installation or a small number of similar lay-outs is to be carried out, the fabrication can be executed easily and quickly on site, thus eliminating the need for detailed drawings for the metal worker. For schemes involving a large number of similar lay-outs such as a block of flats or a housing estate, it may be convenient to have the ducting partly or wholly fabricated at the work-shop for transport to site in packaged sets or ready-assembled sections.

Considerable savings in transportation costs can result from the compactness of the components when site assembly is practicable. The application of this ducting is so facile that builders' tolerances, and even substantial errors of modifications, can be coped with quite readily, by contrast with the trouble ensuing in such circumstances when the usual type of rigid metal ducting is used. The customary methods of duct installation are fully applicable.

Area Manager: L. C. Young, Esq., 85 Gransha Road, Bangor, Co. Down.

**TRADE**

**TOPICS**

### MR. C. J. NOLAN

**M**R. Charles James Nolan, Westbrook Road, Dundrum, County Dublin, who has died, aged 55, was well known in the trade and was managing director of Charles Nolan & Co. Dublin, a firm he founded 30 years ago. He was a native of Portmarnock.

Mr. Nolan was Irish agent for Santon Ltd., among many other important agencies.

He is survived by his widow, Mrs. M. Nolan, sons, Richard and William, and daughters, Irene and Joyce.



## COMPLETE DESIGN SERVICE

**T**HE Rheostatic Company, Ltd. (Slough, Buckinghamshire), now offer a complete service for the design, supply and installation of pneumatic control systems for heating, ventilating and air conditioning projects. Thus, with the electrical and electronic controls previously available it is possible to offer a comprehensive service advising on all control problems.

Satchwell Pneumatic Control Systems are based upon an entirely new range of instruments designed by Robertshaw-Fulton Controls Company of America,

and backed by 35 years' experience in the design, manufacture and application of Automatic Controls.

The instruments are engineered to take full advantage of the latest materials and production techniques, with the maximum interchangeability of parts between different types, resulting in efficient and economic production.

Mr. R. E. Ayers is Area Manager (Graystoke, Nashville Road, Howth, Dublin).

Our picture shows the Rheostatic Stand at the HEVAC exhibition.

## PRICES WERE CONSTANT DESPITE COST INCREASES

—G.E.C. Sales Manager

**D**ESPITE increased costs, prices have remained constant, was a major point stressed by Mr. P. W. Peel, Sales Manager of the General Electric Co. of Ireland, Ltd., at the firm's trade exhibition held in the Ballroom of the Royal Hibernian Hotel, Dublin.

The exhibition, which was held over two days, Wednesday and Thursday, October 31 and November 1, was the biggest ever held by the firm and provided the attendance of between 600 and 700 with an excellent picture of the variety of goods which this well-known and progressive company provides.

A feature was the display of light storage heaters, small water heaters. There was also a full display of the now very popular Xpelair range of extraction fans.

Among those present were Mr. M. F. McCourt, Managing Director of

G.E.C. of Ireland; Mr. S. F. X. Mombrom, Manager, Lighting Department, and Mr. T. A. Dunne, Manager, Installation Department.

## PLASTICS INDUSTRY DEVELOPMENT

**T**HE DEVELOPMENT of the plastics and allied industries in Ireland over the last few years had been most impressive, as indeed had the growth of Irish industry as a whole, said Mr. Philip C. E. Kirby, export director of Distillers Plastics Group, London, in Dublin.

He was speaking to a group of industrialists at a film show and discussion on the development of the plastics industry held in the Royal Hibernian Hotel.

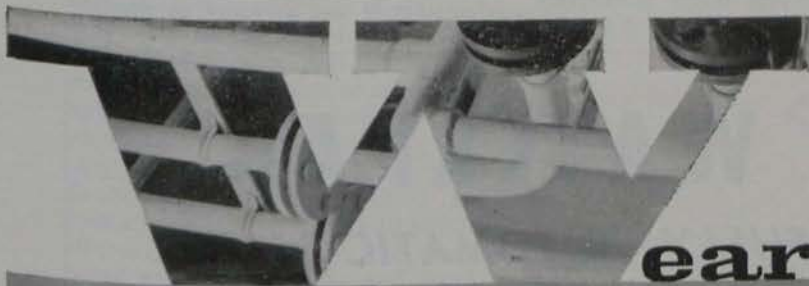
The use of plastics in this country has been increasing at an average rate of 25% a year, and because of this the Distillers Plastics Group recently has opened an Irish sales office in Dun Laoghaire. Mr. G. Y. Blomeley, who has had many years' experience in the industry, is in charge of the office.

● As part of a major factory reorganisation, Messrs. Jacob & Co., Ltd., in consultation with Bord na Mona, have decided to convert two oil-fired boilers to turf.

The boiler installation of the factory then will be based entirely on turf fuel, with an annual consumption of about 5,000 tons.

A SITE has not yet been chosen for the proposed factory at Arklow, for the manufacture of sanitary ware, but it is proposed to start building early next year and to employ 50, mostly men, when the factory opens.

Arklow Pottery Ltd., and the Italian Ceramic Company of Richard Ginori (Milan) are associated in the project.



**ear and wavin**

# wavin

PIPES LIMITED  
Balbriggan, Co., Dublin.  
Telephone: Balbriggan 160,

Defeat the corrosive menace of chemicals and acids! No loss of production or dangerous bursts. Wavin P.V.C. pipes wear wonderfully because they do not wear at all. Wavin pipes are non corrosive, immune to all chemical attacks, light, inexpensive and easy to install. Where there's wear use Wavin. That's sense.

**TRADE**

**TOPICS**



● Pictured above is the Lord Mayor of Dublin, Ald. J. J. O'Keeffe, T.D., speaking at the opening of the Exhibition; Mr. N. J. Robertson, Director and General Manager, and Professor Pierce Purcell, Chairman.

## DUBLIN GAS COMPANY'S SHOW

**T**HE VERY latest ideas in central heating by gas and hot water equipment generally were provided at the exhibition staged by the Dublin Gas Company, in their D'Olier Street Headquarters.

It was opened by the Lord Mayor, Alderman J. J. O'Keeffe, T.D., on Tuesday, October 23, and continued until the following Friday. Builders, engineers, and architects were among the very large numbers who visited the display.

Several types of home central heating were on view. Mr. N. J. Robertson, Director and General Manager of the Company, whilst explaining the various exhibits, pointed out

that a special attraction relating to the new heating equipment on view was the coming into force of the new two-part tariff whereby gas used over and above 50 therms in the quarter can now be had by consumers at rates fully competitive with any other system. By this means central heating and additional gas services in the home become most economical.

The provision of gas-fired boilers, it is claimed, provides the easiest and most convenient means of obtaining central heating and hot water supply at a very moderate cost. Incorporated in this system is the new small bore piping giving many advantages over the unsightly large pipes of bygone

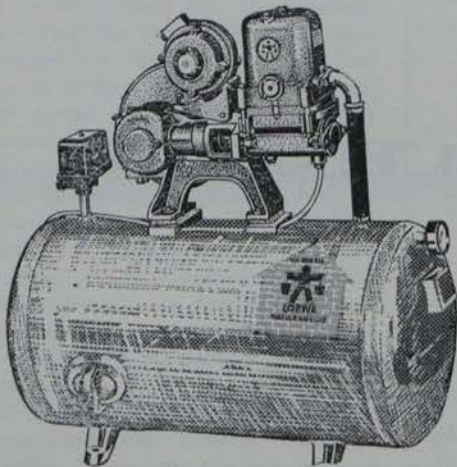
days. Installation is easy and gas consumption small under normal living conditions.

Selective air heating, another type of central heating, is designed to heat three or four rooms for the cost of one by gas. This is one of the latest and most advanced forms of domestic space heating.

## FACTORY HIT BY FIRE

**S**OME cutting machinery and other equipment could easily be made serviceable and it was hoped to begin limited production within a few weeks. This cheery news was given by Mr. S. McHenry, production and development manager, on the day following the disastrous fire at the factory of Cor-Tex Proofers Ltd., Kinsale Road, Cork, last month.

Mr. McHenry pointed out that an architect who examined the building, said that at least one section could be put into operation by using steel roof trusses which had been intended for a new extension. The 40 employees were busy on salvage work. It may be necessary to lay off some of them when that work is completed, but as many as possible would be retained, it was stated.



Type 520H Pressure System

# WATERPAK

## FULLY AUTOMATIC WATER PRESSURE SYSTEMS

for

**Group Water Supply Schemes**  
**Town Water Supplies**  
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WE CAN SUPPLY PRESSURE SYSTEMS FOR ANY CAPACITY OR WORKING PRESSURE

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# RURAL WATER SYSTEM: PURIFICATION, PUMPING

**H**AVING, last month, considered the various sources of water supply and their relative merits for domestic use, we now come to the problems associated with the purification and delivery of this water to a dwelling.

In this country we are very fortunate in the fact that most of our rural water supplies, especially those from deep wells, etc., are of such a high degree of purity, that no further treatment is required, but where a river or stream is the source, we may encounter conditions where the purity of the supply is to be suspected, especially from a bacteriological point of view, and so the provision of a sand filter is not a sufficient safeguard.

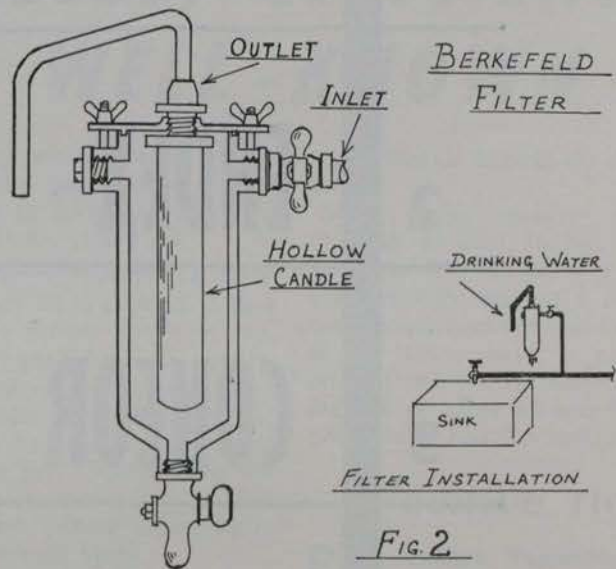
As already mentioned in our previous article, an automatic chlorinator fed with a chlorine solution, is one way of dealing with the matter, but sometimes this addition of chlorine to water in the smaller domestic units leads to difficulties with taste, etc., due to the minute quantity of chlorine which has to be measured and proportioned. To overcome this, it is usual to install as part of the unit a de-chlorinator on the drinking and cooking water supply so as to remove all trace of chlorine from the treated water and leave it clear and sparkling. (Fig. 1).

## Contamination

**A**NOTHER method of dealing with a contaminated domestic supply is to use a Berkefeld candle filter.

the  
author

**JOHN G. BOLTON**, Lecturer in  
Plumbing and Heating at the College  
of Technology, Bolton Street, Dublin.

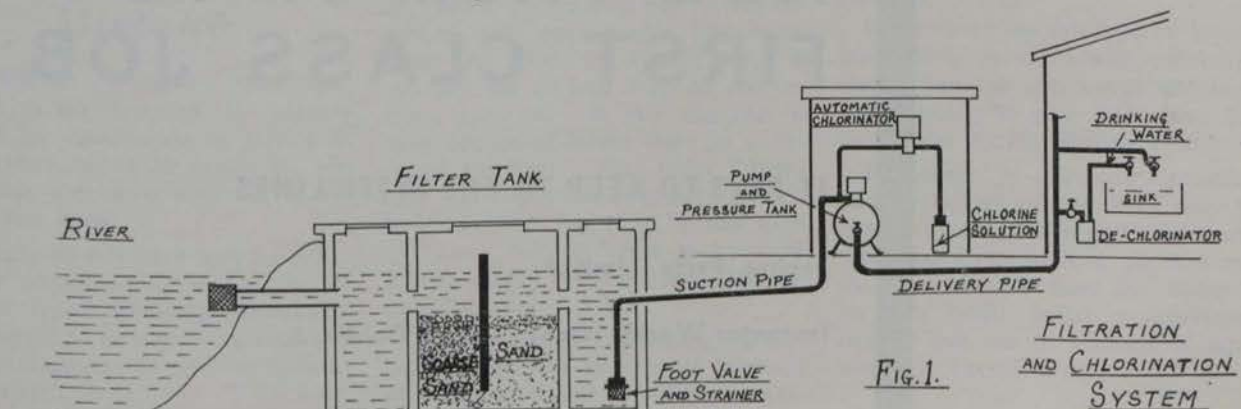


This filtration system—well known to the trade for many years—consists of a hollow candle or candles made of Kieselguhr, a special porous infusorial or siliceous earth. The candle is sealed at one end, and the other end or outlet is fitted into a plastic or metal fitting. The water passes through the wall of the candle from

outside to the inside, leaving all impurities on the external surface. (Fig. 2).

The main disadvantage of this type of filter is the necessity to clean and then boil the candle for 20 minutes—the period between each cleaning being

*Continued page forty-two*



# BIG 4 FOR ALL PLUMBING & HEATING CHOSEN BY CRAFTSMEN

1

## INSTANTOR

the most efficient joints in the world for copper tubing. Equally reliable for use with plastic pipes.

2

## ENDEX

capillary fittings for small-bore central heating—efficient, unobtrusive and cheaper to install.

3

## CONEOR

go underground with safety. Coneor couplings are zinc-free gunmetal castings specifically chosen for use with soft copper tubing.

4

## FYFFE'S

up-to-date range of *PLUMBERS' BRASS WARE* is at your stockist's now. All patterns can be supplied—polished or chromium-plated.

## ADD THEM UP TO A FIRST CLASS JOB

IT PAYS TO KEEP TO THE FYFFE LINES

Sanbra Fyffe Limited.

Instantor Works, James's Street, Dublin, 8.



## AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

REVIEW OF OIL-FIRED DOMESTIC  
HEATING BOILERS, BURNERS AND  
CONTROLS . . . . .

# CLEAN, DUSTLESS, EFFICIENT OPERATION WELL-KNOWN

**T**HE CLEAN, dustless, high thermal efficiency and automatic operational advantages of oil-fired domestic boilers is now well known.

Generally, for the same heat output, oil fuel will cost but little more than solid fuels and less than gas or electricity.

Fuel deliveries are easily arranged and storage presents no great problems. A little care in placing the fuel store tank so as not to be an eyesore is well worthwhile. It is also wise to inform a prospective client that oil delivery in 500 gallon "drops" is available at a cheaper rate-per-gallon than in lesser amounts. A tank of sufficient holding capacity, say 600 gallons, will enable the client to take advantage of this cheaper fuel rate as well as reducing the number of deliveries per heating season.

Boilers for domestic oil-fired boilers are conveniently available in the following types.

### Mistake

#### **N**NATURAL draught vaporising:

These are designed to prepare the oil for combustion by raising its temperature so as to gasify it. In this state, combined with air, it will ignite and burn.

Burners of this kind may be either of the perforated drum type or of the pot type. Somewhat mistakenly there seems to be a growing tendency by manufacturers to refer to both as pot burners.

