

2-1-1965

The Irish Plumbing and Heating Engineer, February 1965 (complete issue)

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Recommended Citation

(1965) "The Irish Plumbing and Heating Engineer, February 1965 (complete issue)," *Building Services Engineering*: Vol. 4: Iss. 11, Article 1.

doi:10.21427/D7670G

Available at: <https://arrow.tudublin.ie/bsn/vol4/iss11/1>

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MRS 1970 knows what she wants

And she knows just where to get it. Because the hard-hitting advertising, which first sells her on the idea of installing Shell and BP Housewarming, also tells her of the superb service offered by her local Appointed Installer. The special Shell and BP Appointed Installer's sign is prominently featured in each advertisement to help her remember it.

There are hundreds of Mrs. 1970's. All looking for the Irish Shell and BP Limited Appointed Installer's sign—the sign which they know means prompt, efficient service. Hundreds of Mrs. 1970's—hundreds of systems to install and service. It's obviously very good business to give Mrs. 1970 what she wants!

For Central Heating



Irish Shell and BP Limited
Shell-BP House,
13-16 Fleet St., Dublin 2.





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Vitreous Enamelled
SANITARY FIRECLAYWARE

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Canteens and Factories**

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PRIMROSE	BLACK
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(Vitreous China Division)

ALFRED JOHNSON & SON LTD.
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INTERNATIONAL **Capital** PRESSED STEEL RADIATORS

In Single and Double Panels

- ★ Manufactured in accordance with British Standard BS 3528 and tested to 100 lbs. per square inch (7 Kg/cm²).
- ★ Suitable for use on closed circuit heating installations only, and should not be used on direct domestic hot water circuits or on steam.
- ★ Made from 18 swg (1.219 mm) steel specially supplied for the purpose.



EX STOCK DUBLIN

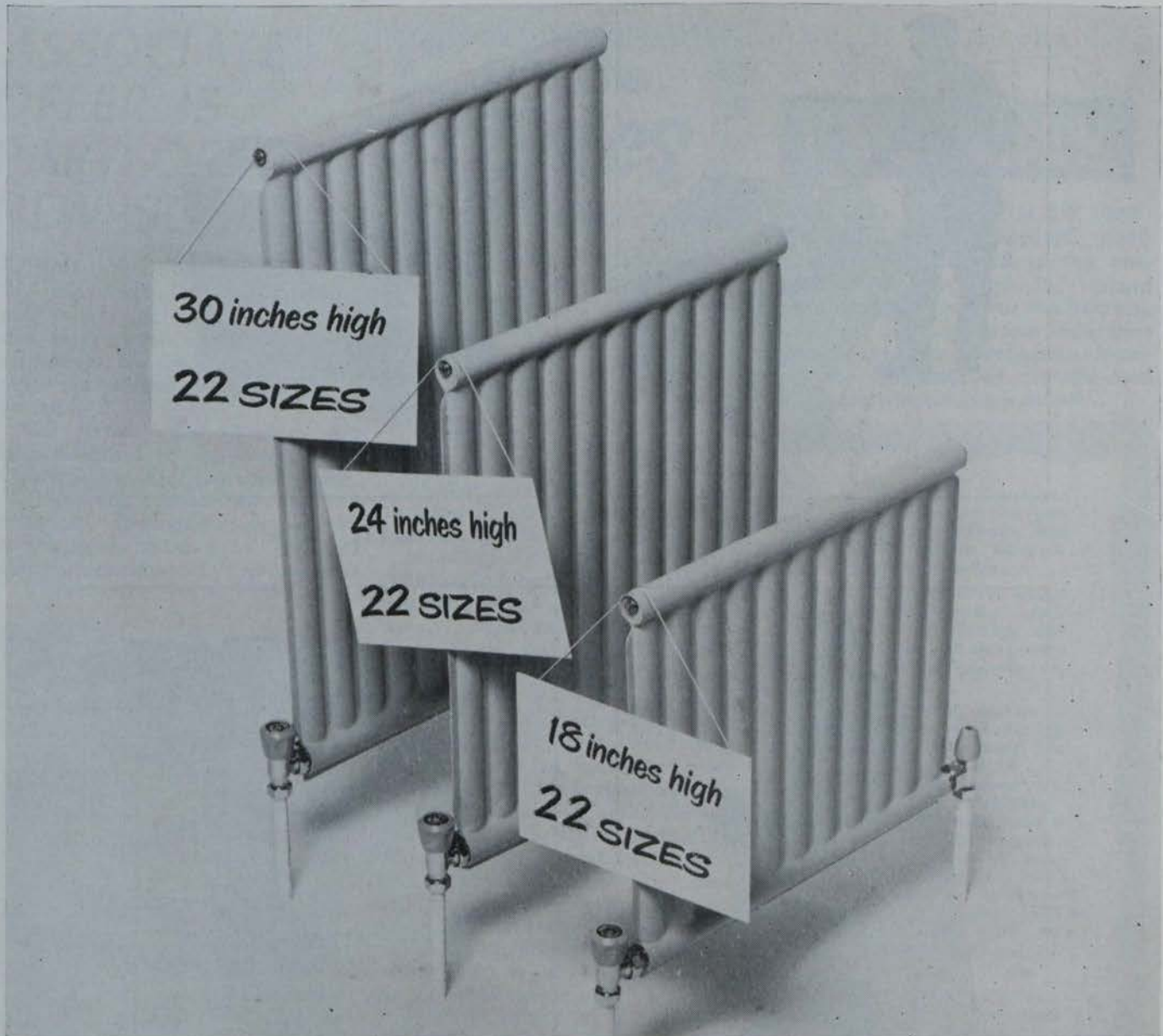
- ★ Also — THERMOPAK, SILENTFLO, MULTIFLO and THERMOFLO Accelerator Pumps from stock.
- ★ We also carry large stocks of Radiator Valves by all leading makers.

