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

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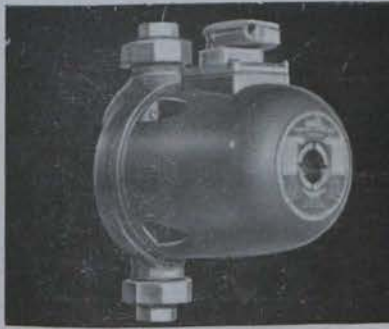
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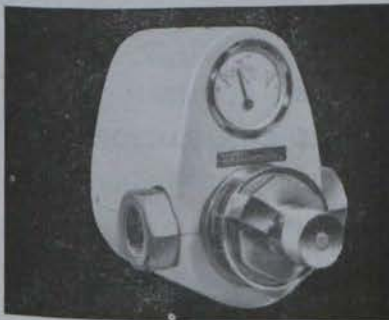
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Special Surveys

EACH issue of the "Irish Plumber and Heating Contractor" contains a special survey. This issue contains the seventh survey in this series on important aspects of the plumbing and heating trades.

Previous surveys were:—

- July—Ventilation and Insulation.
- August—Sanitary Ware.
- September—Hot Water Supply.
- October—Plumbers' Metals and Tools.
- November—Oil-fired heating systems.
- December—Electric Heating Systems.

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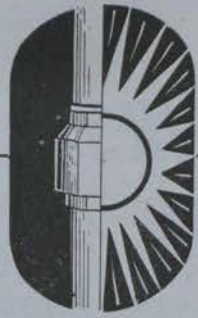


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THE IRISH PLUMBER & HEATING CONTRACTOR



Vol. 1. No. 10.

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

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JANUARY, 1962.



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A CONTRACTOR REPORT FROM LONDON

BUILDING EXHIBITION: FIRST EVER HEATING SECTION

THE twenty-ninth Building Exhibition at Olympia this year was, perhaps, the greatest exhibition of its kind in the world. The number of its stands and the range and variety of the products displayed would seem to suggest this.

In all over 1,300 British and overseas concerns exhibited. The exhibition itself covered almost the entire floor space available in the Grand, National, and Empire Halls, including the galleries.

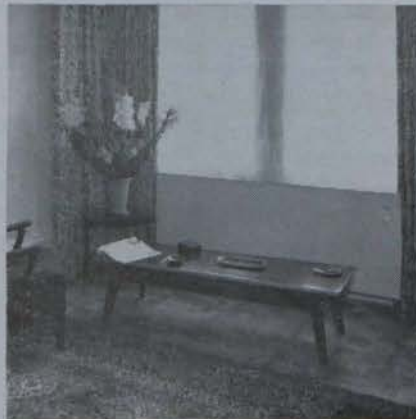
These notes were held over from last month because of space limitations in that issue.

For the first time the exhibition this year devoted a special section to heating. In this report we will touch on the exhibits of special interest to our trades.

Allied Ironfounders Ltd.—On one of the largest stands at the exhibition Allied showed products from their various divisions.

Leisure Kitchen Equipment exhibited a brand new design in kitchen units—Leisure Line—for the first time. J. S. & F. Folkard, another company within the Allied group, featured plastic piping, etc., specially applicable for hospitals and laboratories.

Wright Electric Motors (Halifax) Ltd.—Here we saw that the loading of the heating elements of the "Safe-heat" electric panel heaters is controlled by a 4-heat switch which also incorporates an "Off" position. A



pitot light is fitted above the control switch, indicating when the heater is switched on.

Wiring entry is provided at the rear, and with each panel a 6' 0" length of P.V.C. insulated and sheathed flexible cord of matching colour can be supplied. An unobtrusive removable lid on the front of the panel gives access to the terminals.

The panel casings are rigidly constructed from galvanised sheet steel, and have stove-enamel finish and are available in six dimensionally different sizes.

Radiation Parkray Limited.—The new system, representing an important advance in the evolution of gas-fired small bore central heating for the house, flat or shop, was introduced for the first time to the public.

The system is reviewed elsewhere in this issue in connection with its introduction to Northern Ireland.

Harford Pumps Limited.—Great interest here was shown in the Harford Twin Action proportional radiator valve for central heating systems.

The T.A. gives precise heat regulation, efficient balancing for the system, and simple and invisible pre-setting. The revolutionary O-ring makes it dripless and ensures that the spindle moves easily and can never stick. All valves are made in sizes for connections $\frac{1}{2}$ "s of an inch, $\frac{1}{4}$ -inch and $\frac{3}{4}$ -inch and are suitable for iron and copper fittings.

S. Smith & Sons.—A new domestic oil-fired boiler was introduced by Smiths. Called the Debutane, the boiler provides all domestic hot water requirements plus sufficient heat output for 200 sq. ft. of radiator surface.

Measuring 36" high by 24" wide and 21" deep, the Debutane is fully automatic and employs a fan assisted on/off type of vapourising pot burner.

Perkins Boilers Limited.—The Perkins wall-mounted Mini-Boiler was



Shires of Guiseley.—We picture here the Shires of Guiseley stand at Olympia. Prominently displayed was the Lnx range of low level cisterns (2-gallon capacity) in five colours.

backed up by some very convincing, and imaginative, literature at the exhibition. The powerful unit—which is available in two models with capacities of 25,000 B.t.u.'s/hr. and 50,000 B.t.u.'s/hr.—is sealed on the inside with a hinged outside cover giving complete access to the whole equipment.

Fibreglass Limited.—The increasing popularity of electrical floor warming systems was reflected in a feature of this stand showing the use of Fibreglass Resin Bonded Slabs as the insulation for this type of installation.

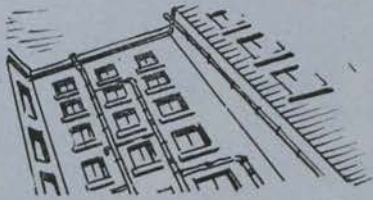
Thomas Potterton Limited.—The range of Potterton oil-fired boilers for domestic, industrial and commercial applications extend from the smallest size with a rated output of 42,000 B.t.u./hr. to the largest size with an output of 2,000,000 B.t.u./hr.; the range of gas-fired boilers for smaller applications extends from 31,000 up to 1,250,000 B.t.u./hr.

In particular the new gas-fired "Potterton" Warm Air Circulators were featured on the stand. These direct warm-air circulators are available in three sizes, with outputs of 35,000, 55,000 and 75,000 B.t.u./hr., making them suitable for use in small, medium or large houses and small commercial premises.

continued page nine

Increasingly the plumber uses plastics in his day-to-day work and this series of articles propose to deal thoroughly with their applications to the trade.

PART
SIX



PLASTICS IN PLUMBING

By

D. C. COYLE

M.E., M.I.C.E.I.

M.I.P.H.E., A.M.I.C.E., A.M.I.W.E.*

IN previous articles we have considered the applications of plastics pipes and fittings in the plumbers' work as related to water supply schemes and plumbing in domestic dwellings. We now proceed to a consideration of the use of these materials in the plumbers' work in industry. It will be recalled that the big use of plastics pipes—particularly, pipes of hard PVC—in Germany and later in Britain, was in the chemical industry.

Plastics To Combat Corrosion In Industry.—To an ever increasing extent plastics are attaining recognition in all industries on their own merits alone. They are no longer mere temporary substitutes for metals and alloys. They are now accepted on their own merits, particularly for their unique resistance to chemical attack and their engineering properties.

Of all the plastics materials, which can be made available in the form of extruded pipe, Hard Polyvinyl Chloride or Hard PVC possesses the widest range of corrosion resistance. This material is a non-conductor of electricity and consequently is immune to galvanic or electrolytic attack: a form of attack frequently encountered in the case of metal pipes and fittings.

No contamination

HARD PVC pipes are smooth—both inside and outside—and do not become pitted or tuberculated and are attacked by relatively few chemicals. In the case of many other pipe materials, particularly metals, slight corrosion may occur, which whilst it may not cause serious damage to the pipeline or fittings may contaminate the product being conveyed in the pipeline. This pollution of the product may in turn cause difficulties during further processing or cause odours or discolouration.

In the case of Hard PVC there are no corrosion products and therefore no contamination is possible.

Corrosion Resistance Rating.—The greatest advantage of Polyvinyl Chloride over other pipe materials is its superior resistance to corrosion. It displays the highest corrosion resistance of all extruded plastics pipe. Since this type of pipe does not corrode in the electro-chemical sense it has a distinct advantage over metallic materials, in so far as, it is not likely to be effected by minor impurities in the corrosive material.

It will be recalled that a change of a few parts per million of chlorines in a fluid may cause serious damage to stainless steel. Furthermore, it may be fairly said, that a slight change in the environment of any metal or alloy may spell the difference between the success or the failure of a pipeline.

As the corrosion of metals is usually of an electrochemical type and is normally accompanied by a loss of metal, its consequences may be measured in terms of the weight of metal lost. Eventually, a pipeline may become clogged by these products of corrosion or penetration of the pipe wall may occur. In the case of plastics, however, the action is somewhat different.

In the case of a plastics material, such as Hard PVC, we have what we may call a "Go" or "No Go" form of attack. Where the material is resistant it suffers no attack and where attack occurs it is usually but not always severe.

The corrosion of plastics is an absorption type of reaction termed solvation. It is characterised by penetration of the corrosive fluid into the pipe wall as distinct from the usual surface attack which we associate with metal pipes. Where such a solvation attack occurs with Hard PVC, there is a weight increase in direct proportion to the accompanying volume increase of the pipe wall. The final result is a loss of physical and mechanical properties of the plastics material.

This kind of attack occurs with certain unusual classes of organic compounds such as ketones, esters and other aromatic hydro-carbons and chlorinated hydrocarbons. However, within the range of temperatures where hard PVC is applicable these compounds are handled satisfactorily by inexpensive metals and they do not therefore, represent a field of application for plastics.

Specification for plastics pipe in industry

IN the absence of the publication of any specification, specifically applying to plastics pipe for use in industry, Wavin Pipes Limited have manufactured and placed on the market a range of extra heavy duty pipes, which they termed Thick Wall Pipes. These pipes have outside diameters the same as those of steel tubes made to B.S. 1387. However, in the interests of standardisation Wavin ceased to manufacture this range of pipes on the publication of a draft British Standard Specification of Hard PVC Pipe for Industrial Uses.

This standard covers a range of pipes greater than that dealt with by the Draft B.S.S. for Hard PVC Pipe for Cold Water Supply. However, the outside diameters of the pipes of each nominal size are exactly the same in both specifications.

The plumber has thus at his disposal

continued overleaf

*Technical Manager, Wavin Pipes Limited, Dublin.

The Irish Plumber and Heating Contractor.

from previous page

PLASTICS IN PLUMBING

two ranges of pipe for use in industry. Firstly, the standard range of Hard PVC Pipes in accordance with the Irish Provisional Specification. These pipes form the natural replacement for copper pipes in all sanitary facilities, canteens, kitchens and similar locations. In these places, normal plumbing practice should be followed. In so far as any change is necessary when using plastics pipe these should be in accordance with the details set out in previous articles of this series.

Very high pressures

Secondly, the plumber has now a range of hard PVC pipes as manufactured by Wavin Pipes Limited to Class 7 of the Draft B.S.S. for Hard PVC Pipes for Industrial Uses. These pipes are available in sizes from $\frac{1}{2}$ " to 3" and are capable of withstanding very high pressures at normal operating temperature of 20°C (68°F).

Jointing.—Two different methods of jointing these pipes may be used. Where a permanent pipeline is required joints of the solvent weld or cemented type may be used. Owing to the very thick wall of the PVC pipe, it may be found necessary at times to slightly roughen the spigot end of the pipe before painting it and inserting it into the socket of a fitting. In the case of the filler service pipes, some deformation of the pipe may take place due to its comparatively thin wall. This is not possible with the thick walled Class 7 pipes.

Where a detachable joint is required these pipes may be threaded with a standard BSP taper form pipe thread. All pipes produced by Wavin Pipes Limited with screw threads have the threads cut on them with a special machine, which gives a very smooth thread strictly in accordance with B.S. 21. All threads are checked with Certified Gauges before they are despatched from the works.

To make a detachable joint, the screw threads, which should be carefully examined before the joint is made—are coated with PTFE jointing tape, with which you are probably all familiar. The pipe is then screwed onto the fitting by hand. It will normally be found that a tight handmade

joint will give a leak-tight joint even under high pressures. However, in some cases, a small spanner of suitable size—not a stilson wrench—should be used. However, no undue force is necessary in order to ensure a water-tight joint.

It is necessary here to draw attention to one or two important points in connection with threaded joints. The normal hand dies or cutters used to cut a thread on a steel pipe are not generally satisfactory for cutting threads on Hard PVC pipes, or any other plastics pipe.

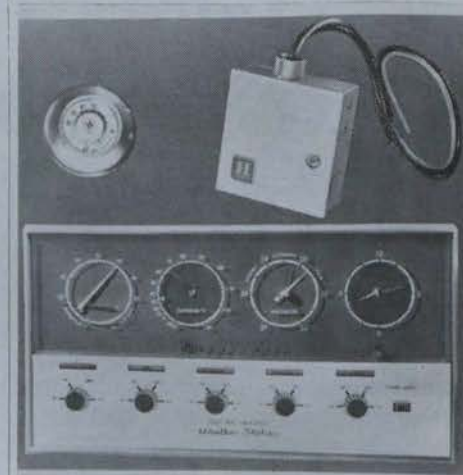
In particular, you should note that once a set of cutters has been used to cut steel, it must not be used for cutting a thread on Hard PVC pipes. It is an advantage to use a threading machine having five cutters, although a machine with three cutters only may be used if precautions are taken by putting a timber plug in the pipe to prevent it being pushed out of its round or circular shape when the thread is being cut on it. Wavin Pipes Limited use a special machine having five cutters for cutting all threads on their Class 7 range of Hard PVC pipes.