The perforated drum burner com-

prises two circularly spaced perforated tubes, the perforations serving as air inlets to afford adequate air to oxygenate the gassed oil.

The pot burner resembles a metal cup into which oil is allowed to flow to maintain a pre-set depth of oil. This oil is pre-heated to gasify, whereupon fine oil-air vapour mixture burns. In older pattern boilers the pre-heat was by inserting a lighted brand into the pot. Subsequently the burner was thermostatically controlled to a "high-low" flame according to demand for system heat.

### Automatic

**M**ORE recent boiler designs incorporate electric "glow-plug" pre-heat and ignition devices which render boiler light ups a completely automatic process after the initial start up. Another real advantage of the "glow-plug" electric ignition is that an "on-off" boiler programing can be accomplished with considerable fuel economy. As soon as system heat is satisfied, the oil feed shuts off and the flame goes out. In this way fuel is only consumed when there is a demand for heat. The older "high-low" arrangement without electric ignition caused fuel to be burned, even at "low" rate, in order to keep the burner alight, whether heat was required or not.

Natural draught vaporising burners need a good fire to exhaust products of combustion and to ensure an adequate entrainment of combustion

supporting air through the combustion zone.

Some boiler makers stipulate a chimney at least 16 feet high as a minimum flue requirement. No one quarrels with this but a more significant requirement is that the flue will at all times have a positive up draught and not be subject to down draught or other adverse flue conditions due to bad flue terminal placing.

### Positive flow

#### **F**AN Assisted Vaporising Burners

promote a positive air flow through the combustion zone and promote some movement of flue gases up and out of the flue. A pot type burner is commonly used with fan assisted units.

Such burners are becoming much more popular for boilers in the 50,000 to 80,000 B.t.u./hr. range and are obtainable in boilers of smaller rating.

Boilers fired by this type of burner are usually provided with automatic electric ignition and are programmed automatically to give boiler and flue air purges during ignition cycles.

Fan noise is virtually inaudible and so boilers of this kind may be used with confidence in kitchens and the like. Even so it is good, where space permits, to have the boiler in its own small boiler compartment near to but out of kitchens or other domestic circulations.

*Continued overleaf*





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

from previous page

## Fuel deliveries easily arranged

**Atomising or Pressure Jet Burners** are more common on boilers of 50,000 B.t.u. upwards, possibly from 80,000 B.t.u. up. The noise level of these in operation is a little higher than for fan assisted vaporisers, but in most cases the noise level is acceptable for kitchen installation, although, and more so in this case, a separate boiler house or compartment is desirable where possible.

### Atomises

**ATOMISING** burners prepare oil for combustion by so discharging the oil that it atomises into minute droplets surrounded by adequate amounts of air.

Atomisation is produced by high pressure (100 lbs./sq. in. or thereabouts) oil delivery from purpose designed burner nozzles.

One manufacturer has produced a burner-boiler unit the rating of which can be stepped up from, say, 50,000 B.t.u. to 80,000 B.t.u. simply by changing the burner nozzle size. This makes one boiler size quite flexible and allows extension to system without need for renewal of boiler for one of larger size.

Pressure jet units are obtainable with burner unit exposed to view or enclosed integral with boiler and controls, within handsome, sound attenuating and heat insulating steel cases. The former are well suited to boiler house installation; the latter to kitchen installation.

### Incorporated

**WALL-FLAME** Burners are incorporated in boilers by at least one maker. These burners are vaporising burners really, although some crude atomisation occurs in the process of distributing the oil by centrifugal force to the inside of the circular boiler shell wall.

A motor driven distributor with

the ends of its distribution arms. The principle is not unlike that of the lawn sprinkler. The oil impinges onto heated laminae or plates mounted radially to the boiler centre and attached to the boiler wall. Upon hitting these the oil droplets vaporise and burn.

One advantage of this kind of burner, which may be regarded as a fan assisted vaporiser, is that the oil burns in close contact with the boiler wall. Heat transmission by conduction is therefore provided in addition to radiant and convector transmissions.

### Red-hot

**THE** perforated drum vaporiser heats mostly by radiation from its red-hot drum surfaces. The pot burner heats chiefly by convected heat from the flame but with some

radiation. The pressure jet heats mostly by convection, partly by radiation, and by conduction where flame impingement might occur on boiler wall surfaces.

The extent to which these heat transfer forms are applied varies according to individual boiler makers, fire-box design and type of burner used in the overall boiler design.

**Interesting developments** include the more forward production of "balanced flue" oil fire boilers for domestic use. These are designed to function without the traditional fire. They are mounted against the external wall, through which an aperture is cut to accommodate the balanced flue fresh air inlet and exhaust gas outlet. All that is seen externally is a heat grilled register plate about 18ins. x 12ins. This type of boiler

Continued page sixteen

**FUEL  
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WASTE  
IT!**



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### SPECIAL SURVEY

*from previous page*

will prove very popular where no flue exists or where existing flue is not suited to oil boiler connection. In new work this kind of boiler enables considerable saving in flue construction—a point which will not be lost on those contemplating new housing schemes.

#### Balanced flue

ONE boiler of this balanced flue kind—the Perkins Mini-Boiler—may be mounted on the wall if so desired. This clearly saves on floor space and is a welcome addition to the oil fired boiler range. Available in 50,000 B.t.u. ratings and above, such boilers bring full oil-fired central heating within the province of the most congested kitchen.

Considerable engineering ingenuity, combustion engineering skill, and aesthetic design skills have been lavished on up-to-date domestic oil-fired boiler design. There is an oil-fired boiler to suit every application, every taste, and all pockets. It is simply a matter of sizing up these separate requirements and then making a wise choice after examining all offerings in the selected range. There are many to choose from and you, with your client, will spend many interesting and profitable moments in being selective in a highly competitive boiler market.

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

MOST RECENT addition to the Trianco Ltd. domestic range is their Model 0/100/1 oil-fired boiler burner unit, with a rating of 100,000 B.t.u./hr.

This appliance has now been designed so that the insulated high grade enamelled casing covers both the burner and controls, the latter in the standard unit being a Nu Way Z.L. 2P. pressure jet burner and Satchwell D.G. control box.

The 0/100/1 is designed to meet requirements for central heating and

*Continued page seventeen*

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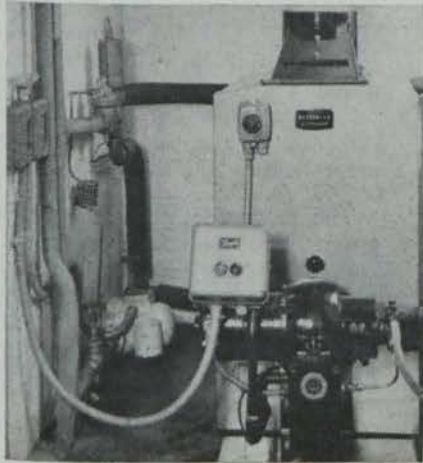
**PHONE 41101**

constant hot water supply for the medium to large sized home. It will supply twelve, fourteen or more radiators depending on their size and also provide constant hot water for bathroom, kitchen and washbasins. The unit boiler burns 35 seconds gas oil.

Irish agent: Heatovent Supply Co., 5 Upper Fitzwilliam St., Dublin.

★ ★ ★

THE BOA SERIES of oil-fired boilers, with outputs of 60,000, 90,000 and 130,000 B.t.u./hr., manufactured by Thomas Potterton Ltd., have been reduced in price. Reductions are also announced in the company's small bore range of gas-fired boilers.



Greater volume of production, improved productivity and better bulk buying of components has enabled the reductions to be made, said a spokesman. The price reductions vary from 4 to 15.6 per cent.

Pictured here is a Potterton BOA Series oil-fired boiler.

★ ★ ★

THE Technical Sales Company (79 Lr. Leeson St., Dublin) are agents and distributors for the Greenwoods range of "Lloydair" registers and grilles supplied in extruded aluminium-clear lacquer finish.

This range provides a highly flexible means of air distribution for modern heating schemes in commercial and industrial buildings. The agents will supply full details on request.

★ ★ ★

THE LATEST of the oil-fired boilers in the Redfyre range produced by Newton Chambers & Co., Ltd., of Thorncliffe, Sheffield, is the Redfyre Centramatic 50 Series 2, which has an output of 53,000 B.t.u./hr.

## PRODUCT REVIEW

from page fifteen

Fully automatic, this boiler has the pressurised, vaporising pot-type burner with electric ignition and co-axial fan controlled by a main boiler thermostat with adjustable temperature scale. Incorporating the printed circuit control unit, the boiler is economical to run for it operates only at high fire or is fully off. There is no idling or pilot flame so fuel wastage and uneconomical burning are avoided.

Designed to fit into the kitchen, the boiler conforms to the measurements for standard kitchen equipment, 36" high, 21" deep, and is 24" wide. It is fully insulated so that it can be fitted safely among other units and the top provides additional working surface.

★ ★ ★

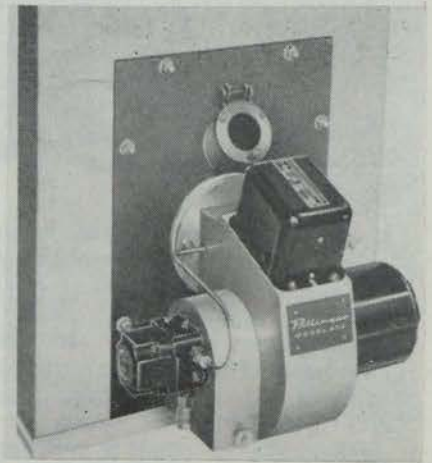
THE LOEWE Silenta accelerator is a glandless circulating pump, built to heating engineers specifications. The pumps are available in 1¼", 1½", 2" and 2½" diameter sizes, with capacities ranging from 16 g.p.m. at a 3 ft. head in the 1¼" size to 24 g.p.m. against a 5 ft. head in the 1½" size. Capacities up to 51 g.p.m. and heads up to 10.5 ft. are catered for in this extensive range. The maximum permissible static water pressure is 55 p.s.i., the pumps being suitable for operating on either single or 3 phase 50 cycle AC supply. A capacitor is necessary at a small extra charge, for use on single phase supply.

Pumps rated at 1/25th h.p. do not require starter, but those rated at 1/10 h.p. must have a starter. The pumps are supplied complete with screw on counter flanges, and the unit is so compact that it takes up the minimum of space. The pump must be installed with the shaft in the horizontal position, although the branches may point in any direction. From: M. R. Holfeld Ltd.

★ ★ ★

THE MODEL 602 (shown here) oil burner from G. C. Pillinger and Co. Ltd., has been designed to meet the demand for conversion from solid fuel to oil burning. Its rating is from 60,000 to 250,000 B.t.u./hr., using 35/45 seconds viscosity gas oil (Redwood No. 1 at 100 degrees F.).

This simple, small pressure jet burner is particularly suitable for the conversion of boilers from solid fuel



to oil burning—especially boiler/burner units which are widely used in domestic installations, usually being placed in kitchens or nearby rooms. The home is much more easily run when a Pillinger Oil Burner is used.

From the Pillinger range we also note the Series "A" boiler burner units.

This company is now to introduce the new burner model P.H., rated from 250,000-650,000 B.t.u./hr.

Irish company address: 20 Sycamore St., Dublin, and in Cork at 35 South Terrace.

★ ★ ★

PREMIER oil burners require no combustion chamber. This has been ingeniously developed in the concept of the new Premier stainless steel combustion flame funnel. Unlike the conventional combustion head, this achieves a constant and non-variable flame under any conditions, irrespective of chimney draughts, etc. Installation of the Premier S.F. oil burner takes less than two hours and therefore disposes of costly site adjustments.

The appliance is completely smokeless and is equipped with photo-cell controls, and above all has been exhaustively fire tested.

The Premier—available from Willd-ryte Ltd., South Quay, Arklow, Co. Wicklow—is fully automatic and features a totally enclosed motor.

Ratings: Model SF.1, 60,000 to 200,000 B.t.u./hr.; SF.2, 200,000 to 450,000; SF.3, 450,000 to 950,000; and SF.4, 950,000 to 2,000,000.

Continued overleaf

**I**NTERNATIONAL Boilers and Radiators Ltd., Terminal House, Grosvenor Gardens, London, S.W.1, have a wide range of new pumps and controls available from which we note the Sigmund Control Switch for ThermoPak glandless accelerators to be of particular interest.

Specially designed for use with models 1 and 2 ThermoPak, where on account of the special electrical winding employed, a conventional starter is not necessary. In addition to the heavily rated switch incorporated, the unit embodies an indicator light so as to clearly demonstrate when the pump is switched on. The Sigmund control switch interrupts both lines of the electric supply and no other form of insulator is required; thus a very considerable saving is effected.

Also from International is the new "Silentflo" accelerator pump, which runs in any position and on any voltage between 200 and 250 a.c. There is no external condenser and the new triple torque winding gives such power that reliable starting is assured. There is only one sealing joint in the whole construction and a quick release coupling enables dis-

## PRODUCT REVIEW

*from previous page*

mantling in moments—even without tools. The stator is completely encapsulated for absolute silence in operation. Iron connections are standard but the "New Silentflo" can be supplied with connections for copper pipes at a small extra charge.

\*\*\*

THE SATCHWELL DG photoelectric oil burner control working in conjunction with a 3H photocell, provides fully automatic operation of oil burners in response to their controlling thermostats. The photo-sensitive cell ensures safety in operation and provides a quick shut-down in the event of flame failure.

No thermionic valves are used in the control and the number of expendable parts has been reduced to an absolute minimum. The control box is particularly small and neat, making it very suitable for mounting on the oil burner, and the photo-cell housing is arranged for mounting in the draught tube of the burner.

*See illustration*



In operation, immediately the controlling thermostats call for heat, the control relay closes. This energises the ignition transformer. Approximately 15 seconds later, the burner motor is started. If the flame is established and the photocell illuminated, the relay switches off the ignition, but the motor circuit is maintained and the burner continues to run until the controlling thermostats are satisfied.

The manufacturers of Satchwell temperature controls are the Rheostatic Co. Ltd., Slough, Bucks., England. The Irish agent is R. E. Ayres, Esq.

*Continued page thirty-six*

# TYLORS



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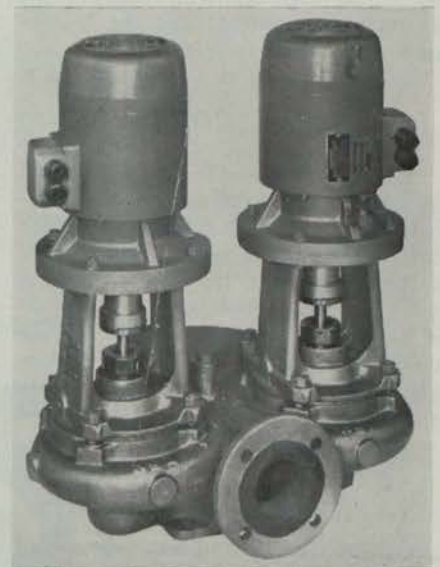
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IN CONJUNCTION WITH THIS SPECIAL SURVEY WE LOOK AT THE IMPORTANCE OF  
COMBUSTION TESTING IN FULLY AUTOMATIC OIL-FIRED BOILER PLANT

# COMBUSTION TESTING

**YOU**, as a man who has installed a good many oil burner heating systems in private houses, know that your customer chooses oil-firing for its labour-saving convenience, its efficiency and its economy.