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Potterton radiators' range of sizes has been carefully scaled to give really fast production.

The result is 66 sizes—from which you can more accurately meet customers' heating requirements.

Fast production helps to keep a good stockpile. So you've no worries about delivery.

Potterton radiators' heat emission is guaranteed correct. This saves your time.

You don't have to specify more, or bigger radiators than are needed.

Your customers get all the warmth they want. Which makes more satisfied customers for you.

Installers know where they are with Potterton radiators. They cut out guesstimating. They're dead accurate.

Order the new Potterton radiators now. You can get them immediately—in all 66 sizes.

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Telephone: 53026/7/8/9.



deliver



unpack



position



connect

“Ideal-Standard” designed the “Marquis” for you!

For the installer, the big advantage of the “Marquis” is that it reaches you fully assembled—including the jacket. All you have to do is connect water and flue. The packing has been specially designed for easy handling. Think of the time (and money) you will save. The “Marquis” is available in four sizes—35,000 to 65,000 B.T.U./hour—at list prices from £49. It is extremely compact and sturdy, and incorporates the following important features: thermostat, thermometer, built-in draught stabiliser, shaking grate, and dumping device. The “Marquis” is today’s outstanding solid fuel boiler. For further details, write to: IDEAL-STANDARD LIMITED, P.O. BOX 60, HULL, YORKSHIRE.

'ASSOCIATE' OFFER IS PART OF NEW SCHEME

FIRMS are being invited to participate as "associates" of a company which has developed a unique new process for resurfacing baths, washbasins, lavatories and other sanitary ware, whether vitreous enamel or porcelain.

The process — Porce-Master — has been developed by the Porce-Master Chemical Co. Ltd. (Airwork House, 35, Piccadilly, London, W.1), and has unlimited applications in private homes, hotels, ships, etc. The process restores showroom appearance in



Disposer Unit

THE Model 77 In-Sink-Erator waste disposal unit has now been redesigned. A five year guarantee, anti-corrosion shield, fully automatic reversing (no separate controller needed), bayonet type fitting are all features retained in the new design. A capacitor start $\frac{1}{2}$ h.p. motor for economic running is used, and a specially hard steel for longer life cutting element.

Agents: R. T. Large & Sons, Stephens Place, rere 47 Merrion Square, Dublin. H. A. Leon, 1 Richview

Published By ARROW @ Dublin, 1964

trade Topics

a choice of colours with a new surface that is completely durable, and is also chip, flake and crack-resistant. A bath (interior) can be treated for under £8.

Companies, or individuals, who become "associates" of the company will be given an exclusive territory in which to operate. They must first pass a one-week training course in the application, and they will be required to invest £1,000 per 100,000 head of population in the area selected.

In return for this investment, a company is formed for the Associate, and he is supplied with all the necessary equipment and sufficient Porce-Master material to earn back more than 50 per cent. of his original investment.

"It has been calculated that an Associate resurfacing only two baths a day can expect an annual net profit of £2,244, with proportionate increases for greater volumes of work," claimed a spokesman who confirmed that the offer applied to Ireland. Out of the gross turnover the "associate" pays the Porce Master Company 10 per cent., which is used for advertising and sales promotion on a national scale which, in turn, ensures a constant flow of business.

FOLLOWING the success of the Tiara range launched two years ago,

Royal Venton have introduced a new luxury style, 20" x 16", basin in the same series. Like

the 23" x 18" Tiara basin, the new model is available with tap holes at six inch centres for pillar taps or four inch centres for mixer units.

All Tiara basins now have an anti-splash rim and are available in the full Royal Venton colour range and white. An integral soap tray and circular overflow vent give an appearance of pleasing simplicity.

A matching slim shape pedestal (718) is available for both basin sizes or, where wall mounting is preferred, a suitable bracket (508) can be supplied. The Tiara range is manufactured by John Steventon & Sons Ltd., Middlewich, Cheshire.

IRISH PLUMBING & HEATING

ENGINEER

Vol. 4. No. 11. FEBRUARY, 1965
THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing and ventilation industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

W. J. R. Couchman contributes another part in his Seven Deadly Sins series for the domestic heating installer.

This month's special Review feature deals with tap fittings and controls. It also covers valves and shower fittings.

Of special interest to our plumber readership is the news that the serialisation of A. L. Townsend's second volume in his "Plumbing" work will begin within the next few months. This new series will take up from the first volume serialised in earlier I.P.H.E. issues and should prove to be of immense value and interest.