Must not be used

The second joint to note is that whilst in the case of steel pipe a variety of jointing pastes and techniques are used, most of these are not applicable to the making of screwed connections on Hard PVC pipes. In the case of steel, a piece of string or similar material is sometimes wrapped around the threads, so that when the pipe is screwed into a fitting the string or other material tends to fill up any irregularities in the two mating metal threads. **Such jointing procedure must not be used where you are connecting two PVC screwed units together.**

As mentioned above, a plastics tape known as PTFE tape should be used. This material has the great advantage that it shapes itself to the form of the thread and makes the screwing of units together extremely easy due to its lubricating action on the threads. Furthermore, it has the great advantage that it is inert and does not de-

New control



● Pictured here is the new Honeywell control panel which, when used with two-piece electric heating control system, provides centralised control of up to ten electric heating units. The panel was fully described last month.

teriorate with time and consequently a joint can be broken or unscrewed without difficulty and remade without using any further jointing tape.

Connections To Steel Pipe and Fittings.—In making a connection between a Hard PVC pipe and a steel pipe or other fittings special connections which are available from Wavin Pipes Limited should be used. These fittings are in the form of a union or coupler, one half of which is of galvanised malleable iron and the other half is of hard PVC. The joint between the metal and the PVC is a face to face joint with a suitable neoprene or other gasket between the mating faces. The metal side of the fitting is available with a male or female screw thread for connection to a steel pipe, tank outlet or other unit. The Hard PVC side of the coupling has either a female socket for a cemented joint or a female screw thread.

In connecting Hard PVC pipes to machinery such as pumps, care must be taken to ensure that excessive vibration is not transmitted to the PVC pipe, particularly to joints. It is very bad practice to have a pipe bolted or screwed to a pump and then completely unsupported for a long distance before it is again rigidly held in a wall or the side of a tank. In this kind of assembly you will undoubtedly have considerable vibration due to the pump and possibly due to waterhammer.



the
author

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

FROST DAMAGE: PROTECTION OF PLUMBING SYSTEMS

AT this time of the year, with frost and snow always possible, we hear the usual cry about badly designed plumbing systems. Canada and the U.S.A. are quoted as examples of countries with very severe winter conditions, but almost non-existent frost troubles.

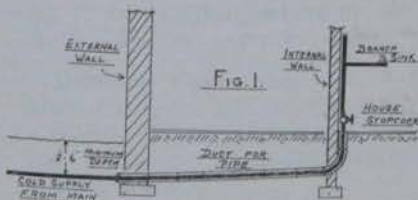
While most of us will not deny that many of our present-day installations leave much to be desired, it must not be forgotten that finance also plays a major role in the matter. If the customer is prepared to pay for a good frost-proof job, he will get it.

However, how often do we find the jerry builder, with his quick-rich ideas, employing a plumber (?) on a lump sum basis and then instructing him to "get in the pipes and get out of the job as quick as possible"—with what results we all know!

On the other hand, where a qualified contractor is asked to carry out a good job at a reasonable profit, we can forget the weather outside.

Protection

IN jobs of this latter type, the frost protection starts at the incoming water supply pipe. In coming from the main or well the pipe should be buried underground to a depth of at least 2ft. 6in. in order to prevent frost bursts and the danger of accidental damage from digging operations. (Fig. 1).



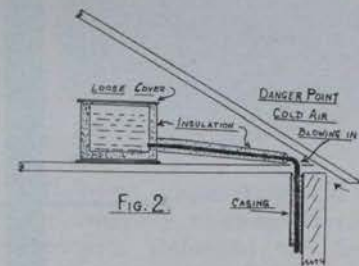
It is also important to note the soil conditions in the cutting. If the ground should be of a "made up" nature, that is, filled in with old ashes and clinkers, it will be necessary to protect the pipe from external corrosion by wrapping with protective bindings or surrounding it with sand.

At the point where the pipe enters the building care must be taken to see that it is kept at the 2ft. 6in. level—there is very often a tendency to raise the pipe nearer the surface at this point in order to allow for easy entrance. This again brings us back to the necessity for the architect, builder, and plumbing contractor to co-operate in the early planning stage, so that provision can be made for a duct or drain pipe to be laid in the foundation to bring the pipe through. If this duct is then continued through the sub-floor to the point where the pipe will rise at floor level, it means that the pipe can be threaded through later without the necessity of cutting holes in the brick or concrete.

In cases where the ground floor is timber with a space underneath, it must be remembered that with proper ventilation this space may be at a very low temperature during cold weather, so that any pipes running through it must be well insulated, and, if possible, not allowed to rest on the site concrete. It would be an advantage if they could be clipped to the underside of the wooden joists.

Internal pipework

WHEN the pipe rises above floor level, it is fitted with a stopcock, above which is taken a branch to the



kitchen sink. The main pipe should, however, be carried up to the store tank on an internal wall.

This may be difficult to do in many cases, but the advantages to be gained are many. It may be possible to run the pipe in the same duct that carries the hot-water circulating pipes, so that it passes through the heated linen cupboard and thence to the store tank.

If this arrangement is not feasible, and the pipe must run on one of the external walls, it should be clipped to a wooden baseboard, and then cased over to protect and insulate it. When this pipe reaches the roof space it generally enters at the eaves (Fig. 2). This is a particularly dangerous spot from the point of view of frost, because in many houses there is a small gap between the roof and wall at this point, with the result that a blast of icy air may hit the pipe and cause frost damage. Insulation is essential here, but because of the difficulty of getting in at the angle, it is often left unprotected.

continued page thirty-three

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 *PLUMBER'S BRASS WARE* is at your stockist's now. All patterns can be supplied—polished or chromium-plated.

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IT PAYS TO KEEP TO THE FYFFE LINES

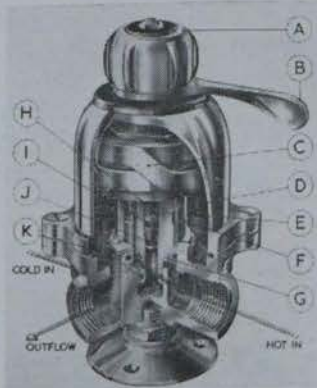
Fyffe Couplings (Ireland) Ltd.

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

Walker Crossweller & Co. Ltd.—

Our sectional view shows the construction of the new "Leonard 72" mixing valve, shown for the first time to exhibition patrons.

The new unit combines thermostatic control of water temperature with flow control. By combining the two functions concentrically and in one compact unit the valve dispenses with the need for non-return valves or separate inlet or outlet flow control taps.



Our illustration shows:—A, Flow control knob; B, Temperature selection lever; C, Thermostat assembly; D, Mixing chamber; E, Flow control spindle; F, Regulating port sleeve; G, Port pillar; H, Spindle hot seal; I, Spindle separator seal; J, Spindle cold seal; and K, Upper and lower main seals.

Newton Chambers.—Since there is an increasing demand for an automatic oil-fired central heating boiler of slightly greater capacity than 50,000 B.Th.U.'s/hr., Newton Chambers (Sheffield) are launching the Redfyre Centramatic 50, Series 2, which will, in reality, have a capacity of 53,000 B.Th.U.'s/hr.

This new model is in size and shape an exact replica of the popular Centramatic 50, which is the first oil-fired boiler designed to standard kitchen equipment size (36" high, 24" wide, and 21" deep).

The new Redfyre Centramatic 50—Series 2—comes in cream or white finish with a choice of six popular coloured front panels. It will support a 35/40 gallon cylinder plus 200 sq. ft. of radiator surface or 285 sq. ft. if used for radiators alone.

Delmore Engineering Co. Ltd.—Here the focus was on the Delmore "World of Comfort" theme, featuring equipment covering complete heating schemes.

The full range of the latest Del-

from page four

THE LONDON BUILDING EXHIBITION

more boilers comprises natural draught and automatic fan-assisted models for installation in houses of all sizes, covering capacities from 30,000 B.t.u.'s to 120,000 B.t.u.'s available in standard and de luxe models. The latest addition to the range is the Delmatic boiler with automatic ignition, in standard height to line up with existing kitchen units.

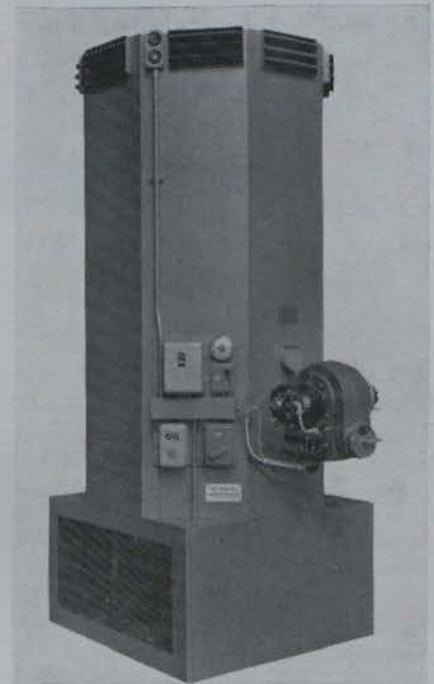
Baxi-Oil.—The new Baxi-Oil 30 warm air central heating system was given its first time showing at the exhibition.

The new unit is self-contained and is particularly suited for central location for whole house heating (30,000 B.t.u.'s), and fits into a cupboard 21" by 19" by 90". Air is drawn through an intake grille, blown over the heat exchanger, and conveyed to short ducts to grilles in the rooms.

Armitage Ware Limited.—From the Armitage range on show at Olympia



we picture this beautifully balanced pedestal washbasin, the Royaldale (V4155P).



Hainault Engineering Co. Ltd.—

This company exhibited two of their automatic industrial oil fired air heaters, the models H.200 and H.400. The range of heaters covered by this organisation extends from 100,000 B.t.u.'s to 1,000,000 B.t.u.'s.

All units incorporate safety devices and can be supplied for free standing or ducted installations. Where floor space is at a premium suspended units are also available, once again for free blowing or ducting.

Hainault are represented in Ireland by Hennessys Limited, of Beasley Street, Cork. Our picture shows one of the wide range of Hainault units.

Ekco Heating.—The new range of Ekco "Thermostor" storage heaters were among the exhibits here. On the industrial side we saw that Thermostors are available in loadings of 1½, 2, and 3 kW and are finished in light hammertone bronze colour.

A domestic model from this range has a built in energy regulator which provides an adjustable loading of 1,000 to 2,500 watts. This unit, finished in two-tone enamel, also features a thermal cut-out link. Irish agents are Kelly & Shiel.

Glow-Worm/Sunrod.—On this stand we saw the "pencil-slim" single panel radiator by Glow-Worm Boilers Limited. Also on display was the model S6 oil-fired domestic heating boiler by Sunrod Domestic Boilers Limited. This unit is designed to give 60-80,000 B.t.u.'s/hr.

OUR NORTHERN CORRESPONDENT WRITES . . .

NEW RANGE INTRODUCED IN BELFAST TO TRADE

AT a reception in the Grand Central Hotel, Belfast, last month, a range of new space and water heating appliances was introduced to Northern Ireland by the cross-channel concerns of Ascot Gas Water Heaters Limited and Radiation Parkray Limited, who recently combined to make their appliances available.

The reception was well attended by the Trade, officials and members of various local authorities, architects and other professional men.

Among those who journeyed to Belfast from Britain for the reception were Mr. G. Jeffs, Ascot Sales Manager, and Mr. Purdie, Radiation's Sales Manager. Also present was the Northern Ireland area representative, Mr. Young.

The visitors were welcomed to Belfast by the Deputy Lord Mayor, Ald. W. D. Geddis, who wished the new venture success.

At the reception details were given of two new small bore heating systems using Parkray balanced flue gas central heating units, G.301/1 and G.301/2 (output 25,000 B.t.u./hr.) and installation accessories.

Parkray G.301/2 in a typical installation using an indirect cylinder serves three to four average size radiators and provides domestic hot water.

Parkray G.301/1 is designed for a heating load which requires the full output of the unit. In a typical installation it will heat four to six average size radiators.

From the new range of gas water heaters introduced by Ascot we look at the G.515/1 instantaneous sink water heater and the 727 instantaneous balanced flue multipoint water heater.

Variation

With the introduction of the Se-duct system of fluing gas appliances, Ascot Gas Water Heaters produced a variation of their balanced

flue instantaneous multipoint water heater called the Ascot 727. The outer case of this model is identical in appearance to the 715.

Unlike the Ascot 715, the Ascot 727 is supplied with a metal plate which acts as a fixing jig and template for connection to the face of the Se-duct. Once the plate is in position the heater is connected to it by means of telescopic ducts. The range of balanced flue appliances are as follows:—715; 715/1; and 727.

All the heaters have the same thermal output and will supply instant and endless hot water.

The 515/1 is a small instantaneous sink heater. It is designed to operate on very low water pressures and will give an unlimited supply of hot water to the kitchen sink for household purposes or for toilet use at a washbasin.

The head of water required to operate the 515/1 is 5ft., which will enable



● LEFT: The 715 and 727 instantaneous balanced flue multipoint water heater. RIGHT: The G.515/1 instantaneous sink water heater.

the appliance to be installed in dwellings which have, hitherto, presented a problem with low water pressures.

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NEW SIROCCO UNIT WELL RECEIVED

THE new single circuit air heater, which achieves very high thermal efficiencies by using the incoming air as a coolant along the hot surfaces of the furnace shell, which is produced by Davidson & Co., Ltd., Sirocco Engineering Works, Belfast, has been well received since its introduction early last year.

Named the "Sirocco" S.C.D. Air Heater, it has been developed from the company's range of multitubular air heaters. Although originally designed for the tea industry, the S.C.D. is suitable for crop drying generally and has found many applications in space heating and industrial processing plant.

It is adaptable for use with almost any type of fuel, and apart from a substantial reduction in initial cost as

compared with the existing range of heaters, the S.C.D. is particularly economical to operate due to its greater thermal efficiency.

The flue gas circuit is from the furnace to the back flue or back combustion chamber, through a "single pass" assembly of banks of oval tubes (identical to those of the previous No. 10 Air Heater, but graduated in number according to the output of the S.C.D. Heater) and thence to the flues via the front smoke boxes, which are furnished with the usual wide doors for easy tube cleaning.

The furnaces, which are unaltered from previous proven designs, may be adapted for either solid, liquid, or gaseous fuels.

The S.C.D. air heater is made in three sizes.



● Section of Osma rainwater system.