If you adjust his oil burner to operate reliably and efficiently, you will have a happy customer who will recommend oil-fired equipment to his friends. If you don't make these adjustments properly the resultant trouble and lack of economy will be no recommendation, either for oil-fired heating or for you as an installer.

The biggest enemy of trouble-free operation is soot. Among other things, soot coats the inner surfaces of a boiler with a layer that prevents the heat given out by the burning oil from reaching the water in the boiler, so that the water doesn't get as hot as it should, and the burner uses more oil than it should.

## Soot causes

**What causes soot?**—Soot is caused by incomplete combustion—not difficult to understand when you realise that fuel oil consists roughly of 88% carbon (which is the same thing as soot) and 12% hydrogen. When oil is burnt in air, the oxygen in the air combines with the carbon and hydrogen of the oil to form carbon dioxide and water, respectively.

Oxygen + Carbon = Carbon Dioxide (CO<sub>2</sub>).

Oxygen + Hydrogen = Water (H<sub>2</sub>O).

Carbon dioxide and water are called the "products of combustion" and they escape up the flue, the water in the form of steam.

If there is not quite enough air to burn the oil completely, the hydrogen will still burn to give water and some of the carbon will burn to CO<sub>2</sub>. But some carbon will be left unburnt—and it is this unburnt carbon that forms the soot.

BY \_\_\_\_\_  
A SPECIAL CORRESPONDENT

**There's a limit to hot air.**—If the burner is making soot, it is because the oil is not completely burnt due to a shortage of air, so we increase the air supply until there is no soot. This is normal practice. But if too much air is allowed into a burner, the efficiency will fall off very quickly. It's easy to see why if we look at what happens inside the burner.

## Gives heat

When oil is burnt, each burning oil particle gives out heat. If this heat went directly into the water in the boiler there would be no problem. But, obviously, it can't. The oil particles are surrounded by the products of combustion (the CO<sub>2</sub> and water) and by the air coming into the burner, and it is into these—together known as the "flue gases"—that the heat first passes. Then, as these gases pass over the boiler surface they give up most (but by no means all) of their heat to the boiler. The heat they retain goes up the flue and is just a dead loss.

Now, if more air is allowed into the burner than is needed for combustion it simply increases the volume of the flue gases. The available heat from the combustion of the oil is therefore distributed over a larger volume of flue gases, which naturally carry away more heat with them when passing up the flue.

## Obvious

**The solution.**—So the answer to the problem is obvious—you have to allow enough air into the burner to achieve complete combustion—and no more.

While it is fairly easy to measure smoke directly, it is hardly possible to make a direct measurement of the amount of air entering the burner. So the problem is solved by indirect means—by measuring the concentration of CO<sub>2</sub> in the flue gases. This is not quite as complicated as it sounds.

## Complete

Ideally, 1lb. of fuel needs about 14½lb. of air for complete combustion; and that 1lb. of fuel oil, when burnt, will produce a definite, fixed amount of CO<sub>2</sub>. The mixture of this ideal amount of air with the CO<sub>2</sub> would give a concentration of CO<sub>2</sub> of about 15%. If the amount of air is increased, the concentration of CO<sub>2</sub> will be weaker—double the amount of air for the same amount of fuel will give about 7½% CO<sub>2</sub>, treble the amount of air will give about 5%.

It is therefore possible to produce a chart showing what variations in the concentration of CO<sub>2</sub> in the flue gases will result from various amounts of air per pound of fuel oil.

**What is excess air?**—Any air allowed into the burner in excess of the theoretical ideal of 14½lb. per 1lb. of fuel oil is known as Excess Air.

In practice it is impossible to achieve a perfect mixture of oil and air in the burner. To be sure of complete combustion is necessary to allow about 10% to 30% excess air, depending on the type and design of the burner.

**Basic Burner Adjustment.**—To recap, we can say that the initial adjustments of an oil burner have two objects:—

- To make sure that the fuel oil is completely burnt and that excessive soot is not formed. This is done by increasing the air supply until

from previous page

# SOOT CAN BE YOUR BIGGEST ENEMY

there is little or no soot in the flue gases;

- To make sure that as much as possible of the heat given out by the burning oil is usefully employed. This means reducing the heat lost in the flue gases as far as possible, by reducing the air supply to the burner. The amount of excess air supplied to the burner is indicated by the concentration of CO<sub>2</sub>, the smaller the proportion of excess air, and vice versa.

## Practice

**Practical Application.**—So much for basic theory. To put it into practice is not very difficult. All that is needed is a knowledge of what you're up to and a few simple instruments.

We've already said that perfection is impossible to achieve, and some excess air is necessary in every burner. So you make tests and adjustments

according to a definite sequence, providing the best possible compromise.

This is the sequence to follow:—

- Make a smoke test and adjust the air supply to give the correct smoke number, as recommended by the burner manufacturers.
- Check the draught and adjust the draught stabiliser as necessary.
- Check the CO<sub>2</sub> concentration in the flue gases and re-adjust the air supply to give the CO<sub>2</sub> reading recommended by the manufacturer.
- Re-test the smoke and adjust the air supply again, and repeat alternate CO<sub>2</sub> and smoke tests until the right values are obtained. Each adjustment of the air supply to correct CO<sub>2</sub> concentration will, of course, affect the smoke density, and vice versa, but the necessary adjustment grows smaller each time until the correct air supply is

achieved, giving the right values for both smoke and CO<sub>2</sub>.

## Money saved

**Savings.**—An increase of 5% in the CO<sub>2</sub> content of exhaust gases can represent a fuel saving of approximately 8%. Most people agree that money disappears rapidly enough these days and would banish instantly the thought of burning it in a boiler to produce soot and heat dissipation. Combustion instruments and combustion testing are matters which enable you ensure that your client will have money to bank, not burn.

- A number of combustion kits are available. A typical, and popular, one is the Fyrite Kit manufactured by Bacharach Ltd., and is distributed by H. R. Holfeld Ltd. of Stillorgan.

For efficient heating

# LOBITOS

## OIL FUELS





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

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

### *The Problem -*

Most modern domestic boilers operate at a relatively low flue gas temperature in order to obtain maximum efficiency.

Condensation of the products of combustion is consequently unavoidable and may result in serious staining on inside and outside walls, also other attendant troubles.

### *The Solution -*

By fitting the KOPEX Flue Lining Tube in the chimney flue condensation troubles are overcome.

APPROVED BY LEADING OIL COMPANIES SUITABLE FOR NEW AND EXISTING INSTALLATIONS Technical information is available on application to the manufacturers.

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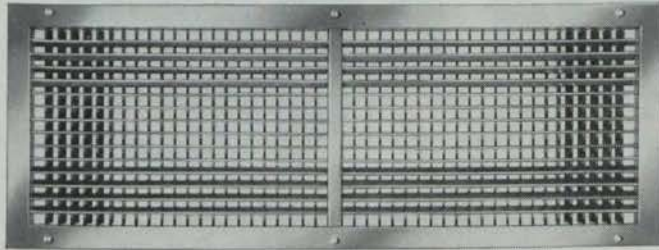
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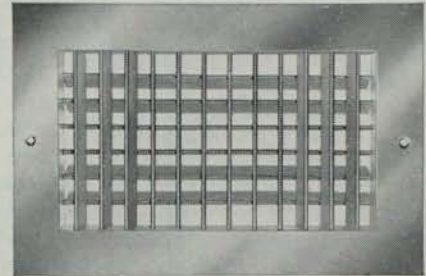
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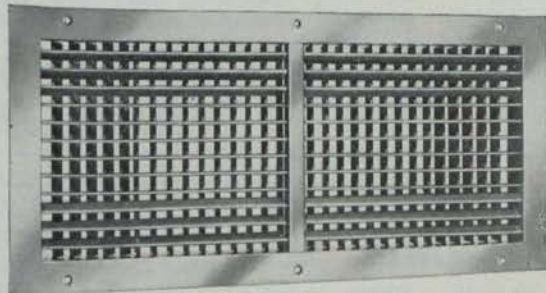
EXTRUDED ALUMINIUM — CLEAR LACQUER FINISH



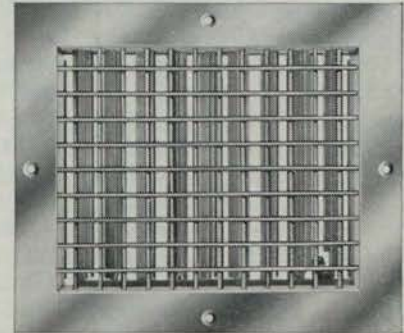
L.55 36" x 12" Double-deflection supply grille—horizontal face blades and vertical rear blades.



L.64 12" x 6" Double-deflection supply grille—vertical face blades and horizontal rear blades.



L.55 24" x 10" Double-deflection supply grille—horizontal face blades and vertical rear blades.



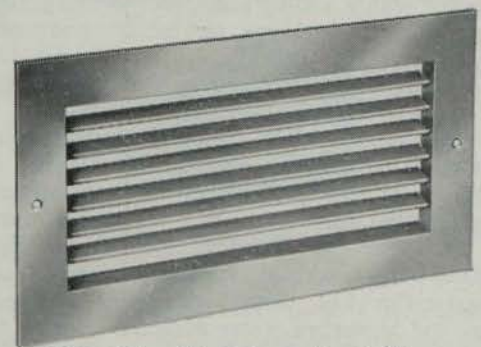
L.557 12" x 10" Double-deflection supply register — horizontal face blades, vertical rear blades—opposed blade damper.

"Greenwood's Lloydairé" Registers and Grilles provide a highly flexible means of air distribution for modern heating and air conditioning schemes in commercial and industrial buildings.

Supplied as standard in brushed extruded aluminium with clear lacquer coated finish, "Greenwood's Lloydairé" Registers and Grilles are available in a fully comprehensive range of sizes and arrangements to suit current architectural and engineering specifications.

Combining elegance with efficiency, they are light, robust and strongly resistant to corrosion.

Write today for literature on Greenwood's "Lloydairé" range of Registers and Grilles.



L.70 12" x 6" Return Air Grille—horizontal face blades set straight.

## Greenwood Airvac *ventilation*

GREENWOOD'S AND AIRVAC VENTILATING COMPANY LTD

ESTABLISHED 1879

PATENTEES, DESIGNERS AND MANUFACTURERS OF  
NATURAL AND MECHANICAL VENTILATING EQUIPMENT



BEACON HOUSE, KINGSWAY, LONDON, W.C.2.  
CHANCERY 8135 (4 lines). 'Grams: 'AIRVAC', LONDON

Agents and Distributors for Registers & Grilles

Published by ARROW@TU Dublin, 1962 TECHNICAL SALES COMPANY 79 Lower Leeson Street, Dublin. Telephone: 61662.

## PRODUCT REVIEW

Continued

THE SMALLEST of the Wallflame-type oil-fired boiler which is ideally suited for domestic central heating is a fully automatic unit which covers the 35,000 to 45,000 B.t.u.'s output range. It is suitable for installation in the kitchen because of the low hum level. This eliminates the necessity of an outside boilerhouse.

The recommended size of indirect cylinder for supplying hot water systems is 90 gallons, while for central heating a radiator heating surface of 265 square feet is given. Maximum fuel consumption is about 3 pints per hour.

All electric controls are mounted on one panel, which is easily accessible inside the unit and it is only necessary for one holding bolt to be taken out to remove the controls for inspection. Each new model is fired individually under working conditions on the test bed to ensure perfect operation before leaving the factory. The manufacturers are Henry Wilson & Company Ltd., Kirkby Industrial Estate, near Liverpool. The Irish agent: G. A. Reid, Esq., Fade St., Dublin.

★ ★ ★

KOPEX pliable blue lining tube—from Uni-Tubes Limited—eliminates the risk of interior and exterior wall staining, improves draught, checks brickwork corrosion and reduces degree of condensation.

Supplied with a sealing plate, clamp and wooden plug, Kopex represents a very compact flue lining.

This lining offers complete protection against condensation damage from flue gases. Irish agent and distributor: Technical Sales Co., 79 Lt. Mount Street, Dublin, who will supply full details.

★ ★ ★

FROM THE Satchwell range of the Rheostatic Co. Ltd., Slough, Bucks., we note the Motorised Valve designed to control the flow of low pressure hot water and saturated steam where the operating conditions are within the required pressure and temperature ratings.

The valve can be used to control individual radiators, zone heating or other equipment where on-off control by thermostat or other controller is required. The valve is a globe type with a high quality bronze body, made in sizes from  $\frac{1}{2}$ " to  $1\frac{1}{2}$ ". Three

stalling in pipework; (2) straight-through with radiator union; and (3) angle with radiator union. The gland has been specially designed to give long, trouble-free service and no adjustments are required. If after prolonged use it becomes necessary to renew the gland packing this can be done without difficulty.

★ ★ ★

IRISH TECHNICAL and Production Co. Ltd., 25 Upper Mount St., Dublin, have been appointed representative and distributor for Odest Swedish oil burner test sets. The "Mini" type is supplied in attractive zipped plastic carrying case and includes: CO<sub>2</sub> indicator, liquid draught gauge calibrated in inches, both these items made of unbreakable plastic; smoke pump indicator, 0-900 degrees F. dial type thermometer, all accessories supplied. The "Mini" set is priced at £30. The Company also supply the Odest pointer draught pocket gauge supplied in leather carrying case with telescopic nickel plated draught tube, 4" long extended. The calibrator is in inches.

The Company are agents in Ireland for the following range: Bruleurs Franci pressure jet burner and packaged units; Chappee Boilers—sectional cast iron boilers for oil and coal firing; and also solid fuel automatic magazine boiler, cast iron sectional from Chappee Boilers; Segor solid fuel magazine type automatic boiler steel construction, enamel jacket; Electroniveau fuel oil gauges, direct and remote reading; Portway Ltd. (England) Wallflame Package Unit; Bruleurs Francia bakers burners; Vapor (France) Instantaneous steam generators; Watco (France) water softener; Thermoflex (France) burners controls; Chappee steam calorifiers; Thermodare-Unidare electric heating infra-red; Monarch (U.S.A.) Nozzles for oil burners, and Segor (Paris) Heat Meter.

★ ★ ★

IDEAL-STANDARD have introduced 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.'s per hour



BUDERUS of Wezlar (Germany) have now introduced a new attractive finish to their boilers at no extra charge.

These boilers are available EX STOCK DUBLIN from the sole agents, Quadrant Engineers. The new finish is a soft enamel hammered insulated jacket with attractively rounded corners.

Buderus boilers can be fired by either oil, turf, anthracite, coke and gas. Available from 46,000 B.t.u.'s to 3,000,000 B.t.u.'s.

★ ★ ★

and their prices are the same as the PE series boilers (without electric control).

There is a new 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. Accelerator is pre-wired for plug-in connection to the 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 high flame.

The Irish agent for Ideal Standard Ltd., Ideal Works, Kingston-upon-Hull, is E. J. Cocker, Esq.