Last month's introduction of a reply-paid reader enquiry form has proved highly successful. This new I.P.H.E. service is designed to aid readers in getting speedy replies to problems and queries. So, please use it!

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

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

Belfast: 26 Carnamena Ave., Belfast 6. Phone: 643095.

trade Topics

BEING introduced here is the Allied Ironfounders Limited range of diamond - patterned pressed steel hot water radiators. **AVAILABLE HERE: NEW ALLIED RADS** The special pattern gives the radiators the greatest possible surface area while making them look "a size smaller than they heat."

These Allied single and double panel radiators are available in 16, 24 and 30 inch heights and a variety of lengths up to 9 feet. Curved and angled radiators can be ordered and the finish is in either grey stoved primer or enamelled white, cream, gold or silver.

All radiators are tested to 100 p.s.i. and heat emission (calculated at 100 deg. F. difference) is 192 B.t.u. per sq. ft. for single panel and 163 B.t.u. per sq. ft. for double panel.

The new radiators are being introduced by R. T. Large & Son of Dublin, who are distributors for the Leisure division of Allied. They are also introducing here the Leisure pressed steel bath available in standard colours and with an overall length of 5ft. 6ins.

A NEW, time-saving and economical way of mending metal has now been introduced on the market here. Polymar—the 2 hour metal filler—repairs, fills and binds metal with metal at high speed and low cost.

Polymar is a metal base which when mixed with its plastic hardener converts to a hard dense metallic material within two hours. It repairs all damaged, corroded and pitted iron and steel—for good. It has remarkable dimensional stability and moves in harmony with the metal it repairs. Workable, just like iron and steel, Polymar can be machined, drilled, screwed, filed or milled.

Because it is plastic until it has set, Polymar can be formed and moulded into any desired shape. It will also bond concrete, glass, wood and other material.

Polymar is distributed in Ireland by L. R. Wood Limited, 174, Pearse St., Dublin, 2, and Bridge Street, Cork.

in brief...

AMONG the many export orders on the Sanbra Fyffee Limited book is one from the West Indies—for 40,000 ½-inch Bibcocks.

* * *

ASCOT Gas Water Heaters Limited have increased prices on their instantaneous and storage water heaters, accessories and fittings. The changes come after increases in the cost of labour and raw materials (particularly copper). A surcharge of 5 per cent. has also been added to the cost of spare parts.



FROM IDEAL

THIS is the new solid-fuel central heating boiler by Ideal-Standard designed to attract greater sales with reduced costs to the trade. Called the Marquis, it has been given a slim styling by the leading industrial designer Douglas Scott, F.S.I.A., to suit the modern "ideal" kitchen. Colour, too, has been used to attract the housewife.

A sectional boiler, available with from four to seven sections, the Marquis has outputs ranging from 35,000 to 65,000 B.t.u./h. and comes in four sizes: M.35m, M.45, M.55, and M.65, which indicate the rating.

One outstanding sales feature incorporated by the designer is the positioning of the thermostat: this has been placed at the back in order to give the Marquis the slim width (15½ in.) that is desirable for the modern kitchen.



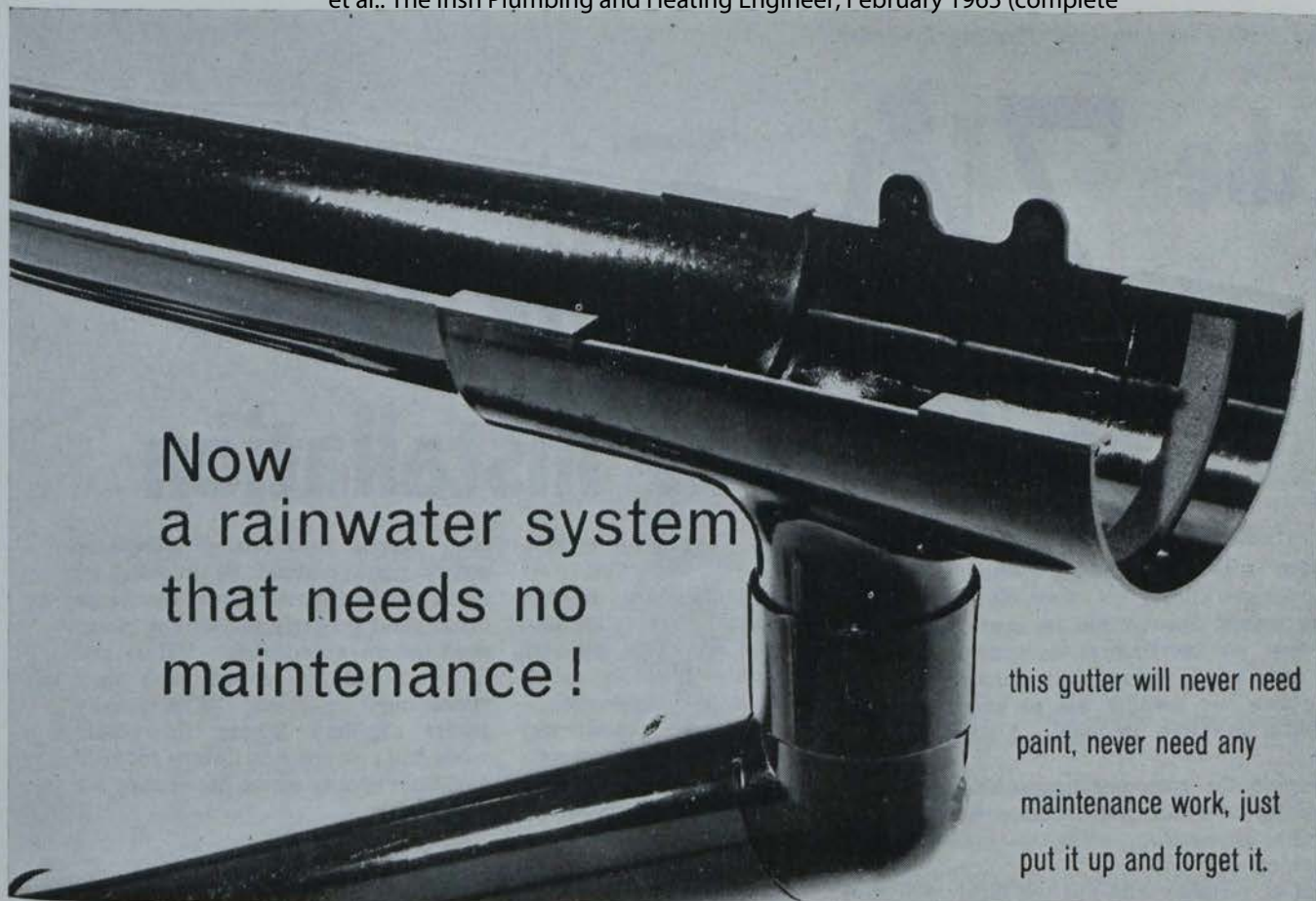
TWYFORDS NEW WALL-HUNG W.C.