Osma plastics changes and additions

OSMA Plastics Limited have announced the following changes and additions to their rainwater goods system:

- The introduction of 4½ inch PVC gutters at 11/6 per 6 ft. length (trade price) as an alternative to the well-known fibreglass gutters.
- Substantial price reductions for all PVC pipework and fittings.
- Modifications in the colour range.

Osma agent in Ireland is North Down Equipment Co., 71 Dublin Road, Belfast.

CEMENT LTD. TO FORM NEW COY.

CEMENT LIMITED are to form a subsidiary company in which Turner & Newall Ltd.—the cross-channel concern with important asbestos interests—will co-operate.

The new company will be known as Asbestos Cement Pipes Ltd., and work on its factory premises will begin shortly on a site nearby the Drogheda works of Cement Ltd.

The new company will be Irish-controlled with a capital in the region of £550,000 in ordinary shares. No less than two-thirds of the ordinary share capital will be held by Cement Ltd., with Turner & Newall subscribing the remainder.

Manufacture

Turner & Newall will provide technical supervision, while Asbestos Cement Pipes Ltd. manufacture asbestos cement pressure pipes, in addition to sewerage and drainage pipes.

The products of the new Drogheda factory are for both the home and export market.

TRADE APPOINTMENTS

MR. G. A. REID, well known to the heating trade throughout Ireland, will be representing Harford Pumps Ltd., as from January 1 this year.

Harford Pumps Ltd. are manufacturers of the well-known Opio pump and Mr. Reid will be contacting all customers and friends in the trade on their behalf from now on.

Mr. Reid's address is: 16, Fade Street, Dublin.

* * *

MR. CHARLES INSCH has been appointed European Sales and Product Development Manager by Allied Ironfounders Ltd., and is being released from his duties as Sales Director of the company's Domestic Appliance and Aga Heating Divisions.

Mr. T. L. Reed, Sales Director of Allied Ironfounders, stated: "This step has been taken to allow a detailed study to be made of the com-

pany's prospects in the Common Market to expand our existing Continental sales."



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REPORT FROM A*M*E*R*I*C*A ON AIR CONDITIONING AND HEATING A MANSION

IN Detroit (U.S.A.) a home heating and cooling system that comes about as close to fulfilling the official definition of air conditioning as present equipment can make it, was recently installed in the spacious new home of Jerome Keywell in the Palmer Woods section of the city.

The system, a blend of hydronics and forced air, automatically cools, heats, humidifies, dehumidifies, cleans, and purifies the air inside the nearly 6,800 sq. ft. mansion.

How system works

THE system, as described by Richard Boyer of the King Cole Corp., consists of a 10-ton Curtis water chiller and a Weil-McLain gas-fired hotwater boiler. They are connected to the circulating piping through a Bell & Gossett mixing tank utilizing a circulator for the boiler, a circulator for the chiller and a circulator for the system.

This arrangement, coupled with four flow control valves, permits automatic changeover from heating to cooling and vice versa without any manual opening or closing of valves.

The use of three pumps permits each to be selected for its specific purpose and actually resulted in less total horsepower than if a single pump had been used.

The house is divided into four distinct zones, two on the second floor and two on the first floor.

The second floor zones are served by equipment in the attic. Each system consists of an Electro-Air electronic air filter coupled with a Carrier fan coil unit containing a water coil through which is circulated hot or cold water depending on the season.

Ductwork

THE supply ductwork consists of sheet metal insulated with flexible insulation having a factory applied vinyl vapor barrier and pre-formed round duct insulation also with a vinyl vapor barrier.

The return ductwork is sheet metal insulated the same as the supply.

Supply air registers are located in the partitions close to the outside walls to permit air to sweep the outside walls. High and low registers are provided to give maximum performance during the cooling and heating seasons. Return grilles are located high in inside partitions.

The equipment for the first floor zones is located in the basement. Each of these systems consists of a Carrier air purifier coupled with a Carrier fan coil unit.

All ductwork for the first floor is run in the basement except for a loop system consisting of transite ducts which are run in the slab comprising the living room and family room floors. Air is supplied from floor diffusers with high wall returns.

Also in the basement are the chiller, boiler, mixing tank, and circulating pumps.

Boyer pointed out that there is no electrical interlock between the major items of equipment and any of the zones. Change-over between heating and cooling is controlled by an outdoor temperature sensing element located on the north side of the house.

Temperature

WHEN the outdoor temperature is below 70°F the boiler water pump operates and the boiler water temperature is reset as determined by a reset controller rising to a maximum of 200° at a -10° outdoor temperature.

When the outdoor temperature is between 70-75° a "dead" period ensues during which neither the boiler or chiller operate. If the outdoor temperature continues to rise the chiller pump operates and then the chiller operates under the control of a temperature controller in the return water.

"Off peak"

IN last month's special survey, while discussing thermal storage, we stated that the "Off Peak" period was 7 p.m. to 7 a.m. We should have said that it was from between 11 p.m. to 8 a.m., plus a two-hour afternoon boost if required.

The chiller provides two steps of capacity which was deemed necessary to provide closer control during the cooling season. The system pump operates continuously regardless of outdoor temperature.

Because of the "dead" period, the resetting of the boiler water temperature and the steps of capacity of the chiller make it impossible to introduce hot water into the chiller or cold water into the boiler at change-over.

The water coil in each fan coil unit is used for both heating or cooling. A valve at each coil, controlled by the respective zone thermostat, permits water to flow through or by-pass the coil as needed.

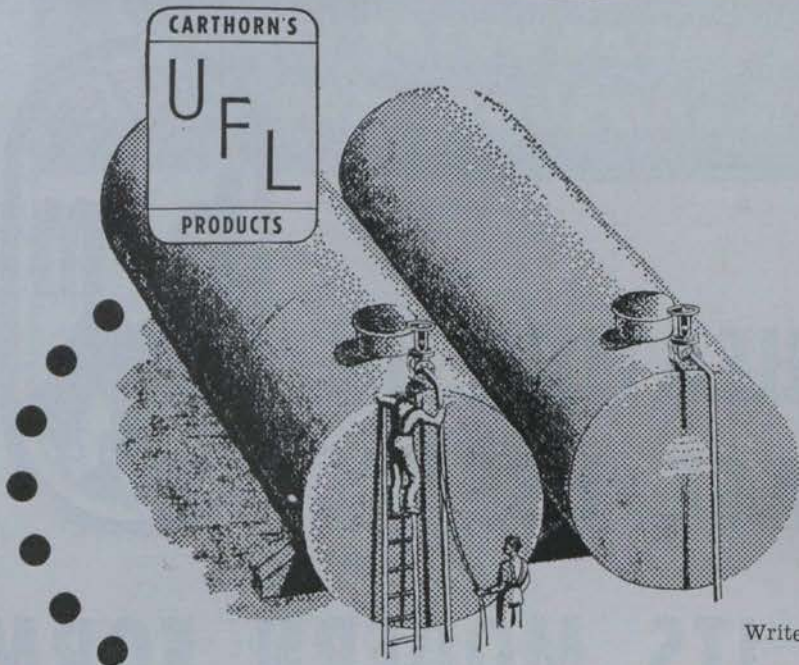
A surface aquastat on the supply pipe to each coil measures the water temperature. When the temperature rises above 70° the aquastat causes the thermostat to serve as a heating thermostat and when it falls below that point it switches it to a cooling thermostat.

Thermostat

A SUB-BASE on each thermostat allows the home-owner a choice between continuous or intermittent fan operation as desired. When set for intermittent operation, the fan will operate only when the valve allows water to pass through the coil.

The equipment in the attic is suspended from the roof to avoid transmitting vibration to any wall members. Access holes are provided in closet ceilings to permit servicing either side of the equipment in the attic. The electronic filters are on an automatic time cycle that flushes them once a week.

The air purifiers in the basement provide a threefold benefit. They filter the air, with the filter being continuously washed to retain its maximum efficiency. They also remove odours, which are piped directly to the outdoors, and add humidity when indoor humidity is low.



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GAS AND SOLID FUEL
FIRED HEATING SYSTEMS,
APPLIANCES AND CONTROLS

SOLID FUEL: GREAT ADVANCES MADE

SUCH tremendous advances have been made over the past few years, in the manufacture of solid fuel appliances, that there are unlikely to be any but minor improvements in efficiency within any one type range. What is necessary, however, is a much greater emphasis on what is available—not only to householders but to architects and builders.

Efforts are being made, on the other hand, to improve the amenities, especially cleanliness in operation, ease of ash removal and refuelling. These are matters which have often acted adversely in the minds of the public and too often encouraged some to look for other fuels in spite of their higher cost.

So far, no heating system or appliance has been invented, that is so cheap, so efficient and labour saving that it has superseded all others. Each has its own merits and in certain circumstances will provide the most suitable method of heating in the household or area concerned. It is also well to emphasise that no system of heating will create comfortable conditions or be economical to run unless the house is adequately insulated.

Continuous burning fires

Fires to-day are designed to work for the householder rather than be worked at. The first change in this respect has been continuous burning

continued overleaf

GAS: EIGHT MAIN ADVANTAGES

IN dealing with gas as a fuel eight main advantages can be listed.

Gas provides no storage problems, it is always on tap, flexible, easily and cheaply controlled, silent in operation, smokeless, has a low initial cost and free after-sales service.

The slightly higher cost per useful therm, as compared with solid fuel or oil, is being overcome to a great extent by the introduction of attractive tariffs.

The Dublin Gas Co. tariff for whole house heating is:—First 40 therms per quarter, 2/2 per therm; next 20 therms per quarter, 1/10½; and the remainder, per quarter, 1/7½. All gas consumed is charged at this rate, consequently there is a considerable increased benefit for those using gas for other purposes, i.e., cooking, water heating.

More manufacturers are recognising the advantages of gas and are entering this rapidly developing market, consequently there is a much wider choice of suitable units.

All are fully automatic with ignition device, time and temperature control and adequate safety control, and are of contemporary design, colour and finish. Installation of these units is both simple and cheap and developments in balanced flues, branched flues and the "See Duct" principle have further facilitated installation.

For the small bore heating market

continued page twenty-five



This special survey—the sixth in a series on important aspects of the plumbing and heating trades—has been compiled by technical experts, J. J. Hussey, A.M.Inst.F., and E. W. Apsey.

from previous page

fires. They can be used with or without back boilers.

The success or otherwise of continuous burning fires lies in the correct installation and use of same. Their principle of operation is in the precision of draught control; air is admitted through the fire bed, thus giving complete combustion of fuel. To ensure controlled burning, the fire has a deep fuel bed with a firebrick in front to retain combustion temperatures. Proper air control is achieved by means of a machined, well fitted, spin wheel or flap or other device, in contrast to the irregular control on ordinary fire frets. **No air must enter the Ashpit by any other route.**

Refinements

Other refinements include deep ash-pit open fires giving radiation at low levels. These have an excellent air control, partially reduce draughts by drawing portion of the air required for combustion from under the floor and the ashpan requires emptying only once every three or four days. These appliances will burn bituminous coals,

slack, and a very wide range of other solid fuels. It is also noteworthy that the efficiency of any open fire can be considerably improved and draughts from doors and windows reduced, by fitting a restricted throat. An adjustable type is preferable since every chimney varies in its requirements.

Convactor fires

Another evolution is the living room fire, which can be harnessed to do two or more jobs. For rooms over 1,500 cu. ft. the inset fire provides space heating by radiation and by convection for rooms up to 2,000 cu. ft. A typical convactor open fire under good conditions may have an efficiency as high as 45%, of this 25% might be radiant heat, the balance being by convected warm air. If a back boiler is incorporated even higher efficiencies of up to 50% may be obtained, made up roughly in the proportion of:—

- Radiant heat, 20%.
 - Back boiler, 15%.
 - Convected warm air, 15%.
- With this system, cold air is drawn

from the room through the bottom grilles, is heated in the **Convection Chamber**, rises and is ejected into the room through the top grille (or it may be conveyed by ducts to adjoining rooms, or to a bedroom on the floor above).

There are two types of convactor fire: the double cased type which contains its own convection chamber and the single cased type where the space between the iron back and sides of the appliance, and the existing fire-back, forms the convection chamber. The advantage of this form of heating is that warm air circulates round the whole of the room and passes to the extremes, which radiant heat cannot reach. Under this heading may be mentioned the more recent models of free standing convactor fire with restricted throat. These have a large back boiler and are used in conjunction with a limited number of radiators.

Free standing

For rooms over 2,000 cu. ft., or in smaller rooms where maximum efficiency is sought, the free standing stove is the answer. This can be of the *continued page twenty-five*

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APPLICATION

WEATHERING OF CHIMNEY STACKS, PARAPET WALLS



IF you look closely at chimney stacks in your neighbourhood, you will see that they occur in three places in the roof; at the ridge, half-way down the slope, or, if the flue is built on to an external wall, partly cut into the roof at the eaves.

Flues are best placed inside the building, well away from the outside walls. Clearly, a flue on an outside wall will lose valuable heat to the cold air outside, and will furthermore be more exposed to the weather than one passing through the roof half way up its slope. The best protected is the chimney at the ridge. All flues must be carried to an adequate height above the roof—generally a few feet above the ridge line—in order that they draw properly in any wind conditions.

All chimney stacks suffer severely from exposure to rain and frost. Cement and sand flashing is generally used to hold the pots in place and to shed off water. The combined action of rain and frost will crack these flashings. Water gets into the brickwork beneath them and frost action expands this saturated brickwork, opening up joints and cracks. Eventually, the top of the stack becomes quite unsafe, and immediate and expensive rebuilding is necessary.

Weatherproof

Cap flashings, carefully designed and fixed by the plumber, will permanently weatherproof the top of a chimney stack and keep it safe for all time. Our illustration shows examples of how this might be done.