★ ★ ★

FROM VENNERS LTD. is the packaged boiler control unit Mark II, which comprises a neat panel fitted with a time switch, miniature socket for connecting various remote circuits and a six-way rotary switch.

Five sockets provide connections for mains input, room thermostat, solenoid gas valve (or oil burner) and accelerator pump, thus considerably simplifying the external wiring. This special facility enables a valve or circulating pump to be changed by the hot-water engineer without recourse to an electrician.

PRODUCT REVIEW  
Continued Page Thirty-five.

# BAXENDALE

*—the name you have learned to depend upon*

—INTRODUCE THE LATEST, MOST ECONOMICAL ADVANCE IN CENTRAL HEATING

## "BEANCO" SOLID FUEL HOME HEATING

The Beanco home heating unit with small bore piping can be readily and economically installed in existing houses or houses under construction. By suitable placing of the radiators, efficient background heating for the whole house—including hot bath water and heated towel rail—can be provided. The radiators are in handsome contemporary style designed to blend with modern decor. Note these other Beanco features:

- Special extra large back boiler and vitreous enamel slow-burning fire.
- 4 Radiators with screw-on brackets.
- 1 C.P. Towel Rail.
- 1 Circulating Pump.

AND IN ADDITION

- 10 Easy Clean Radiator Valves.
- 30 Gall Indirect Cylinder.
- 10 Gall Heating System Feed Tank with ball cock and ball.

Other Central Heating Systems available from Baxendale:

Redfrye Centromatic Vapourising Oil-Fired Boilers — fully automatic.

Wilson Vapourising and Jet fully automatic Oil-Fired Boilers.

Paulomatic Vapourising Oil-Fired Boilers.

Watts Gravity Feed Solid Fuel Boilers.

Trianco Gravity Feed Solid Fuel Boilers.

## BAXENDALE & CO. LTD.

PLUMBERS MERCHANTS . BUILDERS PROVIDERS  
715 Capel St., Dublin. 'Ph. 76711 (12 lines)

**NOW IS THE TIME TO VISIT**

# THE HEATING CENTRE

**162-164 Lower Rathmines Rd., Dublin**

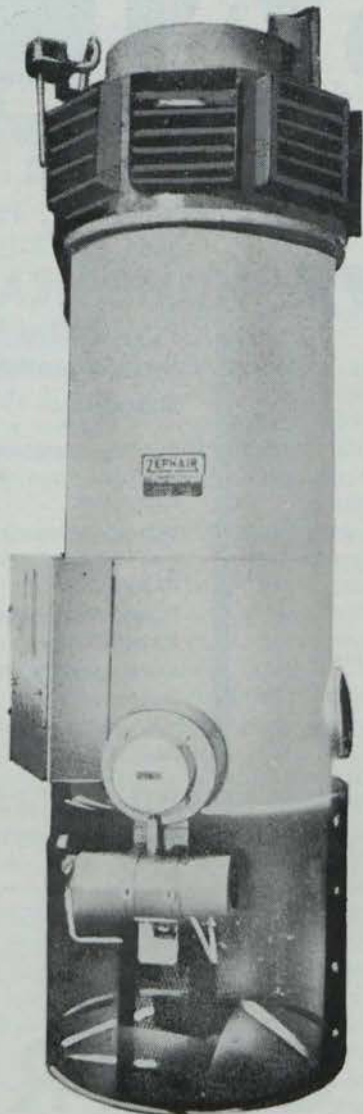
Telephone: 95733



Visit THE HEATING CENTRE, where you can see a full range of boilers, radiators, controls, etc., in operation. The Heating Centre is run and operated by leading heating engineers, and our staff of fully qualified personnel are in attendance to give FREE ADVICE on all problems relating to OIL-FIRED HEATING. We supply designs and estimates free and arrange speedy installations by experts. Customers can avail of the Esso Home Heat Plan. Under this plan repayments are spread over periods up to five years. The Heating Centre covers all aspects of Central Heating from the design stage to regular maintenance. This is backed by a full after sale maintenance service.

THE HEATING CENTRE is open on Mondays and Wednesdays from 7 till 9 p.m. in addition to the ordinary weekday hours of 9 a.m.—5.30 p.m. (Sat. 9 a.m.—1 p.m.).

**Don't Delay — GO TO-DAY**



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

# ZEPHAIR

## INDUSTRIAL AIR HEATERS

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

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

AND

## PREMIER OIL BURNERS

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

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

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

AGENTS FOR THE REPUBLIC:



# WELDRYTE LTD.

ARKLOW, CO. WICKLOW

**TRADE**

**TOPICS**

**PUMP CHANGE  
BY HARFORD**

FOLLOWING their policy of continual improvement and in answer to numerous requests by installers, Harford Pumps, Ltd., Harford House, 7-9 Charlotte Street, London, W.1, have replaced the glass inspection window on the Opimatic Pump with a combined vent and clutch unit which fulfills three important functions:—

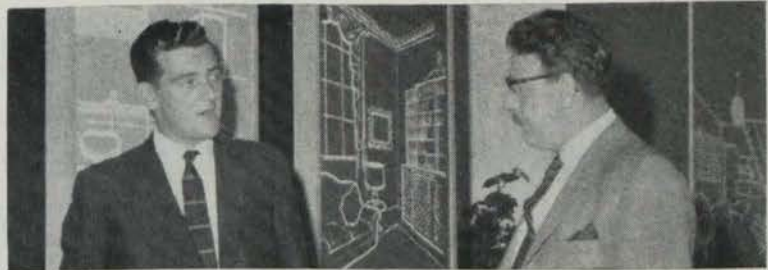
- 1—The direction of rotation can be sensed by slightly depressing the clutch button.
- 2—Depression of the clutch button will also purge all air from the pump with minimum water overspill; and (3)—Should it be necessary to free the shaft, for instance, after an unusually extended period of idleness, no dismantling whatsoever is necessary.

Another new feature is a small, compact, extra-slim, cylindrical condenser of completely new design.

**FUEL STUDY  
OF BUILDINGS**

DURING the heating season 1960-61, temperatures and fuel consumption were recorded in four buildings, of fairly light construction, states the report of Director of Research in the 6th annual report of the Heating and Ventilating Research Association, Bracknell, Berkshire.

For the first half of the season the buildings were heated intermittently, as was the usual practice, while for the second half, heating was continuous day and night and at weekends. The saving of fuel possible by intermittent operation of the plant when the building is occupied nine hours a day, for five days a week, is of the order of 25-30%. It is much lower when, as in one case, night set-back only is employed, the saving then being only 5%. The difference here is due to the delayed cooling of the building.



**POTEZ APPLIANCES AT  
OLYMPIA**

Mr. F. J. Reihill, Director, Tedcastle, McCormick & Co. Ltd.—concessionaires for Potez in Ireland—discusses with Mr. T. H. Tirkell, General Manager, Potez Industries of Ireland Ltd. (U.K. Sales), the range of Potez heating appliances seen recently at the HEVAC exhibition.

Also pictured here is one of the models shown at Olympia.



**NEW HEATING COMPANY**

SCOFFIELD & SONS, Ltd., registered office, 14 Mayfair, Arthur Square, Belfast, is the name of a new private company registered to carry on the businesses of heating engineers, ventilating engineers, mechanical engineers, sanitary engineers, etc.

The Nominal Capital—£5,000—is

divided into 5,000 shares of £1 each. Names and descriptions of Subscribers to Memorandum and Articles of Association (Subscribers of One share each): Joe Scofield, heating engineer, and Lily Scofield, married, both of 19 Fergus Avenue, Carrickfergus. Names of First Directors are not stated.

**Instantaneous HOT  
WATER from steam—  
without storage**

Cox Steam and Water Mixers deliver from 50 to 24,000 gallons per hour.

They operate with the highest efficiency at all pressures. Silent, efficient, compact and easy to install, replacing bulky and costly calorifiers

**MODELS:**

- ★ (1) BABY COX (½") for wash-basins, sinks, etc.
- ★ (2) JUNIOR COX 1—5 (¾"—2") for process work, vats and general purposes.
- ★ (3) SENIOR COX (2½"—8") for large volumes of hot water for process hot water supplies.

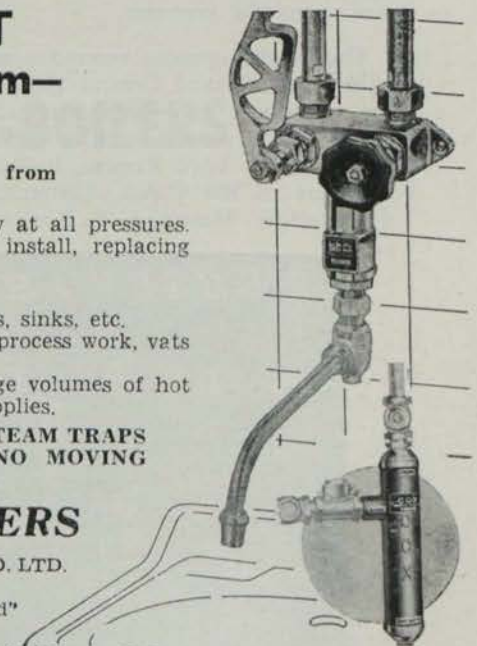
**NO TIME LAG - NO STORAGE - NO STEAM TRAPS  
NO LOSS OF CONDENSATION - NO MOVING  
PARTS TO GO WRONG**

**COX WATER HEATERS**

Manufactured by COX ENGINEERING CO. LTD.  
Dept. IP.8., 14 Park Lane, Sheffield, 10.  
Tel.: 62483. Telegrams: "Heaters Sheffield"

**Agents:**

Halpin & Hayward Ltd., Unity Buildings, 16-17 Lower O'Connell St., DUBLIN. Tel. 43270.  
Bedford Buildings, 7 Bedford St., BELFAST. Tel. 26343.



**TRADE**

**TOPICS**

*From The Contractor's  
Northern Correspondent  
where heating centres are news*

## **LORD ROBENS SPEAKS OF THE NORTHERN MARKET**

**L**ORD ROBENS, Chairman of the National Coal Board, last month officially opened the Coal Advisory Service Housewarming Centre in Belfast. The Coal Advisory Service is the joint organisation of the National Coal Board and the Northern Ireland Coal Importers' Association, and the Centre is run on similar lines to the C.U.C. and N.C.B. Housewarming Centres in Britain.

In the morning, Lord Robens paid an informal visit to the Centre, accompanied by Mr. F. Wilkinson, Marketing Member, N.C.B., and Mr. J. S. Williams, Deputy Director General of Marketing, N.C.B. He was met by the Chairman of the C.A.S., Mr. C. Neill, and the Manager, Mr. D. G. Barrett, who showed him round the premises.

The official opening ceremony was held in the Grand Central Hotel in the afternoon, at which some 250 guests were present. The official party, led by Lord Robens, included members of the C.A.S. Committee, the Trustees, Messrs. J. S. Kennedy,

J. S. Williams and J. S. Fisher, and Sir William Scott, Chairman of the Northern Ireland Coal Importers' Association.

Lord Robens, who was welcomed to Northern Ireland and introduced by Mr. Charles Neill, spoke about the importance of the Northern Ireland market to the N.C.B., and its intention or retaining this market. Lord Robens stated that the consumer was of vital interest and that the Housewarming Centre in Belfast had been opened in order to help the public. He had the greatest pleasure in declaring the Centre open.

He was thanked by Mr. J. S. Kennedy, who stated that the Northern Ireland Coal Importers' Association were fully with the N.C.B. in its sales efforts.

Guests at the opening included Ministry of Housing officials, appliance distributors, heating engineers, architects, appliance manufacturers, trade union leaders, coal importers and representatives from women's organisations.

## **NEW CENTRE IS TO DISTRIBUTE PERKINS BOILERS**

**T**HE Ulster Heating Centre, which has just been opened at 90 Cromac Street, Belfast 2, in conjunction with the long-established business of Ernest Wilson Limited, will distribute throughout Northern Ireland the products of Perkins Boilers Limited.

This is a wide range of domestic and industrial boilers suitable for oil, gas or electric firing. Therefore the Centre will provide plumbers, heating engineers, consultants, architects and all interested parties with a showroom where the various types of boiler can be seen under working conditions.

Recently Perkins have developed a "Mini" Boiler which has a very high level of efficiency. There is a wall mounted model which can be fitted into a slot in an 11" cavity wall and this facilitates servicing from outside the dwelling house.

This model is designed on a balanced draught, and the Popular Model, with the output of 25,000 to 50,000 B.t.u.'s per hour, is listed at £72 0s. 0d. Perkins has recently designed these also in free standing and kitchen models, and also a 100,000 B.t.u. Pressure Jet Mini Boiler for rapid heating of the larger residence.



# DAVIDSON'S M.D. ON GLOBE TROTTING TOUR

**MR. D. R. S. TURNER**, Managing Director of Davidson & Co. Ltd., Belfast, makers of the Sirocco range of industrial fans and ancillary equipment, left London Airport last month on the first stage of an international sales tour which will occupy some two months and which will take him completely round the world, via the U.S.A., New Zealand, Australia, Indonesia, Singapore, Ceylon, India, Pakistan and Iran.

During the tour Mr. Turner will visit the Company's agents and subsidiary manufacturing concerns in the various countries and will carry out on-the-spot assessments of trade possibilities with industries ranging from electrical power production to tea growing. An important item on his itinerary was a visit to Melbourne, where he attended the World Power Conference at the end of last month.

He is scheduled to arrive home in Belfast in early December, after a round trip of more than 35,000 miles.

## NEW BELFAST COMPANY

A NEW private company has been registered in Belfast to carry on the business of heating and general electrical engineers and contractors, etc. The firm is Boiler Efficiency Services (Belfast) Ltd., with registered office at 68 Orby Road, Belfast. Nominal capital is £1,000 divided into 1,000 shares of £1 each.

Names and descriptions of Subscribers to Memorandum and Articles of Association:—Subscribers of one share each: Robert Stothers, director, 379 Upper Newtownards Rd., Belfast; Thomas Stothers, director, 8 Cloverhill Park, Belfast; and Dennis Wilson Stothers, director, Carezza, Carney Hill, Craigavad, Co. Down. Names of First Directors:—The foregoing are first directors:

● "Heating, Air Conditioning and Refrigeration Weekly" is the title of a new British publication catering for the heating trade, which includes air conditioning, ventilating, refrigeration, fan engineering and many allied trades. It appears every Tuesday.

## TWO NEW PRESSURE GAUGES

FOLLOWING the successful introduction last year of a specially designed four-inch Economy Pressure Gauge, Buchanan Brothers Ltd., Commerce Street, Glasgow, announce two new models, of 2-inch and 2½-inch dial sizes.

The new gauges employ the well-proved quadrant and pinion mechanism as on the earlier instrument but offer additional features, which include vertical and bottom or centre-back connection, with front panel mounting if required. The range of pressure has been extended to 3,000 p.s.i., and the scale markings are of the "Easiread" type.