TWYFORDS new 578 water closet has a most modern appearance. This wall-hung unit in ceramic glazed fireclay is 1½" longer than its predecessors and its external surfaces have been streamlined by the elimination of the customary rim-bulge and slight radiusing of corners. Similar treatment of the vertical surface above brackets and those of the flush pipe socket complete the modernisation.

The final result is a specialised w.c. with an appearance as attractive as any such utilitarian article could pos-

sibly present. Although appearance is, of course, important, the major benefit of this modern design is to simplify the task of keeping such equipment in perfect hygienic condition and cleanliness.

Designed specifically for hospital, institutional and similar public or semi-public installation, this fireclay w.c. can be supplied with B.S.S. open-fronted black plastic seat or hardwood Inserta seat pads in combination with 2, 2½ or 3 gallon high or low-level cistern.



Now
a rainwater system
that needs no
maintenance!

this gutter will never need
paint, never need any
maintenance work, just
put it up and forget it.



It's strong



it's rigid



it's light



it's
simple
to erect

This Wavin P.V.C. is designed to stand up to the roughest conditions. Unbelievably strong—it's made from tough un-plasticised P.V.C. which makes it impervious to atmospheric corrosion, consequently saving you the cost of painting and repair work.

The Wavin gutter is re-inforced by the introduction of a special feature called 'Profiling' which gives strength where most needed. This unique feature (patent applied for) ensures extra rigidity, making the Wavin gutter the best on the market.

The Wavin gutter is extremely light. In fact—a twelve foot length of Wavin profiled gutter weighs less than 5 lbs. This makes it easy to handle, easy to carry about. A great advantage when you are working on top of a ladder.

The Wavin gutter couldn't be more simple to erect. No cements. No adhesives. No gutter bolts. The parts simply "CLICK" together. You can put up the Wavin system in far less time and with far less trouble than the conventional systems.

The Wavin System is approved for grants by the Department of Local Government. Get the facts on this New WAVIN PVC PROFILED RAINWATER SYSTEM.

Designed, Developed and Manufactured in Ireland by

WAVIN PIPES LTD., BALBRIGGAN, CO. DUBLIN, IRELAND

Also at London, Liverpool, Belfast.

PHONE 212260. Telex 219.



Published by ARROW@TU Dublin, 1964

the 7 deadly sins of domestic installation

PART NINE

UP to now, in this series, we have been mainly discussing design and the right choice of equipment. It now seems appropriate to spend some time on installation: the actual work on site. I suggest that during this process the installer has to keep three vital objectives in mind. These are:—

- Keeping the customer happy.
- Making sure the job looks good and works well.
- Making a profit.

A lot of people would put the third point first but, in my experience, if you produce a sensible design and estimate and look after the first two points, the profit usually follows, and, even more important, more jobs keep coming in.

Keeping the Customer Happy.—Some people are downright unreasonable and there is no pleasing them. Usually one can detect, or one is warned of these types before even submitting an estimate. Most people, however, are most appreciative of a decent job; the only difficulty, from the installer's point of view, is that the customer's definition of a good job may be rather different from the installer's definition.



The average customer wants a quick, clean installation, started and finished on time. It must work reasonably well and must look good. It should be carried out by men who are fast, quiet and, above all, scrupulously clean, workers. This, I believe, is why a man trained as a plumber, and therefore used to working in people's homes, is often a better domestic heating installer than an old style heating fitter, who has been used to welding up four inch tube. Probably ex-painters would be even better, at

least as far as cleaning-up is concerned!