Parapet walls, that is, walls which rise above the gutter level of a roof, are equally exposed to the effects of the weather. If not properly weathered they suffer damage just as do

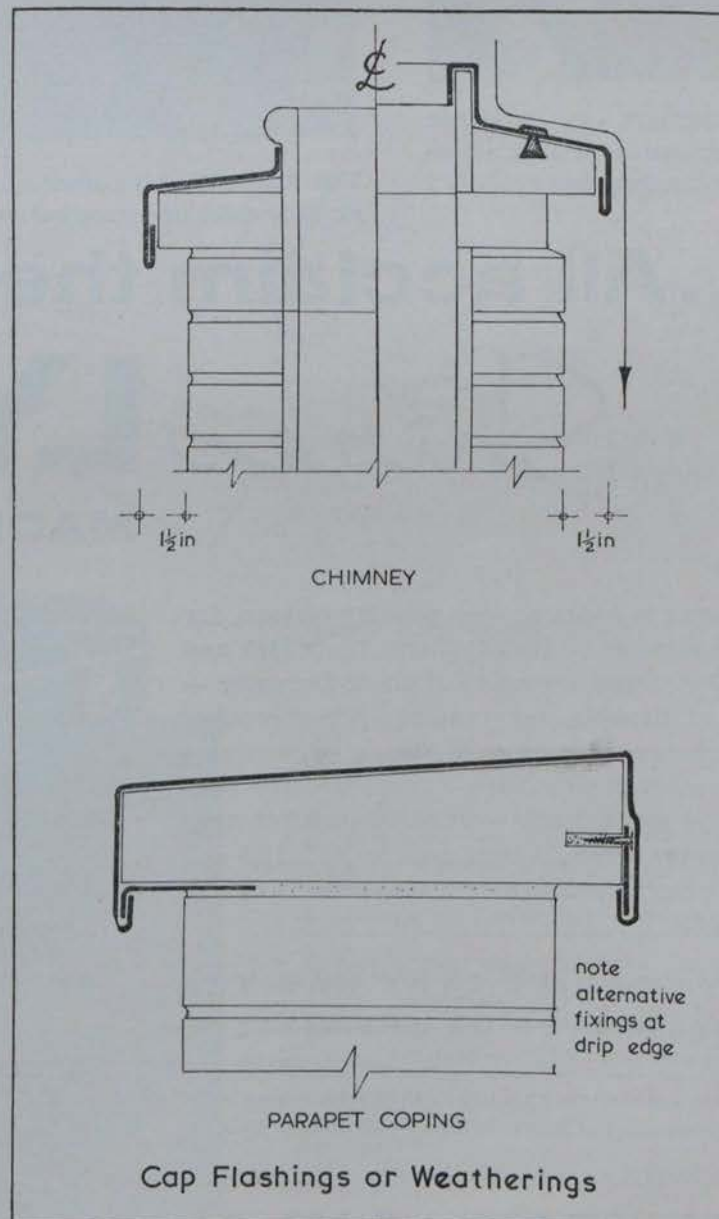
chimney stacks. Illustrated is one of many ways in which cap flashings may be applied to parapet walls.

The flashings necessary to make a watertight joint between the chimney walls and a sloping roof will vary ac-

ording to the position of the stack in the roof.

External stack: Back gutter and cover flashing. Side abutment flashings

continued page nineteen



**THOSE WHO
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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
INSTALL IT...**



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

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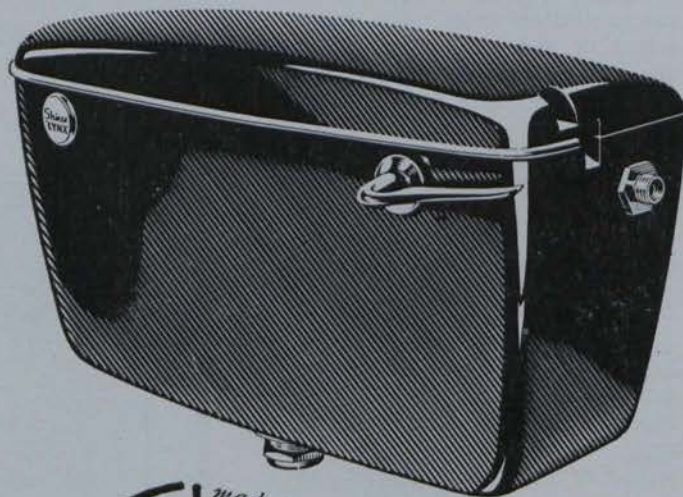
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Shires Lynx is today's most popular cistern, for replacements or new installations. Lynx high and low level cisterns are made of black Duranite — tough and durable, non-crazing, non-corrosive. The Kingfisher syphon mechanism gives a powerful flush: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

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

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DOI: 10.21427/D7DH6C

from page seventeen

(as described earlier).

Internal stack: Back gutter and cover flashing. Side abutment flashings. Front apron.

Internal stack centrally placed: Ridge piece (as described earlier). Side abutment flashings. Two front aprons.

You will meet variations of these, but we illustrate here these three basic stack placings.

Generally, the first step is to cut the piece of lead which is to form the back gutter. This will be folded to fit the roof slope, gutter bottom and chimney wall upstand, and may be partly bossed to shape. Then it is placed in position for final shaping after the slater has finished.

Allowance

The length of the back gutter piece will be equal to the width of the stack, with an allowance of about 9" at each end for bossing down and around the side of the stack. The width of the piece will allow for about 9" to lie up the roof slope, the width of the gutter sole, and about 4" for the upstand to wall.

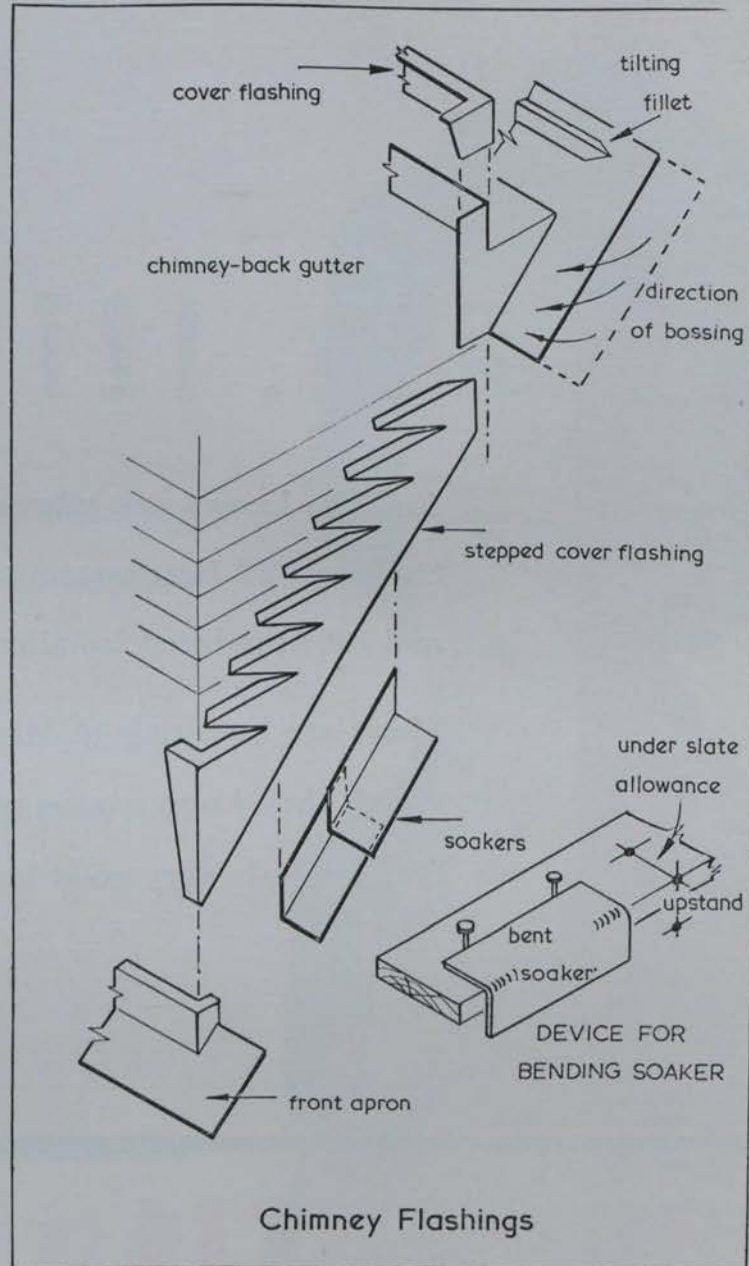
For an 18" wide stack with a 6" gutter sole, a piece 36" long and 19" wide would be necessary.

The front apron is bossed to shape from a piece of lead as long as the stack is wide, plus 12". The lead would be wide enough to provide 6" for laying over the slates plus an allowance for the upstand to front wall. This allowance will vary according to the way the brick courses are arranged at this point, but an upstand of at least 3" is desirable. To this must be added 1 1/4" which can be turned into the brickwork for weathering and fixing.

The apron for an 18 inch wide chimney would be made from a piece 2' 6" long x 10" to 12" wide.

Necessary

When the back gutter and front apron have been partially worked and fixed, the necessary soakers cut (Fig.: page 88) and the slater has finished, the plumber can put the finishing touches to the front apron and dress it close to the stack and slates. He will then mark out, cut, prepare, and



FACULTY OF PLUMBING . . . A. L. Townsend, M.R.P., M.R.S.H., a Lecturer at the Oxford College of Technology continues here the first part of a four stage course in plumbing. The author has closely followed his own lecture programme and has paid particular attention to scientific and technological innovations.

continued page twenty-three

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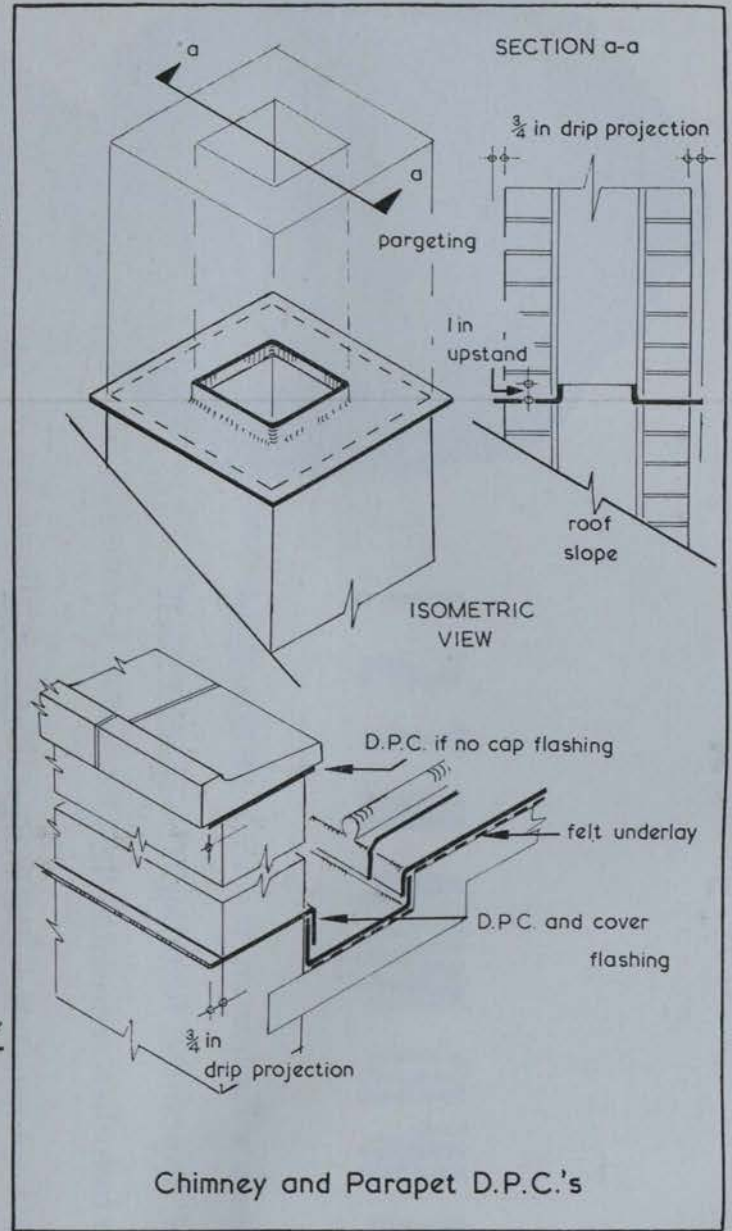
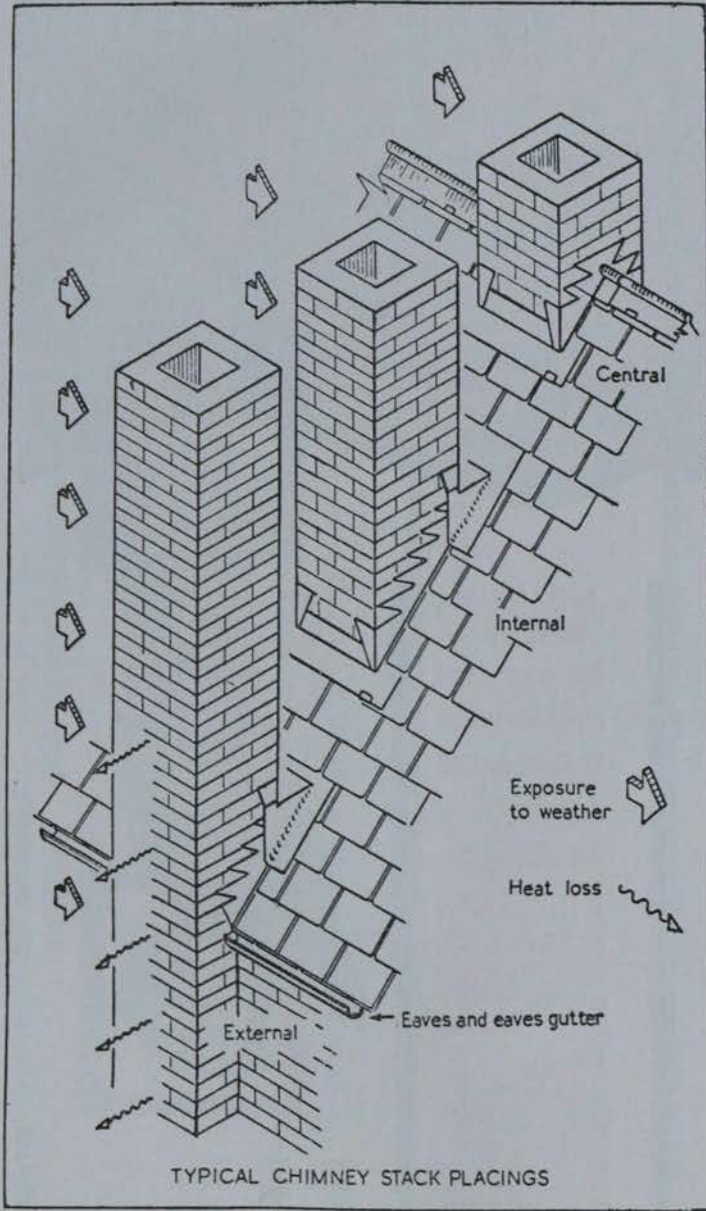


...ITED • SHELL-BP HOUSE, 13-16 FLEET ST., DUBLIN 2.

from page nineteen

WEATHERING OF CHIMNEY STACKS AND PARAPET WALLS

see text opposite page



• See illustrations opposite

Weathering of Buildings

fix the hanging step flashings, and boss the chimney back gutter close to the stack and slates. Finally, he prepares and fixes its cover flashing.