# Perkins

## MINI-BOILERS

at the

# ULSTER HEATING CENTRE

90 CROMAC STREET  
BELFAST

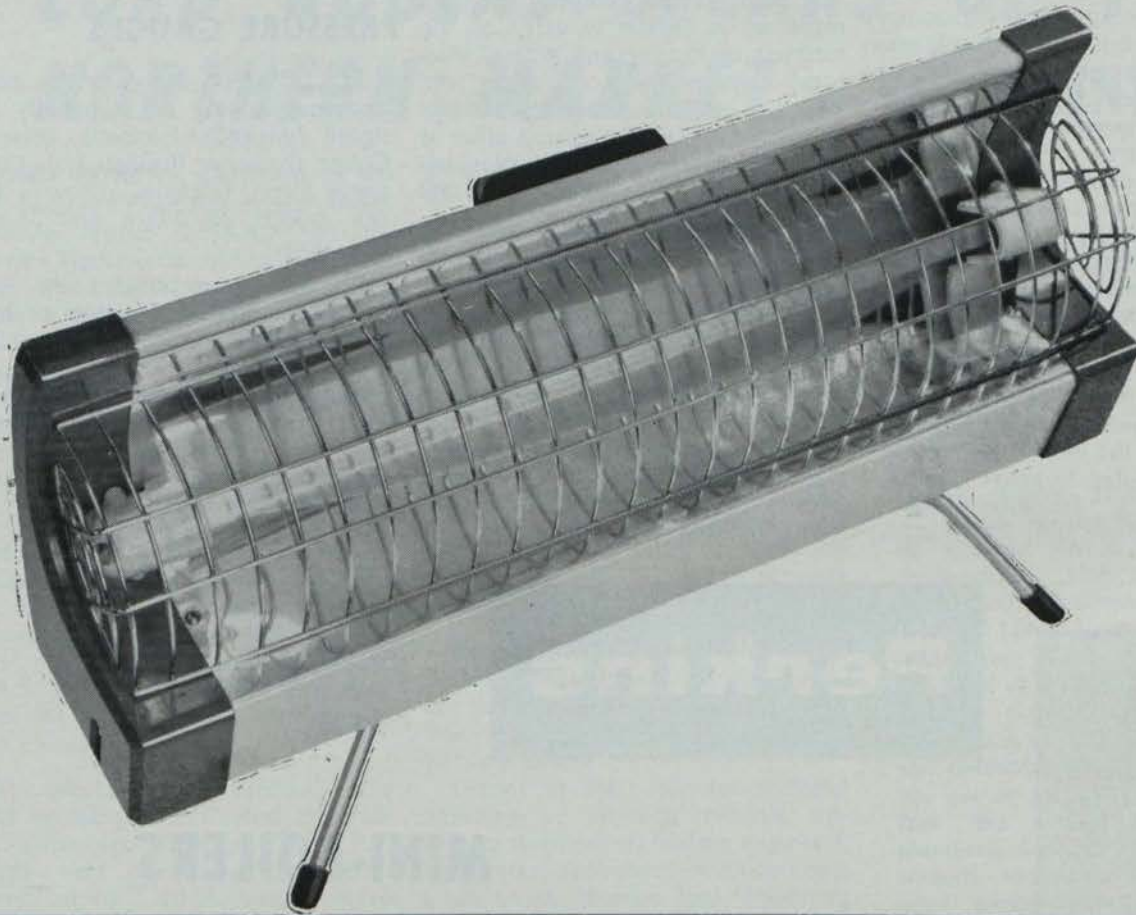
GIVE YOUR CUSTOMERS THE FULL  
FACTS ABOUT CENTRAL HEATING

WRITE OR CALL FOR CONSUMER BOOKLET.





# **NOW | A PORTABLE THERMODARE INFRA RED HEATER FOR CHRISTMAS**



**REMEMBER TO  
STOCK  
THERMODARE  
PORTABLE  
HEATERS**

Big, **BIG** advertising is on the way for portable Thermodare infra-red heaters this Christmas! A hard-hitting advertising campaign will establish portable Thermodare heaters as **THE IDEAL CHRISTMAS PRESENT**—attractive in appearance, wrapped in gaily coloured Christmas foil, and reasonable in price. Last year Thermodare Heaters sold faster than we could make them. This year we are ready! Are you? **STOCK UP NOW!** The advertising will create an unprecedented demand. Make sure that you will be ready to meet it!

**Thermodare Infra-Red Warmwave Heaters**



Manufactured by

**Unidare Ltd., Finglas, Dublin 2. Phone 71801**

# VENNER TIME SWITCHES SEEN AT DUBLIN EXHIBITION

**T**HE exhibition of time switches presented by Venner Ltd. (Surrey) in conjunction with their Irish Agents, Messrs. Roper Bros. Ltd., 5 South Anne Street, Dublin, held in the Shelbourne Hotel, Dublin, last month, attracted a large number of heating engineers, contractors, officials of E.S.B., Board of Works, and members of the Trade.

It was the first display of its kind in Ireland by this world wide known firm, whose products rank high in this particular field. Mr. H. G. Towner, Area Sales Manager for Messrs. Venner, whose territory covers not only Ireland but Southern England, had on display a most informative collection of various types of switches which his firm market.

Released for the first time in Ireland by Venner was the Seven Day Programme Switch Type PS7, which is particularly suitable for the control of a heating system or a similar installation operating for a weekly programme.

The daily switching times are clear to view on one master dial, which is easily set by the average caretaker or boilerman. There



● Electrical engineer Mr. O'Mahoney with Mr. H. G. Towner, Area Manager Venner Ltd., discuss the new signal timer for programme ringing.

● Mr. T. H. Roper, Managing Director, Roper Brothers Limited.



are no secondary dials to be synchronised and no pins to be inserted or removed to omit or vary the switching times on any selected day.

The time switch dial rotates once in seven days and is divided into seven equal segments. Each segment is marked with the day of the week, the hours of the day appearing in one hour graduations. The switchgear is operated by fitting a switching sector to the periphery of the dial, the leading edge of the switching sector being in line with the time of the day at which it is required to switch "on."

There is no "off" switching sector. The switch is held closed by the "on" sector and therefore the duration of the "on" period is determined by the width of the sector as it passes over the switch-toggle holding the switch in the closed position. As the "on" sector clears the switch-toggle, pressure on the switch is released and it immediately opens.

## TRADE

## TOPICS

The standard widths of "on" sectors are equal to one, two, four or eight hours, but any number of sectors may be abutted to obtain longer or intermediate periods. Thus, six hours "on" would be obtained by abutting a four-hour and two-hour sector, twelve hours by abutting an eight-hour and four-hour, or fourteen hours by an eight, four and two-hour. If no "on" switching is required, say, on Sunday, then no "on" sectors would be fitted to that day.

The setting of a complicated weekly programme is simplicity itself. (List price, £12 5s. 0d.).

Another new unit was the Venner Signal Timer, for time signal control in offices, factories and schools. It is designed to provide accurately timed signals by closing a switch for a brief period at various intervals during the day. (List prices: Signal Timer, £25, and Auxiliary Timer, £22 17s. 6d.).

Messrs. Roper Bros. were represented at the exhibition by Mr. T. H. Roper, Managing Director; Mr. T. T. Moore, Mr. C. Campbell, and Miss A. Nicholson (record secretary).

# PATENTS

## No. 19715 — METHOD AND DEVICE FOR THE PURIFICATION OR TREATMENT OF LIQUIDS

● The proprietors of the above Patent desire to enter into arrangements, by way of Licence or otherwise, for the exploitation of the Invention in this country.

● Apply in the first instance to: TOMKINS & CO., Patent and Trade Mark Agents, 5 Dartmouth Road, Leeson Park, Dublin, 6.



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

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

# SANITARY APPLIANCES IN GENERAL

**SANITARY** appliances can conveniently be divided into two groups:—

1—Soil appliances, designed for the collection and discharge of excretory matter. A W.C. pan is a typical example.

2—Waste appliances, for the collection and discharge of water used in washing and cooking. A lavatory basin would be used in a bathroom, and a sink in the kitchen.

Every house has a soil fitment in the form of a W.C. pan, and also a kitchen sink. Many have a lavatory basin for washing, but it is perhaps surprising to discover the relatively large number of older houses that do not yet have baths.

**Design of Sanitary Appliances.**—Sanitary appliances are of many types, designs and materials, but the dimensions that are important in their fixing—height, width, pipe connections, positions and so on—are all made to British Standards. Thus appliances are reasonably interchangeable, and this is very helpful in the replacement of damaged appliances and in the pre-fabrication of pipework.

## Durability

**BESIDES** having suitable strength and durability, sanitary appliances are expected to have a pleasing appearance, and above all to be hygienic. To this end, good design aims at simplicity of line. Crevices which might harbour dirt or harmful germs are avoided.

The appliance must be, as far as

possible self-cleansing. All inside surfaces of a W.C. pan, for example, should be effectively washed by its flushing water. All lavatory basins, baths and sinks should have a natural, self-draining action, and all appliances should have smooth, easy, clean lines and surfaces.

## Materials for Sanitary Appliances.

—The basic requirements of materials used for sanitary appliances are that they should be impervious to water; that is, that they should not absorb water or allow it to pass through them, and that they must be strong.

Advances in the development of materials and design, coupled with a growing public demand for better looking and more easily cleaned appliances, have resulted in a wealth of new ideas for sanitary ware.

## Much used

**PRESSED steel**, either stainless or vitreous enamelled, is now very much used for sink and drainer units, lavatory basins and even baths.

They are also being made in **plastic materials**, notably nylon.

**Cast iron** baths are common, but although lavatory basins have been made in this material they do not appear to have become very popular. On the other hand, kitchen sinks with drainers in cast iron do seem to be gaining in favour, especially for low cost rented dwellings, where equipment must be able to stand up to hard wear.

**Ceramic ware** is the up-to-date term for pottery ware or fittings made from moulded and "fired" clays. For many years, sinks, lavatory basins and W.C. pans have been made in one form or another of this material. At the moment, indeed, it is the only material in which W.C. pans are made. But the rapid development in this field may soon bring W.C. pans in other materials.

Ceramic ware, however, has all the qualities necessary for sanitary equipment. It lends itself to easy moulding into hygienically simple outlines. It is of ample strength, and its smooth surfaces are easily cleaned, giving no hold to dirt or germs.

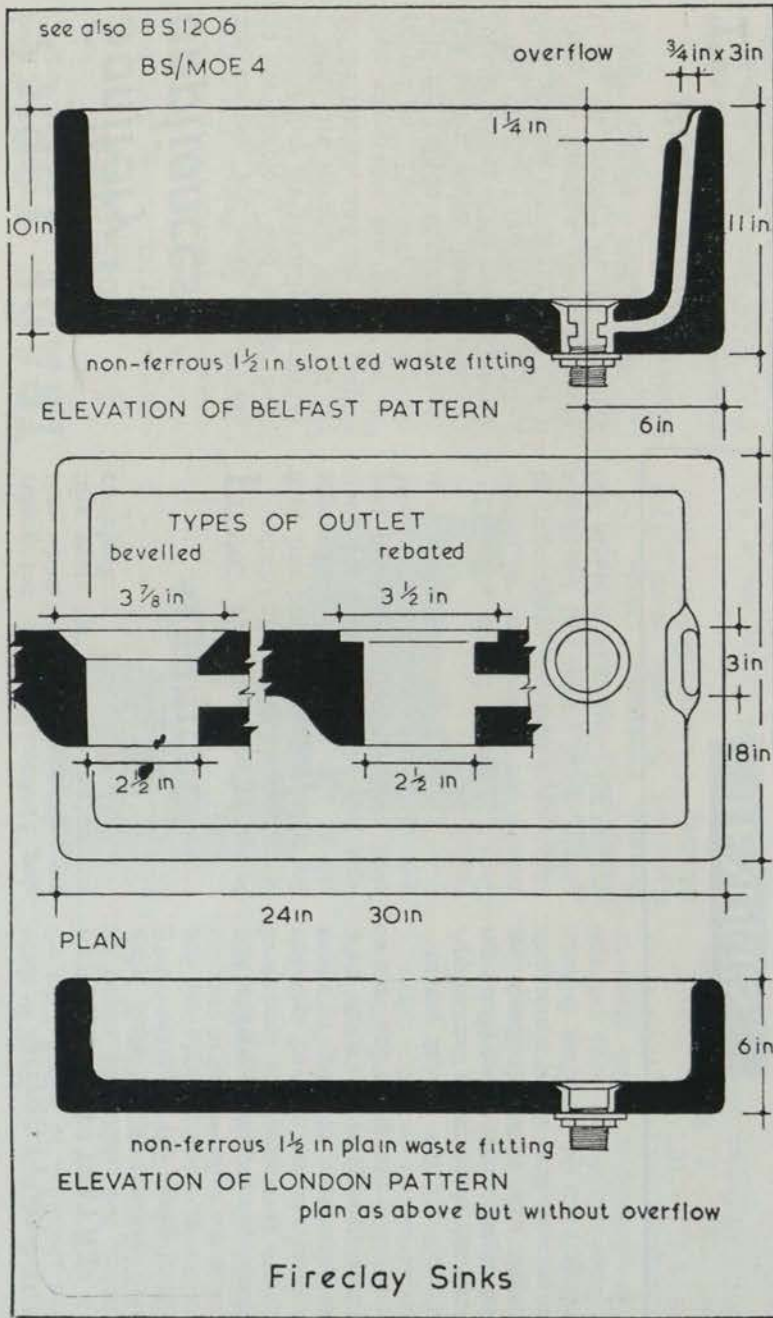
## Robustness

**FIRECLAY** is a form of ceramic ware noted for its robustness. It does absorb water but it can easily be made impervious by use of the famous white glaze, applied during the manufacturing process.

W.C. pans and lavatory basins are made of **vitrified china ware**. "Vitrified" means glasslike; and it is well known that glass is impervious to water. White or coloured glaze is therefore only used on these fittings for the sake of appearance, and to make them easy to clean.