A good tradesman must be supported by a suitable supply of dust sheets and other covering materials and it is certainly advisable to organise a supply of clean overalls.

While good tradesmen require very little supervision the average customer expects "the boss" or a foreman to look in once or twice during the course of the job. It pays to visit the job on completion to make sure that the customer knows how to use the system, to make sure he has a radiator key, and generally to express interest.

Most of the above is not true for installations on new housing estates. The average estate developer is mainly interested in the price and the progress of the work. However, men who are used to good class private work can often do well on estate work, provided the price has not been cut to a point where good workmanship is no longer possible.

Making sure the job looks good and works well.—A really good tradesman is incapable of turning out a rough-looking job, unless, due to bad estimating, he is forced to work at an unreasonable pace. The designer can, of course, do a great deal to help with the appearance. Keeping pipe-work out of sight, wherever it is reasonable to do so, the symmetrical arrangement of radiators, and attention to small items like the provision of white-enamel flue pipe for a white boiler, makes all the difference in the world.

The fitter should be encouraged to use intelligence and imagination over the smaller details. Pipes that are meant to be parallel or vertical should be, otherwise they will be noticed immediately. Steel screws should never be used in any position where they might rust. Clip should be used at

the proper intervals. Blowlamp scorch marks should be avoided by using asbestos mats. Holes should be made good properly and ceiling plates used where appropriate. Valves and fittings should be chosen with their appearance in mind. I personally prefer capillary fittings for visible work and compression fittings for roof and floor spaces where blowlamps are inadvisable.



Finally, although the list is not exhausted, it is a good idea to fit an engraved label, with the firm's name, on each installation. Somehow, if your name is going on the job, a little extra care will be taken over the appearance!

Making a job work well should be a matter of following the design. However, the best designed systems usually require balancing with lock-shield valves or duct dampers and time must be allowed for this. The boiler, or air heater, must also be commissioned or "set up" properly, any airlocks must be cleared and the whole system given a running test.

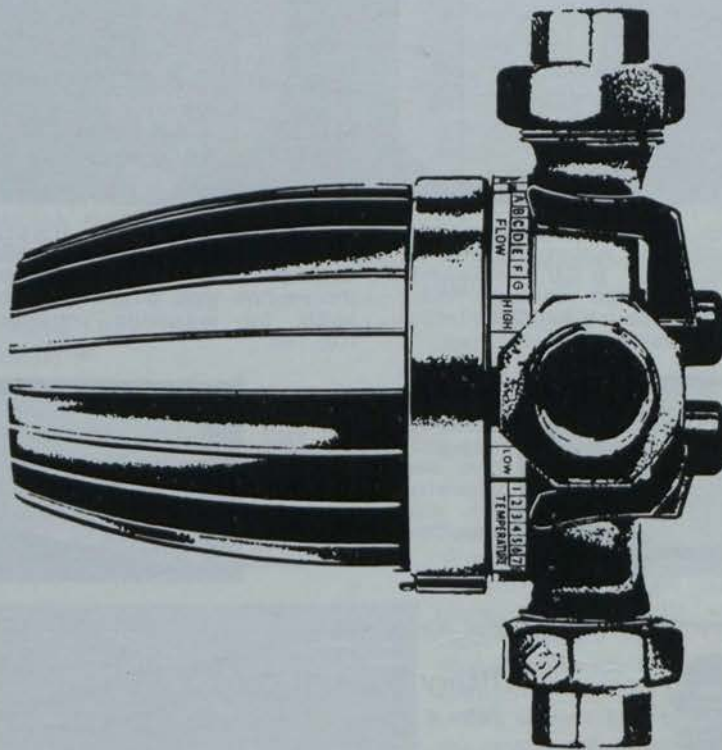
Making A Profit.—There are two ways of looking at profits—short term or long term. In other words: do you want bread and jam to-day, going hungry to-morrow; or do you want an assured diet of bread and butter with just enough jam to make it interesting. Most of us would prefer the latter situation and so we must get a reputation for giving good value and an honest job. Profitability, therefore, in the face of competition, will depend on:—

- (a) Economic design.
- (b) Good buying of materials.
- (c) High productivity.

The first point has been covered at length earlier in this series. The sec-

Continued page eight.

Moneyspinners!



MONEY

What you should know about the £.s.d. of International Pumps

Judging by the number we've sold most installers are already sold on the better design and easier installation of the International 'Flo' line! Now let's look at some plain facts about the hard cash.

YOUR DISCOUNT

Our retail prices are low and on these you get the most generous discount in the trade.

YOUR CASH REBATE

We give you 5/- for every pump you install, payable monthly. It mounts up quickly.

YOUR COMMISSION

You are entitled to 10/- commission for every pump maintenance contract that you place on our behalf.

YOUR MONEY-SAVING GUARANTEE

The International 2-year guarantee couldn't be fairer. If any manufacturing fault or mechanical flaw arises, the faulty part is replaced and you automatically get £1-10-0 to help offset labour charges.

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

OUR MAINTENANCE SERVICE

For £3-0-0 a year we will take maintenance off your hands completely. International Service Engineers are on call everywhere. They protect your good name by operating the finest service and spares supply you could wish for.