Shown here is the completed set of flashings for this particular job. The exploded drawing shows the main features of a set of chimney weatherings and the way they lap over one another.

Capillarity can cause water to move downward through wet brickwork and into the building below, with damaging results. Much depends upon the type of brick and the degree of exposure. Chimney stacks are exposed on four sides, and parapet walls on two. The taller the walls are in each case, the more the brickwork will be wetted. In severe cases a damp proof course of lead could be installed to form an impassable barrier against this downward movement of water.

Chimney damp proof courses—D.P.C.'s for short—would, ideally,

follow the line of the roof slope at the point where the chimney left the roof. This can be and, indeed, is done, but it involves complicated setting out, cutting, and re-jointing the D.P.C. to fit the "steps" in the brickwork as it is built up to the line of the roof slope.

More simple

A simpler arrangement is shown opposite. Note the 1" turn-up inside the flue, and the $\frac{3}{4}$ " projection outside, which acts as a "drip," throwing water clear of the brickwork beneath.

Such D.P.C. arrangements are quite common in many seaside places where exposure to weather is very severe. Very often the front and side flashings are made high enough to turn in under the D.P.C.

See illustration for example of the application of D.P.C.'s to a parapet wall.

A FALSE SENSE OF SECURITY

MR. T. FINLAY, of F.K.M. Ltd., President of the Association for Sub-Contractors and Nominated Suppliers, said at the fourth annual meeting in Dublin that the present "better trade conditions" seemed to lead to a false sense of security among sub-contractors.

He urged members to make greater efforts to interest other sub-contractors in joining the Association, which had made encouraging progress.

Elected

Mr. W. Davidson, of Kennan & Sons (1934) Ltd., was elected President, with the following committee: Messrs. T. Finlay (J. J. Burke, Roofing Contractors Ltd.), P. J. Murphy (Baxendale & Co. Ltd.), R. J. Chillingworth (Sound Systems Ltd.), D. D. O'Brien (D. D. O'Brien & Co. Ltd.), E. G. Verso (Verso Bros. Ltd.), and E. M. Booth (Thomas Pearson & Co. Ltd.).



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We extend a hearty invitation to our many friends in the plumbing trade and all those interested in modern kitchen and bathroom furniture and fittings to visit our extensive showrooms.

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Basins, Toilet Sets, Shower Fittings - Mixer Fittings - Stain
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Bathroom and Kitchen Furniture - Double Compartment Tanks.
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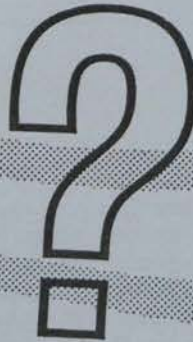
TRADE ENQUIRIES INVITED.

Q

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A

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We are bothered with a persistent "water hammer" and have been advised to fit air vessels as a cure. Do you think these will do the trick?

THE compressibility of air is well known. In recent times one or two manufacturers have adopted this property of air to the design of certain shock absorbing devices for inclusion in a pipeline subject to pressure surges which are generally the cause of "water hammer."

Manually operated lift and raise pumps and some motor driven pumps are fitted with air vessels on the delivery outlet. These, using the compressive forces of air trapped within the air vessel at each pulsation of delivery on upstroke, keep the water moving up the delivery through the work done when compression is released on the downstroke.

This reduces pumping effect and minimises shock on the pump. It is a common and useful application of an "air cushion" to damp out shock.

But water is a solvent. This is well known. It will dissolve gases and the greater and more sustained the water pressure is, the more readily will it dissolve or absorb gases enclosed within a vessel with the water. It is for this reason alone that one makes the practice of draining a delivery pipe of a lift and raise pump before starting manual pumping operation. The draining down also drains the air vessel of any water content, thereby ensuring that in use it will be full of the air cushion so essential to ease of operation.

It is sometimes suggested that a short length of supply pipe carried beyond the topmost branch or fitting, usually the ballvalve connection to cold store cistern, will serve well as an

air vessel and will prevent water hammer. Under sustained pressure whatever air it initially held becomes absorbed into the water and the air vessel ceases to function.

We are inclined to suggest that querist seeks and rectifies the cause of his water hammer nuisance rather than the addition of some device of dubious effect as experience shows the non-rechargeable air vessel to be.

He might begin by looking for taps with loose gland packings which permit rapid, spinning closure of the valve. Such rapid stoppage of water flow is one prime cause of water hammer. Another cause may be a "chattering" ballvalve, though this condition is usually the result of pressure surges set up by a quickly closed tap. A ballvalve of smaller inlet orifice, of longer lever arm, of larger float, or combination of these would rectify the "chatter" at the ballvalve. Partial closure of main stop tap in a throttling effect of the supply so as to reduce its velocity is sometimes recommended. This sometimes does the trick but does not remove the root cause. We do not recommend throttling of stop taps as this reduces the outflow performance from the supply pipework, especially in times of peak demand.

In any case active steps should be taken quickly to secure prevention of this nuisance, for apart from the noisy, disturbing reverberations set up throughout the house, and sometimes adjacent properties too, the build up of pressures at high peak in the water hammer cycle can have damaging effects of pipework. Bursts from this cause are not unknown.

★ ★ ★

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.

in brief...

SHIRES MAKE FILM

THE importance and advantages of good toilet design is the theme of a new film made by Shires of Guiseley. Produced in colour and aptly entitled "The Inconvenience," the 15-minute documentary gives a potted history of the development of the lavatory before showing the up-to-date range of Shires sanitary equipment.

With the aid of illustrations, including some gems by Hogarth, which have been reproduced from Laurence Wright's publication "Clean and Decent," the film brings some interesting facts to light.

For example, it shows that the first plan for a flushing water closet was envisaged over 350 years ago—almost 200 years before it became a reality. Copies of the 16 m.m. can be obtained on loan from Shire and Co. (London) Ltd., Guiseley, Yorks.

★ ★ ★

NEW VOKES LIQUID FILTERS

Vokes Limited have introduced a completely new range of liquid filters under the title Microwire and Microdisc.

The Microwire is a fully motorized self-cleaning filter in which some of the main flow is back-flushed to atmosphere through the element direct to waste or, alternatively, through a Microdisc secondary filter and then returned to the main system. The range covers four types, i.e., automatic or continuous operation, with or without secondary Microdisc filter.

The Microdisc is an edge type filter easily cleaned, without dismantling or interrupting the flow, by the simple operation of turning a handle.

The element consists of a stack of wheel-like discs keyed to a centre spindle separated by spacers which produce a series of narrow slots of known width forming a filtering mesh. Liquid passes through the slots from outside to the inside of the element and leaves the contaminant on the outside.

Irish agents are The Leinster Engineering Co. Ltd., 158-159 Church Street, Dublin.

from page sixteen

openable or closed type. Heat is given off from the back, front and sides with the doors open or shut. They will burn fast or slow and many are regulated with a thermostat. Some incorporate a back boiler and will supply hot water or heat a few radiators.

The thermal efficiency of an openable stove with the doors closed and burning suitable fuels may be as high as 60%. With the fire doors open the efficiency is only slightly more than that of a convector fire. Where a back boiler is incorporated, the overall thermal efficiency may be increased by about 5%, thus:—

Back Boiler	15%—30%
Space Heating by Radiation and Convection..	50%—35%
Total	65% 65%

Appliances of the closed type give best results and require minimum attention when fired with low volatile fuels. There is also a very excellent free standing closed heater suitable for heating rooms of up to 2,200 cu. ft., capable of remaining alight for at least 10 hours without attention, designed for and fired with peat briquettes.

Independent domestic boilers

Although the tendency in current design is to concentrate all services dependant on solid fuel, in a single appliance, there are occasions where the plan of the house, its location, or the requirements of the occupants do not lend themselves to this arrangement. In such cases, thermostatically controlled domestic boilers (sectional or pot type) used in conjunction with an indirect cylinder have much to offer.

In addition to supplying domestic hot water, the boiler can provide some background heating. For instance, it may also be used for heating the kitchen and provide heat in the hall by means of radiator or in the bathroom by means of a towel rail. Alternatively, it may supply background heating to the bedrooms by means of radiators.

A high degree of control is possible since the regulation of the rate of burning, according to the heat required from the radiators, is just a matter of adjustment on the thermostat control knob. Since the temperature of the water leaving the boiler can be main-

tained at a predetermined level, it is possible to incorporate one of the thermostatic mixing valves now on the market. These mixing valves enable the boiler to be operated at a fairly high temperature but they mix some of the cooler return water with the hot water flowing to the radiators, so reducing the temperature in milder weather, without having to turn radiator valves off and on.

Central heating

The most usual central heating system employs a single independent boiler to provide radiator heating and domestic hot water. The size and type of boiler selected naturally depends upon the heat requirements of the house and the extent of heating demanded. This may vary from the standards suggested in the Egerton Report, to the requirements for full

from page fifteen

GAS: "The Packaged" Unit Compares Favourably

"Packaged" gas fired units are available which include all controls, pump, etc., suitable for connection to any type of system. Installation costs are comparable with any other type of unit, and typical costs for complete small bore heating systems with gas-fired units range from £230 for a 20,000 B.Th.U./hr. installation to £480 for a 60,000 B.Th.U./hr. installation. Gas consumptions range from 500 therms/annum for a 20,000 B.Th.U./hr. installation to 1,500 therms/annum for a 60,000 B.Th.U./hr. installation.

Full central heating and hot water supply can be provided for a gas consumption of from 1,000 therms/annum for a house of 1,200 sq. ft. area to 1,700 therms/annum for a house of 2,000 sq. ft. area.

The Warm Air Heating method, as widely used in the U.S.A., has its own special advantages over conventional central heating systems and is particularly suitable for gas firing. Research and development work have resulted in the production by various manufacturers of a wide selection of units with outputs ranging from 17,000 B.Th.U./hr. to 50,000 B.Th.U./hr. at thermal efficiencies of 80%.

Basically the installation consists of a fully automatic centrally located

heating throughout the house, normally associated with "whole house heating." In these islands the heating is generally supplemented with a living room fire.

This type of heating has come very much to the fore recently and has not yet reached its peak.

The British Coal Utilisation Research Association, who developed the small pipe heating system, have laid down four basic facts for successful results.

- A system of heating circuits designed for the particular house on the correct B.C.U.R.A. "small pipe" principles.
- An electric pump of the type recommended for "small pipe" systems.
- A boiler of the correct rating with a thermostat giving sufficient close control in all conditions without the risk of over-heating.
- The approved automatic temperature controller.

continued page twenty-seven

unit from which warm air is distributed by a silent running fan through ducts to suitably located outlet louvres in the rooms to be heated. Indirect type units incorporate water to air heat exchangers, the hot water being supplied by a conventional gas-fired boiler which also provides domestic hot water supply by use of a calorifier. Direct type units use a heat exchanger in which the air is heated directly by a gas burner and the resulting products of combustion.

An important application of the direct type unit is the "selective" system, which provides full heating in selected rooms at selected times, or background heating over a wider zone. Cost of complete installation, including time and temperature control, is in the region of £100 to £150.

A recent test showed the running cost for selective space heating, cooking and water heating to be £59 per annum. Importance of adequate insulation and the control of ventilation and humidity cannot be over-emphasised. Sufficient attention has not been directed to these features in connection with domestic space heating, and the increased initial cost is more than justified by the saving in running cost.

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from page twenty-five

Hand fired boilers

They will burn a variety of fuels but low volatile types give best overall results.

A charge of fuel will last about 4-5 hours when the unit is burning at full output, but the boiler can be banked to last for periods of around 12 hours. Thermostat control, thermometer and an effective rocking grate are some of the features incorporated in design. Smaller models will heat radiators in surface area from 55-145 square feet plus an indirect cylinder with capacities of 30-50 gallons.

Magazine or hopper fed

These highly efficient boilers are more expensive than the hand fired units.

The general principle is that sufficient fuel (generally anthracite grains or peas) for 24-72 hours, is stored in a hopper integral with the boiler. The fuel falls by gravity through an aperture at the bottom of the hopper

into the firebox, where its natural angle of repose maintains the shape of the firebed, at constant thickness.

As hot water is withdrawn, or when there has been a heat loss in the system, forced draught is automatically switched on by thermostat. In other types fired with pea sized fuel, the boiler water temperature is controlled by a thermostat operating an electric primary air damper. Automatic control of primary air and the application of preheated secondary air at the correct points ensure that a thermal efficiency of 70-80 per cent. is achieved.

While certain settings of air controls are indicated by the manufacturers of forced draught appliances, the best practical results and higher efficiencies can often be obtained by executing a number of CO₂ tests over a range of air settings for each installation in situ.

Some of these boilers include a declinkering device whereby the residual fused ash can be ejected, in a matter of seconds, into a tray housed below the firebox. The cleaning operation is carried out with the boiler

doors closed so there is no dust and the clinker can be removed when cold. Fuel for these appliances is relatively cheap.

Pre-burners

These are used for central heating in the 400,000/1,500,000 B.T.U./Hr. range. Basically these burners consist of a completely water-cooled combustion chamber fitted external to the boiler and automatically fed by an overhead hopper. Air reaches the fire through separately controlled primary and secondary inlets and is supplied by a forced draught fan which is controlled by thermostat or pressurestat. The fan, which is the only moving part, controls the heating of the water, and the temperature of the water controls the fan. This cycle of control is complete and automatic.