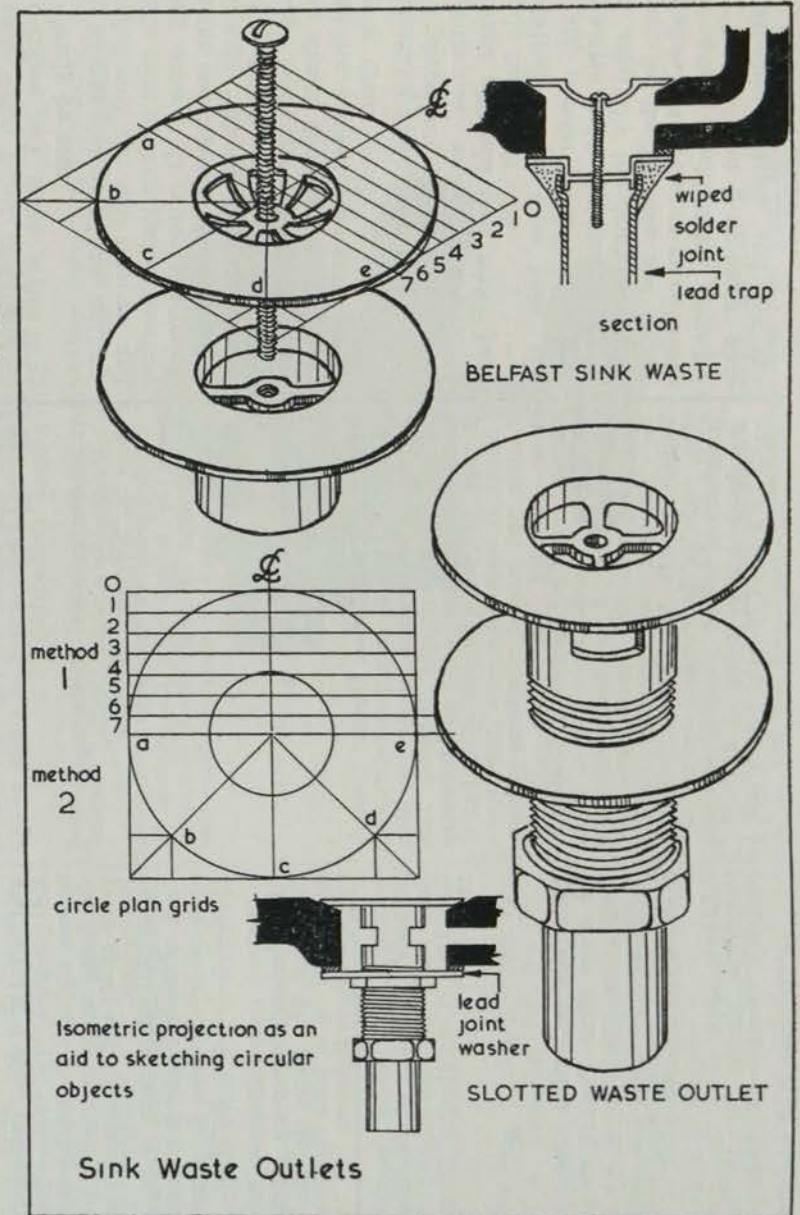
**Fireclay Sinks (B.S. 1206 and B.S./MOE.1/7).**—These waste appliances in white glazed fireclay are solid, strong and reliable. They can-

See illustrations opposite and continuation on page thirty-four



**Sanitary  
Appliances**

See text  
opposite



from previous page

## Sanitary appliances

not corrode, are easily kept clean, do not discolour, and unless badly misused they are virtually everlasting.

Sinks are intended simply for use in the kitchen, and for this purpose their appearance can hardly be improved on. They will combine easily with the built-in fittings, cupboards, and so on, which have become a popular feature of the modern kitchen.

The "Belfast" fireclay sink is 10ins. deep, and the commonly used size is 24ins. in length x 18ins. in width. It has an overflow of the weir type in order to make it easy to clean.

### Both kinds

**T**HES integral overflow discharges into the sink's waste outlet, as is shown here. The sink outlet fitting, which has a 1½" standard diameter, is usually made of chromium-plated brass. It may be of the pattern specially devised for use with this type of sink, or it may be a fitting of the slotted waste outlet type, similar to that used for lavatory basins.

Our sketches show both kinds of waste outlet fitting, and the path of overflow and waste water flows can clearly be seen.

A kitchen sink is seldom left unattended with the taps running, and so it is most unlikely that an overflow would occur. It is for this reason that the combination of the overflow discharge with the waste discharge is allowed, although the Water Undertaking's Bye-Laws require that overflows should discharge in an easily seen place, and **not** into a gutter, waste pipe or drain.

A suitable waste outlet plug secured by a chromium plated chain completes the sink's equipment, apart from its waste pipe and trap, which have already been dealt with.

"Belfast" sinks have been, and still are, popular for home laundry. The ample inside dimensions of the sink, especially its depth, are convenient for the washing and rinsing of clothes. Now that so many homes have washing machines, the depth of the "Belfast" sink is no longer such an attractive feature and for this

reason the shallow "London" pattern, which was the only choice some fifty years ago, is now making its comeback.

## Argument

**FIXING Height.**—The height at which kitchen sinks should be fixed has been the subject of much argument. A common rule in the trade has been to set the sink support brackets two feet above floor level, so that the top edge of the sink is at a height of 2ft. 10ins.

This has proved reasonably convenient for most people, but it must be remembered that there is no standard height for human beings, therefore, and in order to satisfy the various

needs of the "long, and the short, and the tall," a sink of adjustable height seems to be called for. This is by no means impossible, but unfortunately, since much tiredness results from working at the wrong level, no one has bothered about it.

Working-top heights in kitchens have been standardised at 3ft., and sink tops have to conform with this height in order to match up with other items of equipment, such as cookers and refrigerators.

Clause 313 of C.P.305 "Sanitary Appliances" recommends that the fixing height to the top of single draining boards should be 3ft. Presumably, short people will have to continue to make do by standing on a box.

## TENDERS

**COUNTY Kilkenny Vocational Education Committee.**—Tenders are invited for the complete Central Heating Installation at Slieverue Technical School, Co. Kilkenny.

Drawing, specifications, Conditions of Contract, may be obtained at the offices of Cunningham and O'Coilainn, Architects and Engineers, 74, High Street, Kilkenny, on payment of a sum of five guineas (refundable).

Tenders, in sealed envelopes, endorsed "Tenders for Central Heating Installation in Slieverue Technical School," together with all Contract Documents, must be lodged with Cunningham & O'Coilainn, 74, High Street, Kilkenny, not later than 12 noon on November 26, 1962.

★ ★ ★

**TULLAMORE Urban District Council.**

—Water Supply Improvement Scheme.—Tenders are invited for the provision of 10 watering troughs complete with water connections and all necessary fittings in the Clonaslee (Co. Laois) district, in accordance with plans, specification and general conditions of contract prepared by Messrs. P. H. McCarthy & Son, Consulting Engineers, 26 Lower Leeson St., Dublin, from whom copies of contract documents and any further particulars may be obtained on payment of a deposit of £10 10s. 0d. (refundable). The works to be executed include the construction of 10 concrete watering troughs and the laying of 3,710 lin. yards of 2 inch, 1½ inch, 1 inch and ½

inch P.V.C. piping, together with ancillary works. Tenders, in sealed envelopes, suitably endorsed, will be received by the Town Clerk, Courthouse, Tullamore, up to 5 p.m. on November 22, 1962.

★ ★ ★

**DUNDALK Urban District Council.**

—Extension To Water Distribution System No. 2.—Tenders are invited for the laying of approximately 4,452 lineal yards of 3" and 4" diameter and PVC. Watermains in accordance with the Drawings, Specification, General Conditions of Contract and Bill of Quantities, prepared by Thomas G. Kenny, B.F.E., M.I.C.E.(I.), Town Surveyor.

Contract documents may be obtained from the undersigned on payment of a deposit of £5, which shall be returned on receipt of a bona fide tender not subsequently withdrawn.

Tenders, in sealed envelopes and marked "No. 2 Water Extension," shall reach the undersigned not later than 5.0 p.m. on Monday, December 10, 1962.

★ ★ ★

**BARDAS Atha Cliath.**—Supply of One Axial Flow Fan (4,400 c.f.m.).—Specification, tender forms, etc., for the above may be had from Engineering and Town Planning Department, 28/29 Castle Street, Dublin 2.

Latest date for the receipt of completed tenders is 12 noon on Saturday, December 8, 1962.

## TWYFORD'S LATEST RANGE

TWYFORD'S latest range of "Adamant" Glazed Fireclay Sinks is now being made with either or both top edges of the ends rebated to take the edges of laminated plastic working tops applied to fitted cabinets. The use of waterproof mastic for "bedding-down" the top in the rebate ensures a permanent leakproof watertight joint and simplifies the task of fitting an adjoining cabinet to sink. There is only a very small charge for pre-rebating the top edge of the sink.

The various British Standard normal type sinks without rebated top edges are of course still available, but in either case the standard Belfast, back-ledge and double bowl patterns can be obtained in British Standard sizes ranging from 18" x 15" x 8" up to 42" x 21" x 10".

Irish agent: T. R. Levers, Esq., Corry, Corr Bridge, Sutton, Co. Dublin.

## NEW GAUGE

THE New "Alti-Level" tank contents gauge produced by The British Steam Specialties Ltd. is 4" in diameter and is screwed  $\frac{3}{8}$ " BSP, the shank being complete with an oil resistant washer.

This gauge is for use with domestic oil fuel tanks and can be supplied for tanks ranging from 3' 6" to 8' deep, and for fuel oils from 35 secs. to 3,000 secs. Redwood No. 1.

The gauge is completely automatic in operation, is mounted directly into the draw-off pipe from the tank, and can be supplied calibrated in fractions of contents or in gallons.

Irish Offices are at 33 Leeson Park, Dublin, and 98 Lisburn Road, Belfast.

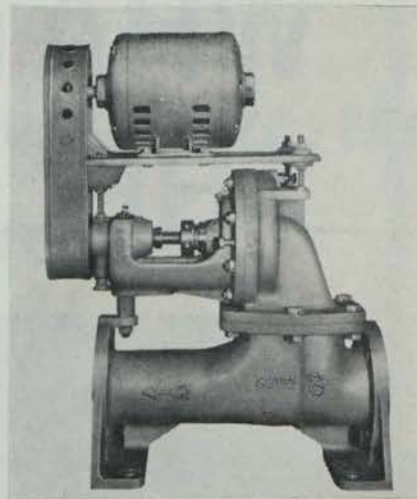
## PRODUCT REVIEW

*from page twenty-four*

WITHIN two weeks of being appointed U.K. Licensees for the Perfecta electrically driven central heating circulator pump, Charles Winn & Co., Ltd., had all components and plant transferred from the previous licensees to their Birmingham factory—and were in production.

Irish agents: J. S. Lister, Ltd., Dorset Row, Dorset St., Dublin, 1.

*Continued page thirty-eight*



AN IMPROVED, simplified model of their Criton full flow circulator heating pump has been produced by Sigmund Pulsometer Pumps Ltd., Gateshead, Newcastle - upon - Tyne (Heating Division, Oxford Road, Reading).

The improved Criton has a new patented gland which completely isolates the unit without the need for valves, enabling the stuffing box to be repacked with the pump under full pressure.

The unit is entirely sealed by a

## TRADE TOPICS

### REDESIGNED

INSTRUMENT casings for their range of temperature, pressure and vacuum chart recorders have been redesigned by the British Rototherm Company to provide a slimmer, more compact unit. In addition, the design is such that any individual instrument is now suitable for both wall and panel mounting.

The re-styled casing is standard for all three types of recorders, with single or dual pens. The size of the charts remains unaltered but the case is nearly two inches less in width. The complete unit is also shallower in depth and projects less from the face of the panel. Irish Agents: The Rototherm Precision and Instrument Co. Ltd., Beechwood, Church Road, Killiney (Co. Dublin).

quarter-turn of the stuffing box. There is full bore gravity flow when the pump is stopped. Range coverage is up to 350 g.p.m. with a total head of 25 ft.

The price of the new Criton will be 20-25 per cent. lower than the previous model.

## THE NAIROIL AUTOMATIC OIL BURNER

● Gives you economical, trouble-free operation, minimum maintenance and long service—at a moderate price that makes oil heating available to every home.



*for details, contact:*

**CHAS. WARREN & CO., LTD.**

**122 St. Stephen's Green, Dublin, 2.**

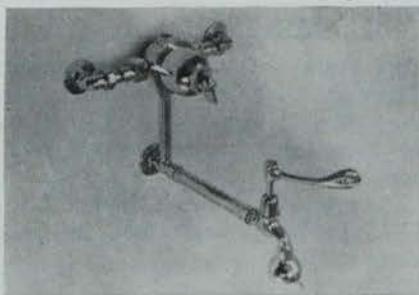
Ask also for details of "Nairoil" oil fired steel warm air furnaces.

**TRADE**

**TOPICS**

**NEW MIXING VALVE**

**W**ALKER, Crosweller & Co. Ltd., of Cheltenham, have introduced a new Leonard Model 3M thermostatic mixing valve with surgeons' elbow fitting for hospital applications. Outwardly very similar to the Company's previous design, this new valve, though developed for standard ½-inch plumbing, is, in fact, of equivalent capacity to a ¾-inch valve.



The effect of the greater capacity is to give a wider apparent band of selection with smoother and more gradual change of temperature throughout the scale. The complete unit (shown) includes non-return valves on the inlet and outlet sides of the valve and elbow operated spray tap. Irish agents are Modern Plant Ltd., Crumlin Road, Dublin.

**£¾M. expansion**

AN EXPANSION programme, costing about threequarters of a million pounds, which is aimed at doubling the production of Key pitch fibre pipe by the end of next year, has been announced by Mr. K. A. Skinner, director and general manager of The Key Engineering Co. Ltd.—a member of the Reed Paper Group.

Developments in the plastics industry which might be advantageously included in the pipe system are continually being studied and already a full range of fittings is being manufactured in plastics. Irish Agents:

Modern Plant Ltd., Crumlin Road, Dublin 12, Ireland. (Dub-11427/D7Q136)

# WHATEVER THE JOB...

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

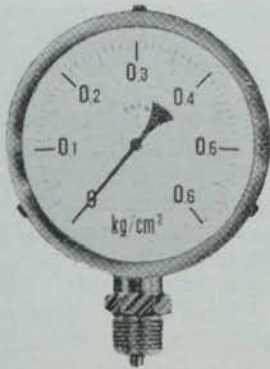
there's a special  
**FIBREGLASS INSULATION**  
that's made for it

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

**Monsell Mitchell & Co. Ltd., 67/73 Townsend St., Dublin, 2**

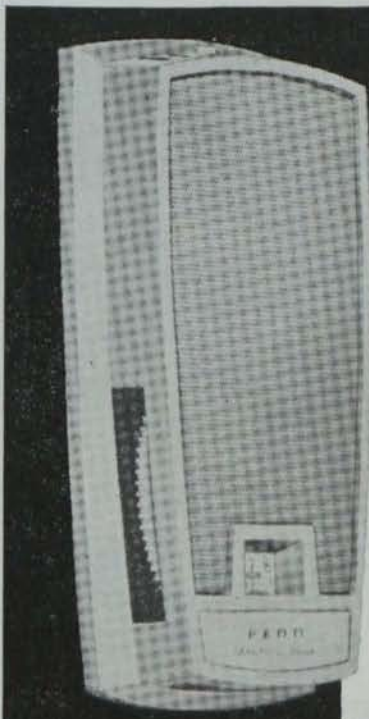
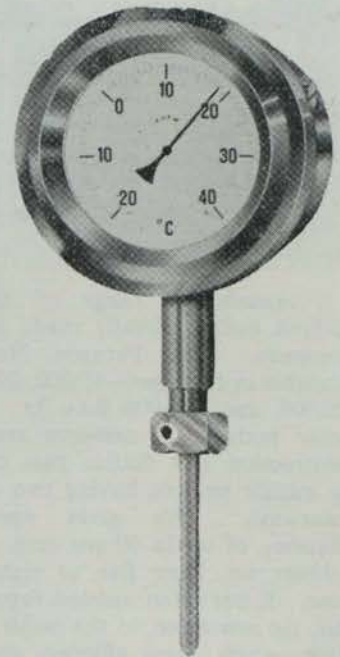


**21 MERRION SQUARE DUBLIN**



● A complete line of Gauges always in stock.