Quite simply, International offers you better products on better terms. So contact us now for full details.



International

BOILERS AND RADIATORS LTD

Sole Agents for the Republic of Ireland—
Messrs. Monsell, Mitchell & Co. Ltd.,
67-73 Townsend Street, Dublin 2.
All retail prices are subject to 5%
increase to cover carriage etc.

INTERNATIONAL BOILERS AND RADIATORS LTD Park House 22 Park Street Croydon Surrey Tel: Municipal 3581-5

The Irish Plumbing and Heating Engineer.

from page six.

and point depends on such things at watching the advertisement section of this journal, how much you can screw out of your suppliers, and how promptly you pay your accounts.

In aiming at higher productivity it is necessary to remember that, human nature being what it is, few people will work harder unless they are paid more. Many firms operate some sort of production bonus system; one simple method is to allocate a set time for a job and pay out on a percentage of any time saved, with a reduction for "call-backs." Once a man is interested in getting through the job quickly he will be receptive to suggestions for increased productivity. The first essential will be the proper tools. People still drill holes in brickwork with a hammer and jumper, some people still use a small cold chisel for cutting tanks. That sort of thing, at present wage rates, no longer make sense.

Given the right tools, the best way to save money is to make sure an operator is at work, doing the job he is trained and paid for, during almost every minute of the working day. Sounds obvious, doesn't it? And yet how much time does the average fitter spend chasing odd fittings that have not been supplied, or going from room to room for tools.



There are two basic ways of organising a domestic installation—one could call these the "production line" versus the "room by room" system. Using the "production line" system, a typical sequence of operations, using perhaps two men working separately, could be:

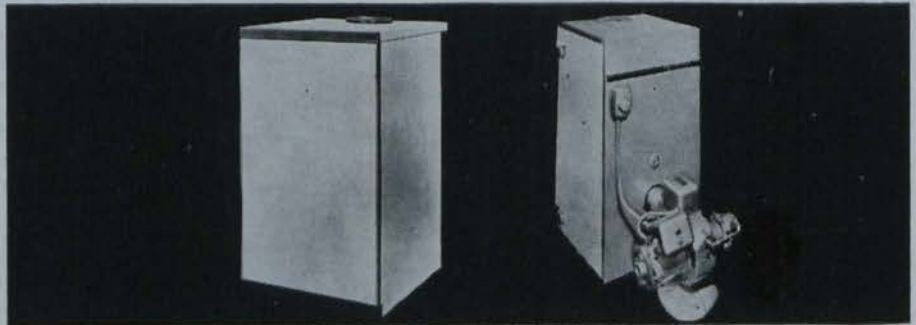
- (a) Mount bushes and fittings on all radiators, boiler and cylinder.
- (b) Cut holes, lift floorboards.
- (c) Fit all 1" pipework, cylinder and boiler.
- (d) Fit all 1/2" pipework and pump.
- (e) Fit all radiators.
- (f) Fit all 1/2" pipework.

And so on.

The idea here is to keep a man at work with the same few tools and on the same type of work for as long a run as possible. This is the right sort of approach for estate work where a team can go through a row of houses, doing nothing but fit radiators, possibly using templates, turning at the end and going back with the 1/2" "stalks" and so on. The "room by room" system is better for the occupied house since it

They don't let you D O W N at Wilsons

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



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

Wilson Boiler/Burner Units. Pressure-jet fired. Outputs from 70 to 800 thousand B.T.U. Larger models now with Wilson Cosytube baffle for maximum corrosion-free life.



Wilson Radiators. Their extra slim design makes them favourites with housewives. 816 sizes, with standard popular range for quick delivery.



Full details from

Henry Wilson & Co. Ltd.

Sales & Service Office, George A. Reid Esq.,

16, Fade Street, Dublin.

Telephone: 76009.

tends to concentrate the men at one point for most of the time. The approach here is to start with an upstairs room, move in, if possible, with the bender, and do all that needs to be done in that room, ending with a pair of 1/2" or 3/4" "tails" before moving on to the next one. Using this approach a man is changing tools, possibly changing the bender size and

so on at frequent intervals, but at least he is doing it all in the same place.

One sure way to a profitable business is to have a number of enthusiastic salesmen working for you, since they will ensure a steady stream of future work. A satisfied customer will always sell your next job for you, and you don't even have to pay him.

SPECIAL REVIEW

THIS MONTH

TAP FITTINGS AND CONTROLS
(incl. Valves, Shower Fittings)

SANBRA Fyffe Ltd. have recently introduced a newly designed Single Flow Pillar Sink Mixer, reference No. 5925, which incorporates attractive Star Cross Tops with red and blue indices and elevated swivel nozzle for easy filling.

The forward inclination of the heads provides ease of operation and great attention has been paid to the smooth external shape, resulting in clean design. New machinery has been installed which includes automatics, and prompt delivery of a comprehensive range of plumbers' brass ware, including Aqualyne and Easilyne luxury taps and mixers, can now be offered.

The range of Conex-Instantor compression couplings for use with domestic copper tube and polythene tube has been extended to include new fittings which are listed in the firm's catalogue recently published. Slow bends, and fittings incorporating $\frac{1}{4}$ " air cocks, are now available for use on small bore heating installations.