The water cooled jacket is connected to the boiler waterways by flow and return pipes. This arrangement has the effect of increasing the heating surfaces.

These appliances burn low cost fuels, including anthracite grains and rice.

A great number of these units have been installed in Ireland and Great

continued page twenty-nine

PIPES and FITTINGS

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STEAM - HOT & COLD WATER - CHEMICALS

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"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.

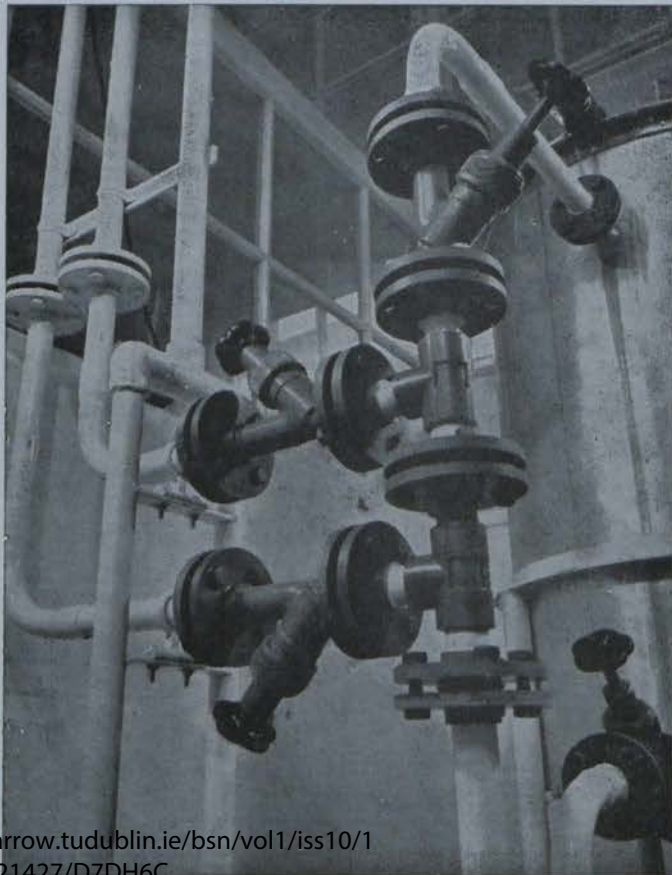
Paulomatic Vapourising Oil-Fired Boilers.

Watts Gravity Feed Solid Fuel Boilers.

Trianco Gravity Feed Solid Fuel Boilers.

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AT CASTLEFORBES WORKS

Castleforbes Works had a problem! A highly corrosive chemical, used in their modern manufacturing process in Dublin made very short work of conventional pipes. This could mean frequent renewal of the pipe-lines, with consequent loss of production and the risk of dangerous bursts—but they chose Wavin PVC because Wavin PVC Pipes are immune to chemical attack. They are also inexpensive and easy to instal, with a complete range of PVC fittings. And they solved their problem efficiently and cheaply.

If you have a problem in pipework, why not consult Wavin—the pioneers of PVC in Ireland.

wavin

WAVIN PIPES LIMITED
CIAN PARK, DRUMCONDRA, DUBLIN 9
Telephone : 48000 or 373614/6

from page twenty-seven

Britain for grain drying and malt curing. Controls for process work of this nature generally include a recorder controller activated from a thermostat fixed in the hot air chamber below the kiln floor. In order to dissipate the heat in the burner jacket cooling water, heat exchange batteries are installed so that the heated air discharges into the kiln. To guard against overheating of the cooling water, a limit thermostat must be inserted in the flow of the cooling system, this thermostat being connected in series with the controller.

It is not generally appreciated that there are extensive deposits of anthracite in this country and a considerable amount of exploratory work is in progress with regard to future development. At one mine alone there are estimated reserves of 25,000,000 tons of good commercial fuel.

In order to show that the industry is alive to the potential, expanding export markets have been developed and one major colliery has recently installed new washing, grading and sizing equipment capable of meeting the heaviest demands with top grade fuels.

● In conjunction with this special survey on oil fired heating systems, appliances and controls we review products from the leading manufacturers' ranges.

THE vertical multitubular steam boiler—the "Marine"—is a highly efficient fire tube boiler suitable for oil, hand or stoker firing. The tubes are all horizontal, all totally submerged and easily cleaned.

The "Marine" is from the range manufactured by Lumby's of Solar Works, Greetland, Halifax, and incorporates a design for 100lb.s W.P. supplied with furnace mountings for hand firing, alternatively extended skirt and suitable preparation for oil or stoker firing.

★ ★ ★

ONE of the "Diplomat" gas fired boilers from the range of Thomas Potterton Ltd., the boiler and heating equipment manufacturers, Cavendish Works, Buckhold Road, Wandsworth, London.

Four of the "Diplomat" series are specifically designed for domestic purposes with outputs between 31,000



The "Diplomat"

and 100,000 B.t.u./hr. They are sectional boilers made of cast-iron, with "glass coated" flueways as an additional protection against corrosion.

"Diplomat" gas fired boilers are also available as small bore units with the pump, lockshield valve, programme controller, and other necessary equipment for small bore heating systems, all included on the boiler inside the casing.

★ ★ ★

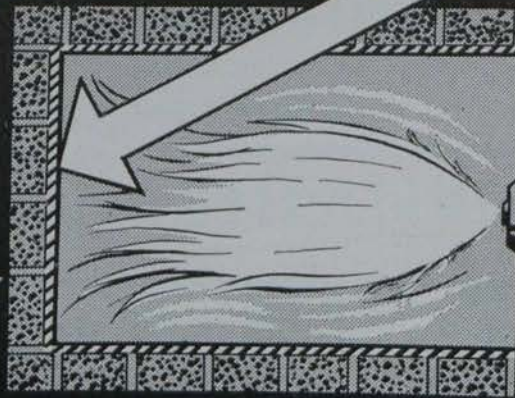
THE four boilers in the Aga gravity feed range vary only in size and heat output. They are suitable for

continued page thirty-one

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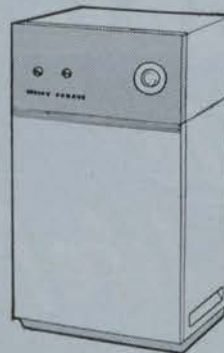
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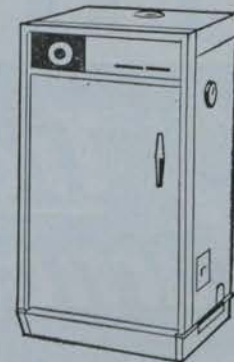
for today's modern homes



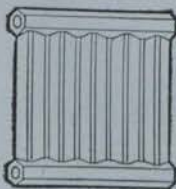
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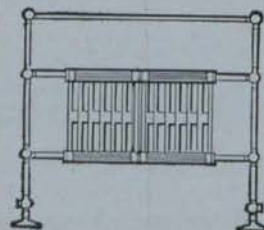
IDEAL 'KINGSTON'



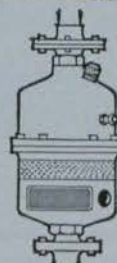
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Ideal radiators: up-to-the-minute design plus cast-iron durability.



Choose from 13 Ideal towel rail designs; wide variety of sizes, in round and hexagonal tube.



Ideal for small-bore heating . . . the 'Hotflow' accelerator.



Ideal valves and unions. In cast gunmetal or hot pressed brass. Polished or chrome finishes. Ideal Full-way fittings in copper or brass for pipe lines in copper.



from page twenty-nine

hot water by indirect cylinder or central heating or a combination of both. The boilers are automatic and the heat output is controlled by thermostat and electric fan, so that when there is no requirement for heat there is negligible fuel consumption.

The smallest boiler in the range is the GF45 with heat output of 45,000 B.t.u. per hour, continuous when called upon, and this can be employed according to the design engineer's requirements for hot water or central or both. The manufacturers are Allied Ironfounders, Aga Heating Division, and Advisory Service, Cadbury Road, Sunbury-on-Thames.

★ ★ ★

THE Crane 20A is the latest development in domestic boilers from the range manufactured by Crane Ltd., Wigmore St., London. It is specially designed for use with the normal hot water storage tank or cylinder of the 25-35 gallon capacity in the average home.

The Crane 20A burns any type of solid smokeless fuel—including coke, the cheapest fuel—and will consume dry combustible kitchen waste.

TRIANCO'S P.65 domestic solid fuel boiler is the latest addition to the range. Produced to meet the needs of the medium sized home, it has a capacity of 65,000 B.t.u./hr. Large hopper holds sufficient fuel for 12 to 24 hours' operation in winter and for much longer in summer. The fuel used is anthracite grains.

The Trianco declinkering arrangements permits the cleaning of the fire by simple movement of lever, which ejects clinkers without dust fumes or loss of heat, all the doors being closed. From Trianco Ltd., Imber Court, East Molesey, Surrey.

★ ★ ★

INTERNATIONAL'S "Economatic" series of gas-fired "packaged" boilers have a built-in small bore accelerator—the famous "Thermo-Pak"—and an electric timer.

There are five sizes "Economatic," from 33,000 B.Th.U. per hour which provides ample hot water plus up to 140 sq. ft. heating pipes and radiators. The manufacturers are International Boilers and Radiators Ltd., Terminal House, Grosvenor Gardens, London.



GLOW-WORM Boilers Ltd., 47 Hatton Garden, E.C.1, manufacture a comprehensive range of central heating and hot water heating boilers and radiators for the home—including the new ¼ for 1961 Major, Minor, and Junior De Luxe boilers.

Illustrated here is the Junior Aristocrat model which is thermostatically controlled with simple dust-free riddling and dumping. Specially designed for the compact circuit, it will take a 25 to 40 gallon hot water tank. On a 25 gallon tank it will heat the normal kitchen and take two small radiators and a towel ailer.

continued page thirty-seven

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Dublin 2. 'Phone 72104.**



from page seven

PROTECTION FROM FROST DAMAGE

IN many modern dwellings it is becoming commonplace to insulate the ceiling joists to prevent heat loss. This results in the roof space being at a low temperature in winter time, and so we have trouble with the pipes and store tank.

Many cases have been noted where copper tubes have pulled out of their couplings. This is due to the fact that water in cooling below 39°F gradually swells in volume, so that by the time it becomes ice it has increased approximately one-tenth in size.

As the pipe was already full of water, this ice cannot be accommodated, so the pipe must swell and eventually burst or else pull out of the couplings. In most cases the latter happens, with the result that when the thaw sets in, the ice in the pipe melts and becomes a flowing cascade from the open end. This type of coupling failure often occurs because insufficient pressure was applied to the compression ring when tightening the joint originally. Capillary soldered joints have a big advantage in this respect as they resist any pull-out strain.

Store tanks

THE ideal solution for store tank protection is to insulate the underside of the roof with Fibreglass or similar material so that any heat rising from the lower rooms is retained in the roof space where the tank is situated.

However, as already mentioned, the usual procedure is to insulate the ceiling joists, so leaving the roof space very cold. To prevent the store tank freezing, we are then left with a choice of the following precautions.

- The tank should, if possible, be fixed directly over the cylinder cupboard (Fig. 3). The warm air rising—even from a jacketed cylinder—will be sufficient to prevent frost damage. The tank should rest on a timber base secured to the ceiling joists, precautions being taken by blocking the ends, so as to prevent cold air circulating between the joists and under the tank.

- Another good position for the tank is to put it adjacent to a warm chimney breast.

- It is sometimes suggested that a hot water heating coil be fitted under the tank, being branched off the expansion pipe, and returning by a separate pipe to the cylinder.

This is an excellent idea, provided the householder understands its use, and only turns it on when weather conditions are severe. As often happens, however, once turned on, it will be forgotten, with consequent unnecessary heat loss, and so for that reason it is not recommended for general installation.

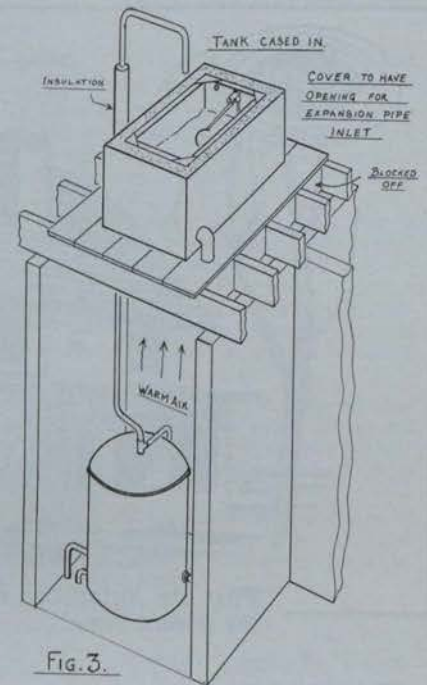
Overflow pipes

THESE are often a source of frost trouble due to the cold air rushing through the exposed end of the pipe, thereby lowering the tank temperature. If a loose self-closing flap be made from sheet copper and clipped over the outlet end, it will prevent this trouble.

Waste Pipes.—One of the worst cases of frost damage in the author's experience was due to a partly closed bath-tap left running accidentally at night. The cold water slowly flowing through the outside waste gradually became frozen, and finally blocked the pipe. The bath then filled up, overflowed, and the water passed down through three floors. The occupier, a lady, on hearing the noise, rushed upstairs, slipped, and sustained a broken arm—all because of a frozen waste pipe!

Although the external waste pipes on a building could be insulated, a rather unsightly job would result. A far better precaution is to ensure that all taps close tightly—dripping taps being re-washed if necessary.

The very common practice of allowing the cold water tap to drip during the night hours and so prevent the supply pipe freezing, is not only illegal, but most dangerous if the waste pipe should freeze.