# Investigate the Manotherm Range of Gauges and Corrosion Resistant Thermometers —



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

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

### ▲ Easier to wire

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



### ▲ Decorator Panel

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

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

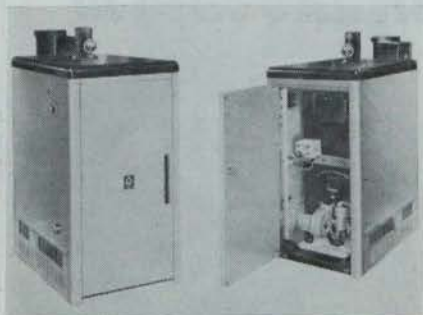
# MANOTHERM LTD.,

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



*The Irish Plumber and Heating Contractor.*

A NEW oil-fired boiler for heating the larger homes from the range of Ideal Standard Ltd., is the Ideal No. 2 Paragon (here illustrated).



It extends the range of smaller oil-fired boilers already made by the Company. The Paragon No. 2 is available in two sizes—80,000, 100,000, 120,000, and 140,000 B.t.u./hr. The boiler body is of cast-iron sectional construction and double pass design, the middle sections having two crown waterways. This gives operating efficiency of up to 80 per cent.

There are from five to eight sections. It has a fan assisted vaporising unit, jig assembled to the boiler front plate, which gives efficient and accurately controlled combustion, operating on the high/low principle.

★ ★ ★

THE PAULOMATIC 20 oil-fired domestic boiler converts oil into heat efficiently and economically. It gives a heat output of 23,000 B.t.u.'s per hour and is thermostatically controlled—once set to the required amount of heat it cannot overheat. The boiler is housed in a sheet steel stove-enamelled cabinet with a stainless steel top and hot plate. Its overall dimensions are: height, 31"; width, 18", and depth, 24".

The manufacturers, W. H. Paul Ltd., Breaston, Derby, also produce two paraffin room heaters giving radiant and convected heat. The Warma has a heat output of 8,000 B.t.u.'s per hour and will burn for 16 to 18 hours on one gallon of fuel. It measures 16½" high, 18½" wide, and 15" deep, has a stainless steel reflector and cylinders and is finished in either two-tone hammer bronze or mushroom.

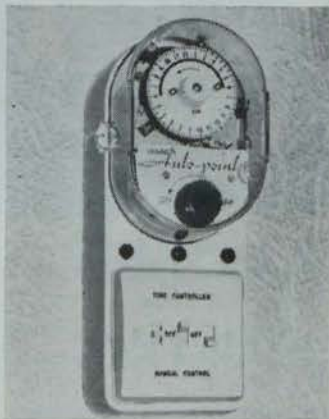
A smaller model, the Warmette, has an hourly heat output of 4,850 B.t.u.'s per hour and will burn for 28 to 30 hours on one gallon of paraffin. Its dimensions are: height, 15½"; width, 17"; depth, 12½". There is a choice of finishes—two-tone silver grey or mushroom.

**PRODUCT REVIEW**

*from page thirty-five*

ANY ELECTRICAL apparatus designed for connection to a 13 amp or 15 amp socket-outlet and suitable for unattended automatic operation, can be time controlled by the Venner Autopoint Time Switch. The Autopoint is a combined time switch and socket-outlet having a self-starting, synchronous motor-driven clock and 24-hour dial arranged to switch the circuit on-off once or twice per day. It is suitable for many commercial and domestic applications, such as the control of laboratory equipment and test gear, electric heaters, tape recorders, electric blankets, and similar appliances.

In the 13-amp. model (flat pin) the time switch and 13-amp. socket-outlet are mounted on an ivory plastic base with clear plastic cover. Rubber feet are fitted and 1½ yards of mains lead is provided. A neon in-



**Venner Autopoint Time Switch.**

dicator is fitted which glows red when the socket is made alive by the operation of the switch. The Wall Mounting version is a logical development of the Autopoint Portable time switch. Apart from arrangements for wall mounting and the position of the time switch in the moulded base, the specification of this version is similar to the portable version. It can be supplied with either 13 or 15 amp. sockets.

The manufacturers are Venner Ltd., Kingston By-Pass, New Malden, Surrey. Irish agents are Roper Brothers Ltd.

FRY'S METAL Foundries Ltd., Flowsolder Division, Willow Lane, Mitcham, Surrey, announce the introduction of a new soldering machine for bench use—the "Flowdipper."

This new compact dipping unit incorporates the proved "Flowsolder" principle that provides a continuous "wave" of clean solder. This is obtained by pumping fresh solder upwards through a solder nozzle or ring. The speed of the pump determines the solder height and once set remains constant despite solder usage. This continuous "wave" of solder provides a smooth dross and oxide free area in which to work.

The new "Flowdipper" machine is extremely compact. It stands a mere 9" in height, yet its pot capacity is a workman-like 45 lbs. of solder. The working area of metal is approximately 9 square inches with a depth of 1½".

Irish office: Fry's Metal Foundries Ltd., 197 Pearse Street, Dublin.

★ ★ ★

PORTWAY & SON LTD. have a complete new range of oil-fired boilers ranging from Model 40, giving 40/45,000 B.t.u.'s per hour, to Model 100 giving 100,000 B.t.u.'s per hour for the larger home to smaller models in the range from Model 12, giving 12,000 B.t.u.'s per hour to Model 35 giving 35,000 B.t.u.'s per hour for the smaller home.

The range of boilers and burners for the larger homes as a whole are automatically controlled by thermostat, working with an electric control box. As hot water is taken from the boiler, the small electric motor spins the oil distributing tubes to throw oil to the flame ring next to the wall of the boiler. In this way an air-fuel mixture is made and this is ignited by an electric spark.

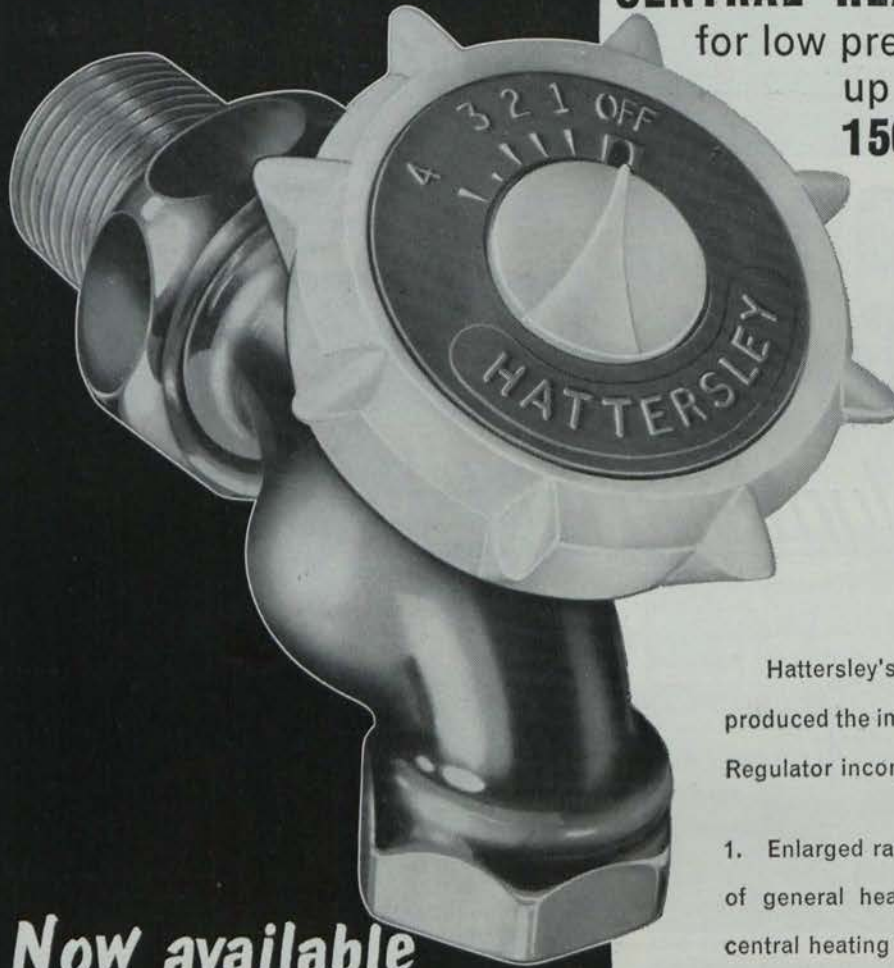
The 12-35 range of Blueflame boilers for the smaller home can have electric ignition fitted as an extra and gives the added advantage of using no oil keeping the boiler alight at night or between high-flame periods. The manufacturers are Charles Portway & Son Ltd., The "Tortoise" Works, Halstead, Essex, who are represented in Ireland by Messrs. Irish Technical and Production Co. Ltd., 25 Upper Mount St., Dublin.

# New style, new long-life efficiency

et al.: The Irish Plumber and Heating Contractor, November 1962 (complete

## HATTERSLEY CENTRAL HEATING REGULATORS

for low pressure heating systems  
up to  
**150 ft head and 200°F**



Now available  
in sizes ...

1/2"

3/4"

1"

**HATTERSLEY**  
ESTABLISHED 1897



the name for good valves

**HATTERSLEY (ORMSKIRK) LIMITED · ORMSKIRK · LANCASHIRE and at HALIFAX and LONDON**

Published by ARROW@TU Dublin, 1962

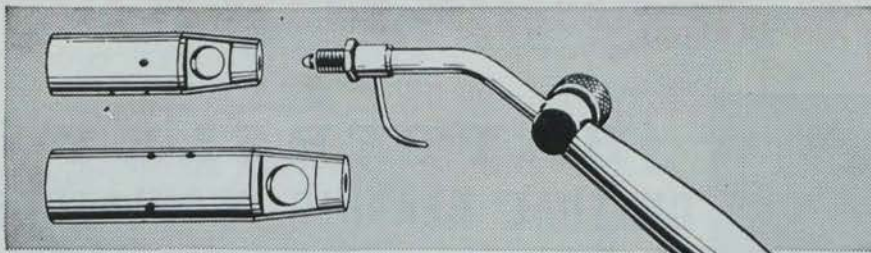
Hattersley's policy of continuous research has produced the improved and re-styled Central Heating Regulator incorporating;

1. Enlarged range of sizes to fulfil the requirements of general heating work in addition to domestic central heating installations.

2. With the working pressure of 150 ft head at 200°F together with the use of tough Delrin for the headwork the new range is suitable for all low pressure hot water heating installations.

3. New long life efficiency assured by employing the highest manufacturing standards and the use of Pioneer Nu-lip glandless sealing rings guaranteed leak proof for a minimum of 5 years service.

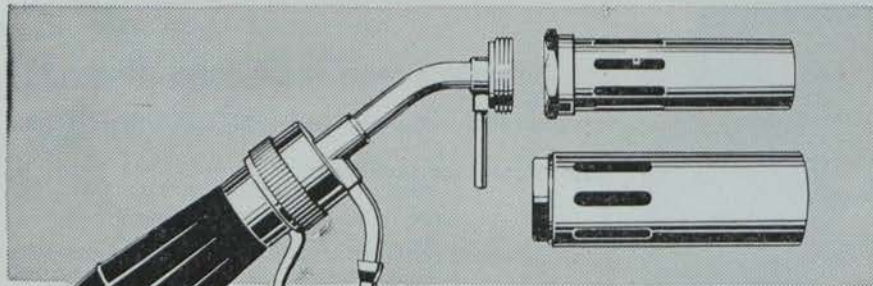
4. All sizes available in both wheel and lockshield patterns for either iron or copper pipe.



(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!*



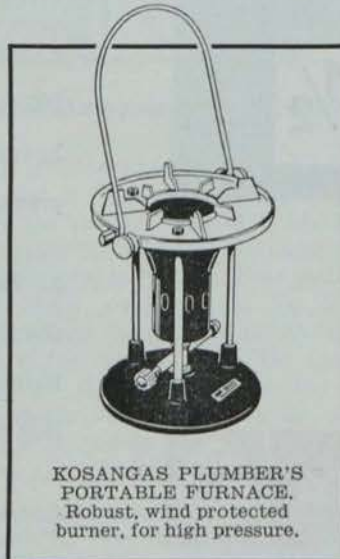
Bullfinch Mark II Blow Torch. New, patented, trigger valve, leak-proof, never needs adjustment. Micrometer bye-pass, saves £££'s on gas. Complete range of burners.

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.

Send for fully descriptive lists and leaflets to:  
McMullans Kosangas Ltd., 1, Upper O'Connell St., Dublin. Tel. Dublin 40761-4.

## EXHIBITED AT ANNUAL ENGINEERS CONFERENCE

IN conjunction with the Third Annual Conference of the Engineers Association, held in Dublin at the College of Science earlier this month, an exhibition was organised at which many well-chosen concerns in the Trade had stands.

Exhibits relevant to the Trade aroused keen interest among conference delegates and stand holders reported that they were satisfied with results gained.

The Contractor photographer pictured the following exhibits (see pictures opposite).

First column (from top)—

- Quadrant Engineers.
- Accurate Recording Instrument Co. Ltd.
- S. W. Carty and Son Ltd.
- Unidare Ltd.

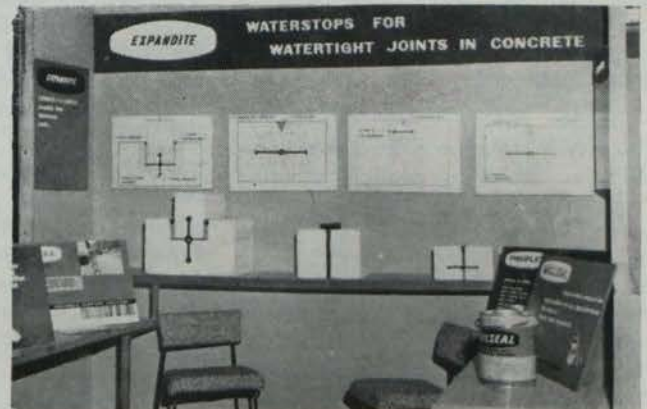
Second column (from top)—

- Leinster Engineering Co. Ltd.
- M. A. Boylan Ltd.
- Expandite Ltd.
- Welding Services Ltd.
- Gypsum Industries Ltd.

Below: A. H. Masser Ltd.



(See text opposite page)



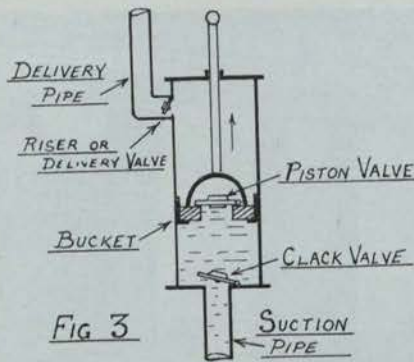


FIG. 3  
from page eleven

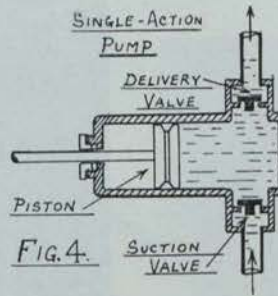


FIG. 4.