The range of Polydaptors for jointing normal gauge polythene tube to B.S. 1972 without the necessity of heating the tube has been enlarged, and these are now available in the size range $\frac{1}{2}$ " to 2". Sanbra Fyffe Ltd. are at Conex Works, Santry Avenue, P.O. Box 141, Whitehall, Dublin 9.

* * *

NEW to the Armitage Nuastyle quality metal fittings range are the A.1040 high neck pillar taps. They are designed with quick clean lines having inclined heads for easier handling and cleaning. The high neck,



The new Sanbra Fyffe Sink Mixer
(see Review).

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

together with the raised nose, make for easier filling of buckets, etc. Anti-splash insert gives a smooth non-splashing stream. Taps are heavy chrome plated for a long and hard-wearing life.

The D1800 series of thermostatic and manual mixing valves are styled to blend in with any other fitting from Nuastyle range. The D1811 Concealed Pattern Thermostatic valve, with the angle shower arm, D3020 shower head and removable wall plate, and the D1801 exposed pattern thermostatic valve with riser pipe and exposed angle arm, and D3020 shower head. Straight shower arms or flexible hose and handspray with wall hook, as also different shower heads, are available as alternative.

The new thermostatic valve has single on off temperature control and is completely anti-scalding, that is there is automatic shut-off if the cold supply should fail. There is full flow at all times and because the moving parts have been reduced to a minimum there is less wear.

* * *

THE water fittings section of Sperryn & Co. Ltd. (Shoewel Road Works, Wolverhampton, Staffs.) manufacture a lightweight telephone type mixer shower handle with polished chrome flexible tube. The adjustable fixing shanks are for $6\frac{1}{2}$ " to $8\frac{3}{4}$ " fixing centres.

The shower handle fixes on top of the mixer and cannot be accidentally dislodged. The angle of spray can be varied. Other models feature one-piece bodies and bold star crosstops with red and blue indices, embossed "H" and "C." A model is also available from the range with inclined head pillarcock which has a $2\frac{1}{2}$ " elevated outlet for washing under running water, $\frac{1}{2}$ " size only.

The body of a deck mixer with soaptray is mounted on a resilient pad which seals the body and sink surface against dirt and moisture ingress.

* * *

A deck pattern basin and bath pillarcock in $\frac{1}{2}$ " and $\frac{3}{4}$ " sizes, with red and blue inserts marked "H" and "C," is also available, as is a sink fitting with one-piece streamlined handwheel. It is available in tough, high impact, scratch proof Melamine in ten colours.

* * *

MIRAFLO Ltd., Cheltenham, a subsidiary of Walker Croweller & Co. Ltd., have introduced a new recessed version of the dual-control Mira shower tap for built-in applications. The entire valve body, with a pipe-work, can be built into the wall, leaving only the control dials exposed.

Two recessed combinations are available: the 814B, which has a flexible riser pipe and provision for two-position mounting of the shower rose; and the 879B for use with a rigid shower arm, reversible, giving shoulder height or overhead shower positions.

The Mira shower tap is a mechanical mixing device—not thermostatic. This means that it does not automatically compensate for variations in supply pressures and temperatures. But re-adjustment by hand is a simple matter, because the independent dual-control feature makes sure that any alteration of temperature does not affect spray forces, and vice versa.

A special version of the unique Leonard 72—dual control, thermostatic mixing valve—manufactured by Walker Croweller, has been developed for use in surgeons' scrub ups, clinics, medical units, and similar locations where non-contamination of the hands after washing is essential. It features wrist or elbow flow control.

The agents in Ireland are Modern Plant Ltd., Crumlin Road, Dublin, and in Northern Ireland W. H. Leech & Son.

* * *

THE latest model to be introduced on the Irish market in the range of Temperfix thermostatic valves is model No. 100 bath mixer. This is a combination bath mixer thermostatically

Continued page eleven.

Nine

More

Water Please!



Wherever water is required, there is frequently a Sperryn Tap to turn it on! Millions use Sperryn water fittings in the home, knowing only that they look well, work well and last well. In the plumbing trade, the name is synonymous with water fittings for every domestic purpose — from the latest and smartest pillarcocks for my lady's bathroom to the stand-pipe tap in the garden or factory yard.

SPERRYN — the best you can say of any Water Fitting!



SPERRYN & CO. LTD.

**WATER FITTINGS SECTION, SHOWELL ROAD WORKS,
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London Office & Warehouse: 131 Great Suffolk Street, S.E.1. Tel: HOP 0131 Telex: 24797**

Agents for the Republic of Ireland: C. B. SHERIDAN, 10 Herbert Place,
Dublin, 2. Telephone: 66283.

controlled, which has a supply nozzle for filling the bath itself and a hand shampoo attachment. This fitting is especially useful for the new Bikini type of bath/shower installation now popular with plumbers.

As is usual with all Temperfix valves, the controls consist of only two knobs—one to determine the temperature, the other volume of water. The required temperature is attained irrespective of unequal pressures of hot and cold supplies, and the valve will operate on a very low head of water.