Soil pipes

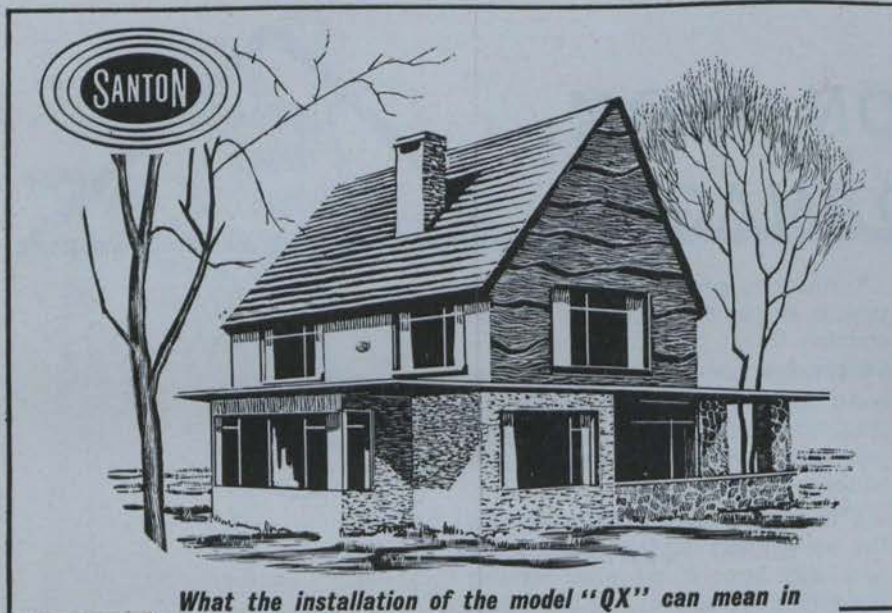
THIS same trouble may arise with soil pipes, if a W.C. cistern or flushing valve is faulty—for instance, a defective drop-valve washer. The slow trickle of water may lead to a gradual build up of ice in the soil pipe and eventually complete stoppage. In extreme cases, it may fracture the soil pipe. The tendency in modern buildings to have internal soil stacks is to be commended.

External W.C.'s.—This is a part of a plumbing system very much neglected, and so ideal conditions exist for frost damage. We find the supply pipe completely exposed, unlagged cistern, ill-fitting door, etc.

In most cases the occupier makes no attempt to avoid trouble, whereas with a little forethought much could be done. First, the use of a polythene supply pipe could be considered—this type of plastics pipe has great elasticity and expands without bursting should the water in it freeze. Incidentally, this property also makes it very suitable for use in the roof space where appearance is not important.

Secondly, the W.C. cistern could be surrounded with Fibreglass, etc., and cased in. Finally, the W.C. pan, if unused in winter time, should have its trap filled with an anti-freezing liquid such as glycerine.

continued page thirty-five



**Electric
Central
Heating
in the
home**

What the installation of the model "QX" can mean in the modern home.

- ★ Easily adjustable. Suitable for fully automatic air temperature control.
 - ★ No fuel storing, no fumes or noise.
 - ★ No flues or chimneys required.
 - ★ The ideal electric unit for converting existing low pressure hot water central heating systems to automatic electric operation.
 - ★ Suitable loadings are available for all domestic purposes.
 - ★ Dimensions of largest model only 7" high x 41" long.
- Full particulars



MODEL QX

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Sole Eire Agent: Charles Nolan & Co., 2 Parker Hill, Lower Rathmines Road, Dublin.

JOHNSON AND SLATER

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KENT.

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

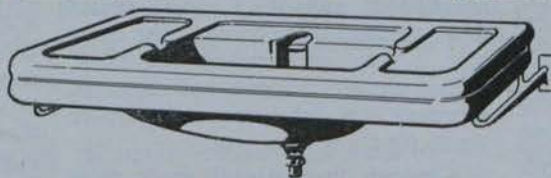
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VITREOUS CHINA & EARTHENWARE



"Westwood"

VITREOUS ENAMELLED FIRECLAY



SANITARY WARE IN WHITE AND COLOUR

for

HOUSING, HOSPITALS, SCHOOLS, MUNICIPAL BUILDINGS and FACTORIES

(Colours to match Irish Foundries Ltd.)

EXHIBITORS IN THE BUILDING CENTRE, DUBLIN, SINCE ITS INCEPTION.

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**C. B. SHERIDAN,
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DUBLIN.**

Phone 66283.

TENDERS

MAYO County Council—Foxford Sewerage Scheme: Tenders are invited for the construction of a sewerage scheme in Foxford, Co. Mayo, in accordance with the Drawings, Specification, Bill of Quantities and General Conditions of Contract prepared by the Council's Consulting Engineer, Mr. E. R. Ryan, 1 Montpellier Terrace, Galway.

The works include the laying of approximately:—

- 1,665 L. yds. of 6" sewer with concrete pipes;
- 2,728 L. yds. of 9" sewer with concrete pipes;
- 807 L. yds. of 12" sewer with concrete pipes;
- 382 L. yds. of 15" sewer with concrete pipes;
- 408 L. yds. of 9" sewer with concrete pipes (Provisional), together with all manholes, storm overflows, ventilating columns, ancillary works and the construction of 2 No. Disposal Works.

Sealed Tenders, endorsed "Tender Foxford Sewerage Scheme" and accompanied by the Bill of Quantities priced and extended in ink should be delivered to the County Secretary, Courthouse, Castlebar, not later than 12 noon on February 10.

from page thirty-three

Plumbing system protection ★

WHERE a house is to be unoccupied for some time during cold weather, the main stopcock should be closed, and, if possible, all hot and cold water pipes and fittings drained. All traps should have their seals removed and replaced with a non-freezing liquid. The central heating installation, if fitted, should also be drained.

In conclusion, it must not be forgotten that most house-owners have only the vaguest idea as to their plumbing systems, and the contractor should consider it a duty—and also good business—to instruct his customers on frost protection methods.

One contractor—a go-ahead type—has even presented his customers with a hang-up card detailing the steps to be taken for protection during frosty weather, adding his phone number as a final comfort!

★ ★ ★

CORK County Council—Buttevant and Doneraile Regional Water Supply Scheme: Tenders are invited for the construction of Buttevant and Doneraile Regional Water Supply Scheme in accordance with General Conditions of Contract, Drawings and Specification prepared by Mr. Edward G. Pettit, B.E., M.I.C.E.I., M.Cons.E.I., 7 South Mall, Cork. The work consists of:—

The construction of a 200,000 gallon R.C. Reservoir and the laying of the following pipes:—

- 950 lin. yds. of 10" pipe;
- 6,164 lin. yds. of 9" pipe;
- 3,347 lin. yds. of 8" pipe;
- 1,495 lin. yds. of 6" pipe;
- 4,437 lin. yds. of 5" pipe;
- 26,727 lin. yds. of 4" pipe;
- 156 lin. yds. of 3" pipe,

together with the necessary valves and fittings.

Contract Documents may be obtained at the Cork County Council Offices on payment of a deposit of £50-0-0. Sealed tenders (together with Bills of Quantities) must reach the Secretary, Cork County Council, Annabella, Mallow, not later than 12 NOON on January 24.

★ ★ ★

MONAGHAN County Council—Renewal of Electrical Installation, Courthouse, Monaghan: Tenders are invited for the Electrical Installation, including Lighting and Occasional Space Heating, in the Courthouse, Monaghan, for the Monaghan County Council, in accordance with the General Conditions of Contract, Specification, Schedule and Drawings, prepared by Ed. Ralph Ryan, M.E., B.Sc., M.I.C.E.I., Consulting Engineer, 1 Montpellier Terrace, Galway, and from whom Forms of Tender, Schedules and Contract Documents may be obtained on payment of a deposit of £10 10s. 0d. Completed Tender Forms and Schedules, clearly and fully marked in ink, enclosed in sealed envelopes, and endorsed "Tender for Renewal of Electrical Installation in Courthouse, Monaghan," should be addressed and delivered to the undersigned, not later than January 31 1962, to: The Secretary, Monaghan County Council, The Hill, Monaghan.

★ ★ ★

CORK County Council—Tenders are invited for the construction of the following:—

- (a) Lismire Water Supply Scheme, which work consists of laying 1,800 lin. yds. approximately of 4" diameter A.C. or P.V.C. Class "B" watermain; 1,787 lin. yds. Class "C" ditto, and 1,228 lin. yds. Class "D" ditto, together with 2,978 lin. yds. approximately 2" diameter A.C. or P.V.C.

Class "B" and 2,422 lin. yds. Class "C" ditto, and ancillary works.

- (b) Provision of Sanitary Services to Kilroe Houses, Kanturk, which work consists of laying 1,095 lineal yards of 6" diameter spigot and socket concrete pipes, 76 lineal yards of 4" diameter spigot and socket concrete sewer pipes, building pumphouse and laying 380 lineal yards of 2" diameter Class "B" A.C. or P.V.C. water main, together with the supply, installation and connection of specified sanitary fittings in 12 No. Council Houses at Kilroe, Kanturk.

Copies of the documents may be obtained at the undermentioned offices on payment of £1 per set (not returnable). Each tender must be accompanied by a deposit of 10 guineas.

Deposit will be liable to forfeiture if Contract Agreement and Bond are not completed and work commenced within the prescribed time.

Sealed tenders (together with Bills of Quantities) must reach the Secretary, Cork County Council, Annabella, Mallow, not later than 12 noon on Wednesday, January 24.

★ ★ ★

CORK County Council—Buttevant and Doneraile Regional Water Supply Scheme: Tenders are invited for the supply and installation of the following plant for the above scheme, in accordance with Specification prepared by E. G. Pettit, B.E., M.I.C.E.I., M.Cons. E.I., 7 South Mall, Cork:

- 2 No. Pumping Sets, consisting of centrifugal pumps and electric motors, each having a capacity of 14,000 gallons per hour against a total head of 310 ft., together with all accessories, fittings and pipe work.

Copies of Documents may be obtained at the undermentioned offices, on a deposit of £10.

Tenders in sealed envelopes, endorsed "Buttevant and Doneraile Regional Water Supply Scheme—Tenders for Pumping Plant," will be received by the Secretary, Cork County Council, County Council Offices, Mallow, up to but not later than 12 noon on Wednesday, January 24.

NEXT MONTH

Next month's issue will contain a special survey on taps and fittings, including control valves, traps, etc.

NEXT MONTH

Thermal Insulation



M. A. Boylan Limited

A subsidiary of The Cape Asbestos Company Ltd.,
50a Harcourt Street, Dublin.
Telephone: 52397, 54485 and 51787



We are the foremost insulation specialists in the country with many important insulation contracts to our credit. The huge Oil Refinery at Whitegate and the Derrinlough Briquette factory are recent examples. If you have any heat-loss problem, discuss it with our highly experienced technical staff. Our recommendations are offered free and without obligation.

Sole agents and stockists for:

'Rocksil' rock wool

Rigid Sections

Flexible Sections

Blankets

Mattresses (wire-mesh-backed)

Loose Wool

'Caposite' amosite asbestos
moulded blocks and pipe sections

*Also full range of plastic materials
and hard-setting compositions.*

EASY COMPACT INSTALLATION

FOR WATER SUPPLY



Self-priming with a suction lift of 20 feet, the electric driven M range of Mono Pumps are compactly constructed, flange mounted to a motor of very low power consumption.

Its silent operation permits installation in any convenient position and the non-pulsating, steady flow will not transmit noise through the pipeline. No oiling or greasing of the pumping element is required and no foot valve necessary.



The MONO pump

Attractive terms to Dealers

MONO PUMPS LIMITED, MONO HOUSE, 1 SEKFORDE STREET, LONDON, E.C.1

Phone: ChE (Kew) 8941. Mono pumps, Phone, London and at Birmingham, Dublin, Glasgow, Manchester, Newcastle, Wakefield
MP 251

from page thirty-one

THE McClary-Easy Division of General Steel Wares Ltd., Victoria Works, Edgeware Rd., Crinklewood, London, have introduced a number of gas fired warm air furnaces. Gas fired ducted warm air units of 50,000, 60,000 and 72,000 B.t.u./hr. have recently been placed upon the Gas Council's approved list.

The manufacturers are anxious to contact an Irish agent for their complete range of gas and oil fired warm air heating equipment.

★ ★ ★

THE DRUGasar type JBN is a robustly constructed balanced flue type heater, available in several sizes and designed to give convected as well as radiated heat. The ducts are concealed within an asbestos cement wall liner cemented into the wall opening, a grille being fitted flush on the outer side of the wall.

The grilles of the three largest models are provided with wind stabilising fins.

The makers are F. A. Borchardt Ltd., 486 High Road, Chiswick, and the Irish agents are Preston Ltd., 201 Pearse St., Dublin.



AVAILABLE from the Danish Stoker Co., Ltd., of Copenhagen, whose Irish offices are at 38 Pearse St., Dublin, are: (i) high pressure steam super economic boilers suitable for solid fuel or oil burning; (ii) high and low pressure hot water boiler; (iii) emulsion L-type burners suitable for burning without pre-heating.

All D.S.V. boilers are built to British standards—854,855, and 2790, and are easily convertible to gas, solid fuel or oil burning. D.S.V. equipment is known and used widely throughout the country and is in operation with Brown & Polson Ltd., Irish Lights, Waterford Glass, Bolton St. Technical School, Lincoln & Nolan Ltd., Kilkenny Mental Hos-

pital, and the beautiful skyscraper offices of Irish Life. Illustrated here is the D.S.V. hot water boiler at Irish Lights.

The Irish office of D.S.V. act as agents for the Beeston range of gas fired, oil and solid fuel burning boilers.

★ ★ ★

THE Super Sunglow stove, with thermostatic control, may be set to give burning rates from 2lbs. per hour down to as little as ¼lb. fuel per hour, which is considerably less than 1 cwt. fuel per week. The Super Sunglow is capable of heating rooms up to 2,900 cu. ft. capacity. It is made by Warrington Light Castings Co., Ltd., Warrington, Lancs.