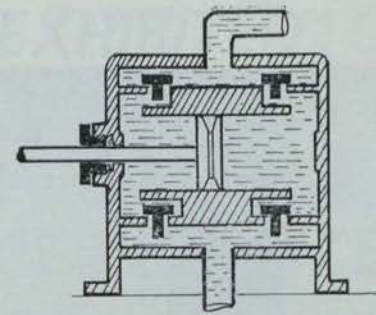


FIG. 5. DOUBLE-ACTION PUMP

# RURAL WATER SYSTEM

dictated by the type and quantity of water which has passed through.

This drawback has now, however, been overcome as a result of research, and a candle containing silver in addition to the Kieselguhr has been produced. It is claimed that water passing through this candle automatically receives the correct amount of silver ions to ensure sterilisation and filtration in one process.

Candles of this type, known as "Sterasyl," do not require boiling, and the sterilising action remains effective throughout the life of the candle. For domestic use, where pressure is available either from a main supply or from a tank with not less than 20ft. head of water, a very suitable unit known as the Berkefeld Pressure Filter, can be obtained, based on this principle.

## Pumping plant

**EXCEPT** for an occasional ideally positioned source from which the water will flow to its destination by gravity, we are usually faced, in rural areas, with a situation in which the water has to be raised from a low level to a high level. This, of course, means the provision of a pumping plant, and as it is usually installed for convenience sake in an outbuilding or specially built pump-house, a suction pipe must be connected to bring the water from the lower level to the pump unit.

The principles underlying this installation prove a stumbling block to many a craftsman—too often he has but a vague idea of the fundamentals of pump construction as well as the physics involved in its operation; so,

perhaps, it is opportune at this point to restate the facts before going further.

## Action of pump

**THE** action of a pump is governed by the pressure of the atmosphere—in other words, the limit to which an ordinary suction pump will lift or "suck" water is equal to the height of a column of water the atmosphere is capable of supporting.

As the atmospheric pressure at sea level is 14.7 lbs. per sq. in. (usually taken as 15 lbs. in practice), and as water weighs .434 lbs. per foot in height, it stands to reason that 15 lbs. air pressure will support a column of water approximately 34 ft. in height.

While this is theoretically correct, in practice there are other factors to be taken into account. For instance, the water level in a well may drop if the draw-off is heavy, thereby increasing the distance from the pump to the water; again, the air pressure may vary somewhat from day to day due to weather conditions; there may be piston slip, valve leaks, etc.

To guard against these factors, we therefore take 25 or 26 ft. as the maximum lift an ordinary suction pump is capable of. In some cases, this lift can be extended by the use of special types of pumps—deep well jets, etc., but in such cases the water has to be assisted in its flow up the suction by increasing its velocity by the use of ejectors, etc., so that our first axiom stands—namely, that no ordinary suction pump will lift water more than 25 ft. or thereabouts. Of course, once the water has entered the pump, it can be pushed to any height

or distance provided the motive power is sufficient.

## Types of pumps

**THERE** are two distinct types of pump in common use—the piston or reciprocating pump and the centrifugal pump. The piston pump is used frequently on the smaller water distribution systems for the elevation of water from wells or other sources.

The centrifugal unit is usually associated with the larger system, as it can, for a given size of borehole or well, discharge greater quantities of water than the piston pump, although its operating efficiency is not so high due to slip. It has, however, an advantage in that its driving unit is not so costly and requires less substantial foundations.

Maintenance costs are also very low.

However, when water has to be delivered to a great height, the piston pump, with its reciprocating action, still has the advantage due to the synchronisation of the valves with the piston stroke.

## Piston pumps

**THESE** pumps, termed reciprocating because of the "to and fro" movement, are usually divided into three main types—single-action, double-action, and Duplex or twin piston. In addition, we have variations of these types such as the semi-rotary, rotary, etc., single-action pump.

The simple jack or suction pump as installed for many years in rural areas, is of this pattern. (Fig. 3). It consists of a barrel or cylinder of brass or cast-iron into which a piston is fitted. This piston is fitted with a valve and has leather cup washers for sealing. The complete piston

from previous page

unit is then known as the bucket. The suction inlet to the pump has a clack or non-return valve which opens when the piston is drawn up the cylinder.

This upward movement withdraws the air and so creates a partial vacuum. The air pressure on the surface of the water in the well then forces this water into the suction pipe, through the clack valve, and into the pump barrel. When the piston reaches the top of its draw stroke, the barrel is full of water, and so the downward or return stroke drives the piston against the water, which is forced through the bucket valve and so fills the upper part of the pump barrel. On the next suction stroke this water is expelled from the outlet, and the barrel again fills. Another variation of this type of single-action pump is shown in Fig. 4.

### Similar method

**DOUBLE-ACTION Pump:** This design is similar to the single-action pump in its method of operation, the main difference being the use of four valves instead of two, so that water is pumped on both the suction and delivery stroke of the piston. This means greater output of water for almost the same operating cost. (Fig. 5).

**Duplex piston pumps:** This type makes use of two pistons—operating side by side in twin cylinders—almost as if two double-action pumps were placed together and both using a common suction and delivery pipe.

This duplex design is based on the use of eight valves, which are synchronised with the movement of the pistons. It is a most efficient mode of pumping where large quantities of water are required, but due to the increase in the number of moving parts, maintenance costs are higher.

[The writer is indebted to British Berkefeld Filters Ltd., Tonbridge, Kent, for details of their Sterasyl Filters].

## NEXT MONTH

Next month we will consider the application of centrifugal and other pumps to water systems, and the problems associated with their installation.

## NEXT MONTH

# Q

## uestions

# A

## nswered

# HOW TO REFILL SUCTION PIPE

**I have difficulty in filling the suction pipe of a lift and force pump. The well is 10 feet deep and the suction pipe rises up over the mound for 10 feet, then leads to a pump in the yard of the house. Although this may seem a bad layout it worked well enough for the past twenty years.**

**My job is to renew the foot valve and my difficulty—how to refill the suction pipe.**

**Could I bring a branch off the high point of the pipe to ground level, fill the pipe and plug the opening? Perhaps you have another suggestion?**

**A** rough sketch accompanied the query and showed a well 10 feet deep. From this a 1½ in. suction pipe rose gradually to surmount a bank, from which point it levelled out (or fell slightly) to the pump fixed some 150 feet from the well.

The pump capacity was not given but assuming the suction to be correctly sized in relation to the G.P.M. to be passed, then the seeming long travel from well to pump is of no great consequence.

The significant factor is the vertical height to which the suction pipe rises above water level in the well, i.e., 10 feet well depth plus 10 feet rise above well top—a total suction lift of 20 feet. With the theoretic maximum suction lift of 34 feet and the generally accepted practical limit of 25 feet it will be seen that this arrangement approaches the practical limit and some difficulties might well be expected, especially on first starting the pump.

Querist is aware of the need to prime the pump after fitting the new

foot valve. The problem is, how? Normally this would be done by filling the pump barrel with water at the priming plug located on the pump body. In this case the pump being so far from the well and the suction lift being so great, the natural elasticity of the air within the suction pipe hinders its complete evacuation and replacement by water raised by atmospheric pressure acting on the free surface of the water in the well. Furthermore, continued pump operation may so reduce the pressure in the suction as to cause water to change to aqueous vapour and so restore some equilibrium of pressures without raising water from the well.

The simplest way of overcoming this problem is to insert a "tee" in the suction pipe at its highest point over the bank. A standpipe with suitable fill point and plug would rise from the "tee." Through this standpipe the whole suction pipe could be filled with water and the offending air will rise to vent at the high fill plug point. The entire suction line being full of water, an upstroke of the pump should promote physical displacement of a quantity of water with resultant decrease in pressure within suction line, which decrease would be made good by water pushed in by atmospheric pressure by way of the foot valve. Thereafter the pump should function as well as before.

It is thought that the frictional resistance offered by the overlong suction, not to mention the high suction lift, might impose a heavy load on the pump and its operating machinery (human agency?). Sometimes such cases are eased by fitting

*continued overleaf*

Forty-three

*The Irish Plumber and Heating Contractor.*

## QUESTIONS ANSWERED

*from previous page*

air vessels beneath the pump just below the bottom valve. Such vessels, so placed, work on similar but opposite principles to those fitted on the pump delivery to reduce concussive shock on single acting reciprocating pumps (as lift and raise pumps).

The only other suggestion to ease this problem, and one the writer heartily recommends, is that the pump

be removed from its present position and be re-sited over the well. The suction length would then be short and no more than 10 feet lift, well within limits and pumping effort. The existing horizontal suction would then become delivery. The overall pumping effort would be much the same but air troubles would be eliminated.

## SPRING BENDING COPPER TUBE

When I try to bend a size 2-inch and 1½-inch copper pipe with springs the copper kinkes. Whether it is because the springs do not fit tightly or that the pipe is not properly annealed I am not certain. I have a bending machine up to size -inch but find the cost of larger sizes very high.

**C**ONGRATULATIONS to our querist who spring bends 2-inch copper tube. His physique must be superb and the writer would like to know what he has for breakfast!

Spring bending of light gauge copper tube is a quick, effective and convenient way of dealing with ½ in. and ¾ in. tubes for domestic water supply installations. Light gauge copper tubes for wastes, etc., are first class. They are neat, light, easily fixed, and non-corrosive. Bending tubes of 1 in. and above, or perhaps 1½ in. and above, demands care and practice as well as considerable strength if spring loaded bends are to be made.

First of all the spring must be of the correct O.D. Those purpose-mode for copper tube are marked with a dab of red paint at the tapered end. The spring will also be of square section material. Next, the tube must be fully annealed. This can be simply done by heating the bend length to red heat with Oxy-Acet or butane gas torch. In the shop an air-coal gas torch may be used. The British Oxygen Company offer a useful torch of this kind as no doubt other manufacturers do. Don't forget to install a non-return valve on the gas line.

When the tube is heated sufficiently over the full bend length it may be quenched in water. In its now annealed state it is ready for bending.

The spring is oiled and inserted into the cold tube and a bend pulled. Work-hardening of the copper will result and before the bend has reached 45 degrees the tube will have re-hardened and crippling is likely. Therefore, take the bend easily to something less than 45 degrees, remove the spring, re-anneal, and carry on bending. Repeat this technique until a bend of desired form results. A slight overbending on the last pull will require some final closure pull to rectify. This will release the bend walls from the spring and facilitate its withdrawal.

**Spring bending** of 1½ in. and 2 in. L.G. copper tube is asking a bit much of the tube and the operative. Only easy bends should be expected, i.e., of no less than about six times tube diameter in radius, and this is expecting a lot, especially for 90 degree bends in these sizes.

**Machine bending** is much to be preferred for the larger tubes. Admittedly, the machines are expensive but the quality of work they repetitively produce and with such saving in valuable time, far offsets this cost where many bends are required. In any case it is an asset once bought and paid for. Querist is strongly advised to consult the bender makers before he does himself or his employees an injury.

Alternatively, he might try **sand**

**loaded bending.** This is in no way difficult or beyond the capacity of any plumber properly equipped with a suitable heating torch as previously described.

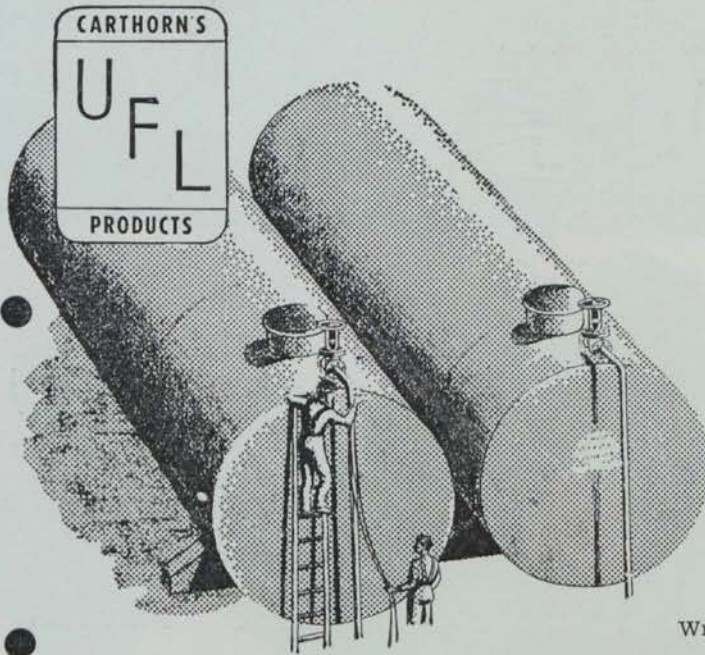
The tube to be bent is first plugged securely at one end and then filled with fine, DRY sand. This is firmly compacted by tapping the sides of the tube with a block of wood or old lead dresser. Full compaction is essential as this sand is to support the internal walls throughout the bend making procedure.

The infill end of the tube is then also plugged securely to retain the sand in compact state. The bend position and length (according to radius, which again should not be too ambitious; say four to six diameters)—and this whole length is heated to dull red. A 45 degree bend is then formed with this full bend length, heat being applied from the torch to maintain dull red heat at the location of each pull throughout the operation. The tube is then generally heated to relieve stresses and by judicious tightening of each former "throw" the bend is pulled to its 90 degree form if required.

**Note:** Adequate compaction of the sand is essential. Plugs at both ends of tube must be occasionally tightened down. Heat must be applied to red heat on tube whenever tube is pulled in bend formation. Ripples as and if they occur must be dressed out as bending proceeds. Do not attempt to dress ripples on to a spring as in spring bending, otherwise the spring will be damaged or impossible to remove from the tube.

When the sand loaded bend is completed, the sand is drained off and stored for re-use on other bends. The more the sand has been heated the better it becomes. The grain size reduces and greater compaction is possible. Querist is advised to write to the Copper Development Association, 55 South Audley Street, London, W.1, and ask for a copy of its free publication, "Copper Pipelines In Building."

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



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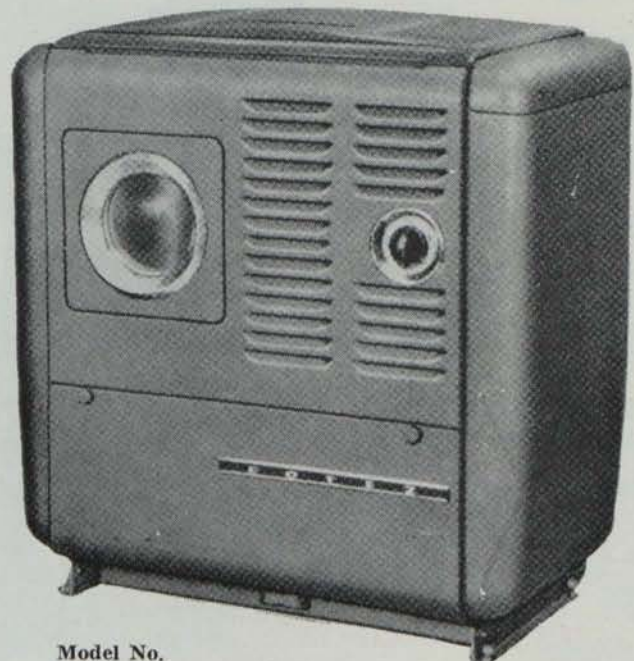
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