★ ★ ★

REDFYRE'S open fire Bacboiler will adequately heat an average room of 1,500 cubic feet capacity; for a larger room, a Redfyre Bacboiler supporting one or two radiators is ideal. The extra large heavy duty cast iron boiler will support radiators (including the service pipes) with a total heating surface area of 100 square feet—or 70 sq. ft. where it is also providing all the hot water required

continued page thirty-nine

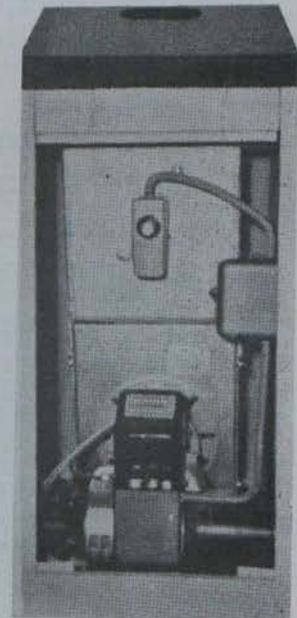
THE NEW DAVIS WAYNE BOILER BURNER UNIT

THE LATEST ADDITION TO THE RANGE OF DAVIS WAYNE HEATING EQUIPMENT: THE MODEL 60/70 OIL FIRED PRESSURE JET BOILER BURNER UNIT.

Price: £130 Retail

— TRADE ENQUIRIES INVITED —

- Also Oil Burners for light fuel oil, fully automatic, complete with controls, from £60.



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DALKEY, CO. DUBLIN. Telephone: 82286.

FOR AUTOMATIC CENTRAL HEATING

BALLINGARRY ANTHRACITE GRAINS

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**AVERAGE 3/4 BEDROOM HOUSE
Comparative cost for EQUIVALENT
CENTRAL HEATING AND HOT WATER**

Anthracite grains average 18/- to £1 per week
for the heating season.

NOTHING COMPARES WITH THIS

**ACTUAL COST FOR HEATING SEASON
WEEK**

Anthracite Grains (at £8 per ton)	20/-
Coke (at £8 per ton)	33/-
*Domestic Oil (at 1/8 per gallon)	45/-
†Gas (at 1/8½ per therm)	57/-
†Electricity night storage (at .8d. per unit)	58/-
†Electricity Day Rate (at 1.2d. per unit)	68/-
*Maintenance costs of approx. 21/- to 6/- per week not included.	
†Standing charges not included in costs shown.	

**WEEKLY COSTS AVERAGED
THROUGHOUT THE YEAR**

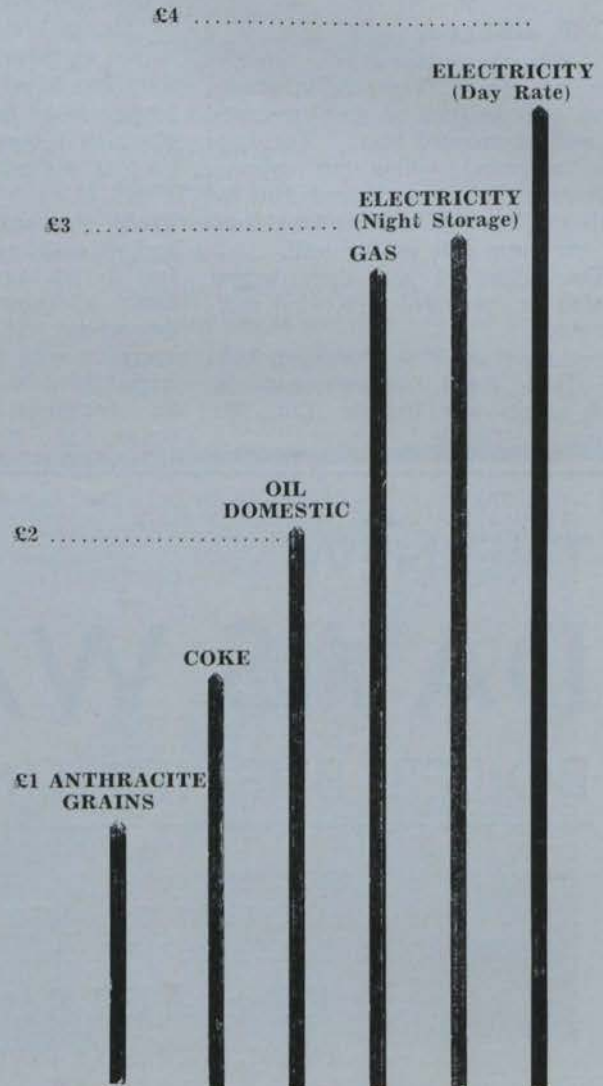
Anthracite Grains	12/-
Coke	21/-
Domestic Oil	28/-
Gas	32/-
Electricity (Night Storage)	40/-
Electricity (Day Storage)	47/-
For costings, technical advice and details of hire- purchase scheme, contact:—	

***Heating Advisory
Department***

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6 Good reasons why

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

- 1 A Trianco Boiler is thermostatically controlled. You set the thermostat, the Boiler does the rest.
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- 4 The Trianco Boiler gives more heat for less fuel and burns a wider range of fuel than any comparable boiler.
- 5 A Trianco Boiler will provide central heating and constant hot water, cleanly, economically and efficiently.
- 6 A Trianco Boiler is attractively designed in a choice of colours and is a fine engineering product, made to give years of trouble free operation and backed by a first class service.

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

TRIANCO

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

HEATOVENT SUPPLY CO.

5, Upper Fitzwilliam St.,
Dublin, 2.

Phone: 63061.

TRIANCO
automatic boilers



from page thirty-seven

for normal domestic use.

The 16" Redfyre No. 4A Bacboiler is an approved appliance suitable for burning coke, coal, anthracite or manufactured fuels. It is made at Newton Chambers & Co. Ltd., Redfyre Products, Thorncliffe, Sheffield. The Irish agents are Baxendale's & Co. Ltd., Capel St., Dublin.

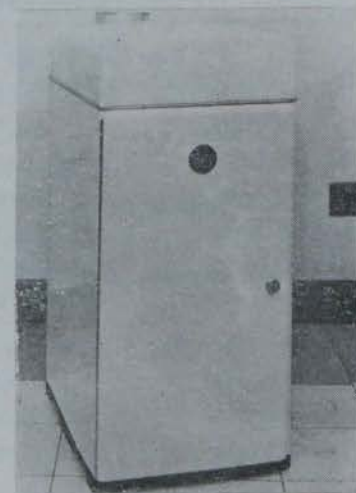
★ ★ ★

THE Sofono high duty boiler flue set is designed for use with 16" Sofono inset open fires suitable for continuous burning on bituminous or smokeless fuels. The open fire will heat a room of normal construction of up to 1,500 cu. ft. volume and the powerful back boiler will provide domestic hot water or serve a combined system of domestic hot water plus space heating by radiators of up to 85 sq. ft. surface area, including unlagging piping. The unit is offered with a throat restrictor as an optional extra.

★ ★ ★

GAS fired boilers from the range of Sunrod Domestic Appliances Ltd., Izons Lane, West Bromwich, can be installed in the kitchen and have a child-proof casing fitted with a lock.

Model G3 is rated at 30,000 B.Th.U. per hour. It will heat four average radiators or, with an indirect hot water cylinder, will provide all the domestic hot water required and heat two radiators.



The boiler is fully automatic and the only control outside the attractive casing is the thermostat, which allows for complete control of the water temperature. Illustrated here is the Sunrod G5 gas-fired boiler.

continued overleaf

The Irish Plumber and Heating Contractor.

from previous page

In order to achieve labour saving, cleanliness and efficiency in the Watts Gravity Feed boiler the fuel falls under its own weight from the hopper to the ground automatically, giving heat and hot water when required.

The only control is a thermostat which can be adjusted over a wide range of temperatures, and switches on a small electric fan when the water temperature drops, so that the fire quickly blows up to an intense heat, whereupon the thermostat switches off the fan.

From Watts Automatic Boilers, High St., Lydney, Gloucestershire.

★ ★ ★

FROM the full range of Janitor boilers manufactured by Powell Duffryn Heating Ltd., Camberley, Surrey, we note the Janitor type A3, with a rated output of 140,000 B.t.u./hr. It heats 930 square feet of radiating surface, including pipework.

This boiler is applied to uses in large private houses, hotels, blocks of flats, schools, also industrial and horticultural requirements. All Janitor anthracite boilers can be used singly or coupled in battery form.



An entirely new gas-fired boiler for central heating and "indirect" hot water supply is announced by Ideal Standard Boilers Ltd., of Hull. Known as the Ideal Elite Gas Boiler—illustrated here—it is available in five sizes, from 90,000 to 220,000 B.T.U./hr. and is intended for the medium to large house and other buildings.

Fully automatic in every sense, it features the exclusive "Flamaster" automatic ignition control. This operates electrically on a 12-volt system, and no pilot flame has to be lit. A remotely sited on/off switch, which over-rides all other controls, may be fitted anywhere in the home, even the bedroom.

★ ★ ★

THERE are Tayco boilers for use with solid fuel and oil from £14 7s. upwards and incorporated in the Tayco 20K model, solid fuel boiler, are rotary action bottomgrate, easily adjustable ashpit air control, lever operated flap type nozzle damper, and provision for gas ignition.

The 20K model burns the normal range of solid fuels, including coke, anthracite, or manufactured fuel. It is marketed by Tayco Boilers Ltd., Victoria St., London.

NEXT MONTH

Next month's issue of the "Irish Plumber and Heating Contractor" will contain a special survey on traps, fittings and controls.

NEXT MONTH

Chappee

Cast Iron Sectional Boilers

★ For Hot Water Installations

AN100 Series	33,000/61,000 BTUs/hour
AX200 Series	66,000/144,000 BTUs/hour
AN300 Series	128,600/278,000 BTUs/hour
AN400 Series	269,000/603,000 BTUs/hour
AN500 Series	524,000/1,400,000 BTUs/hour
AN600 Series	1,100,000/2,500,000 BTUs/hour
B200 Series	262,000/628,000 BTUs/hour

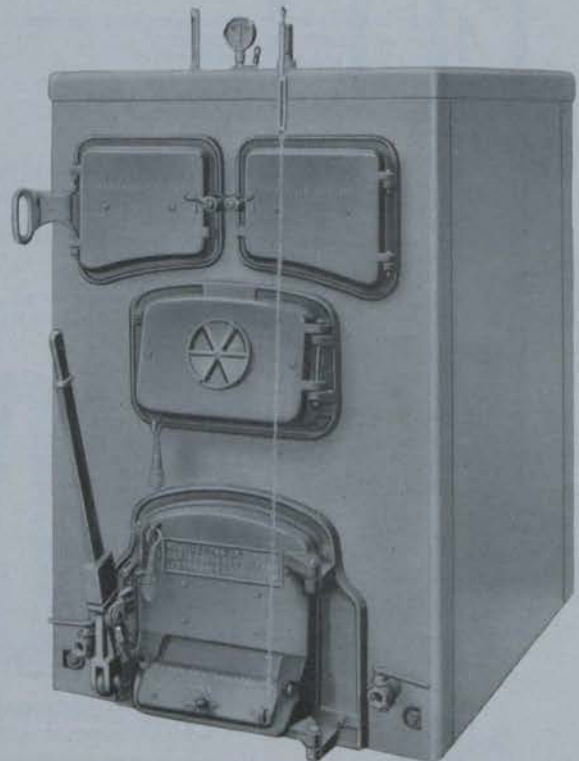
★ For L.P. Steam Installations

A5000 Series	270,000/1,250,000 BTUs/hour
A6000 Series	975,000/2,260,000 BTUs/hour
B2000 Series	262,000/629,000 BTUs/hour

All trade enquiries from Irish Agents:—

Irish Technical & Production Co. Ltd.

25 Upper Mount St., Dublin. Tel. 62636.



Directory Of Manufacturers, Agents, Representatives And Distributors

★ We would advise that the June, 1962, issue of this Journal will contain the first complete register of Manufacturers, Agents, Representatives and Distributors of Plumbing, Heating, Ventilation and Insulation appliances, fittings and materials available in the Republic of Ireland and Northern Ireland. This will include the names and addresses of Irish Agents and their principals in Ireland or abroad.

If you come under the heading

of any of the categories listed on the right, we would ask you to submit complete details without delay so that our records can be compiled accurately. Any literature regarding your products may assist editorial mention and will be welcome. Names and addresses of Agents and/or Representatives should be included when submitting details. If you are requiring an agent, please indicate accordingly.

CATEGORIES

- Oil, Solid Fuel and Gas-Fired Boilers.
- Electric Heating Appliances.
- Thermostats and Controls.
- Pumps and Circulators.
- Radiators.
- Insulation Materials.
- Oil Storage Tanks.
- Ventilators & Fan Equipment.
- Sanitary Ware.
- Tap and Shower Fittings.
- Pipes, Jointings and Gutters.
- Tools and Welding Metals.
- Hot Water Supply Equipment and Boilers.
- Water Pumping Equipment.
- Water Storage Tanks.

PLEASE SEND IN YOUR PARTICULARS NOW!

READERS ENQUIRY SERVICE AND SUBSCRIPTION FORM

POST TO: IRISH TRADE AND TECHNICAL PUBLICATIONS, CALLAGHAN CHAMBERS,
13/15 DAME STREET, DUBLIN. TELEPHONE 56466

or 21, CRICKLEWOOD PARK, STRANMILLIS, BELFAST, 9. Tel.: BELFAST 669112.

Please send me particulars of the following, as
seen in the pages of this Journal.

Name and Address.....

SUBSCRIPTION FORM

Please send me "The Irish Plumber and Heating Contractor" every month until further notice.

I enclose subscription of One Guinea.

Signed

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Firm

Address

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Date.....

'SAFEHEAT'

ELECTRIC PANEL HEATERS

provide the solution to your room heating problems



Standard Colours: Off-White, Pearl Grey, Cream or Lichen Green—stove enamel.

Other Colour Finishes

available at extra charge.



These Space Heaters are of the Medium Temperature Type (in accordance with B.S.C.o.P. CP324.201—1948 and B.S. 1670) and can be considered the safest wall mounting electrical space heating media for use in homes, offices, schools, hospitals, etc.

'SAFEHEAT' Panel Heaters are available in six dimensionally different sizes with maximum loading capacities of 500/800/1000/1200 and 1500 watt.

The load of the heating elements is controlled by a 4-heat switch, also having an 'OFF' position.

WRIGHT ELECTRIC MOTORS (HALIFAX) LTD.

MANUFACTURING ELECTRICAL AND MECHANICAL ENGINEERS

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