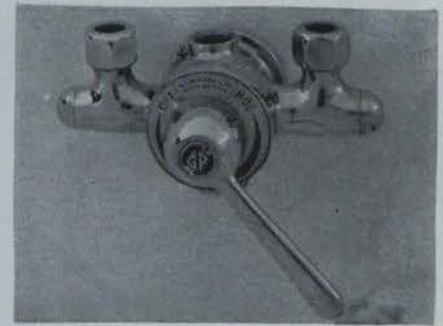
These fittings are now available from all good plumbers' merchants

PRODUCT REVIEW

from page nine

and details may be had from the Irish agents: G. F. Morely Ltd., Quinns Lane, Fitzwilliam Square, Dublin.

A COMPLETE range of thermostatic shower valves are manufactured by Meynell & Sons, Wolverhampton, including sizes $\frac{1}{2}$ " to $1\frac{1}{4}$ " in both exposed and recessed types. These thermostatic hot and cold water mixing valves will operate as low as 5ft. head and within a pressure differential ratio of 5:1.



The Gummers Ltd. R.9361 Thermostatic mixing valve (see Review).

A comprehensive range of shower fittings is also available, although the manufacturers believe there is a tendency these days to fit more of the recessed type, and their type "C" model, which is a special concealed pattern, comprising a wall flange, and shower atomiser on a swivel ball, is the most popular demand at the present.

The firm's thermostatic mixers are claimed to be extremely sensitive and operate with complete safety, as even if the thermostatic system should ever break, there is an automatic device whereby a compensating spring operates to provide an immediate opening of the cold water port.

The Meynell "Red Triangle" non-thermostatic mixer is used in showers and wash basins in a variety of applications where safety and economy are at a premium. The valve may be preset to supply water at a maximum temperature whenever this is required, so that this temperature cannot be exceeded. A high output of temperate water is available at fingertip operation and top or bottom outlet can be accommodated, also hot or cold supplies coming from either side.

* * *

MODERN PLANT Ltd., Crumlin Road, Dublin, are agents in this country for the Unatap which mixes hot and cold water and delivers a spray at the temperature you select by turning the knob. It is simply connected and fits any basin. It needs only one tap hole, so that in two-hole basins one is blanked off.

The Unatap is suitable for use with nominally equal pressure supplies up to 100 p.s.i., but at higher pressures spray velocity calls for care in the choice of basin, or use of a trough.

The Unatap is controlled by a knob, raising or lowering a spindle, which

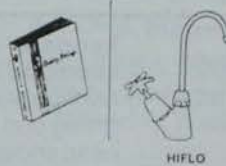
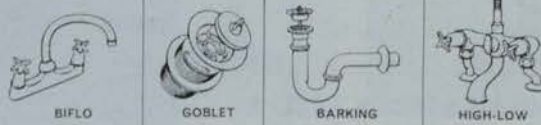
Continued page thirteen

Eleven

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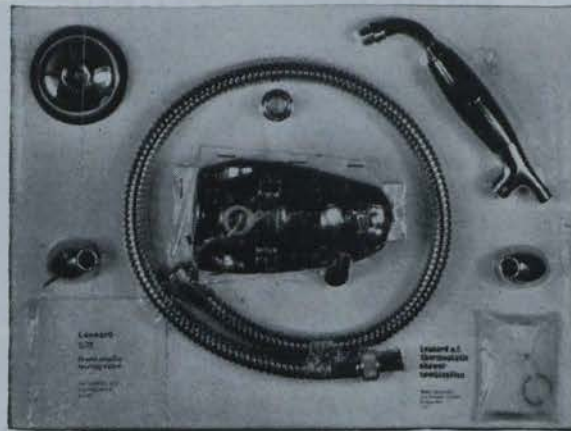
Single Control *
Shower Mixer



BARKING
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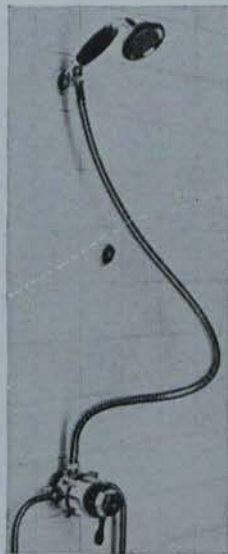
Barking Brassware Co. Ltd., River Road, Barking, Essex. RIPPleway 3057-9
I.E.1



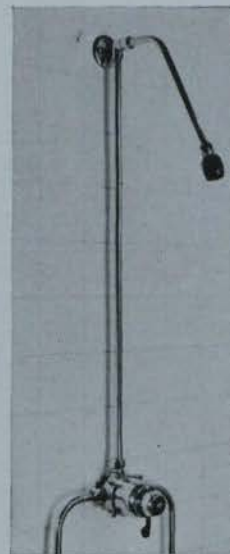
choose a packaged Leonard shower



Leonard-bif
The Leonard 72B built-in thermostatic mixing valve with flexible tube fitting.



Leonard-ef
The Leonard 72 with flexible tube fitting.



Leonard-er
Leonard 72 with two-position rigid fitting and low-head shower rose.



Leonard-bir
The Leonard 72B built-in thermostatic mixing valve with shower arm for use with concealed piping.

Leonard thermostatic showers are easy to choose, easy to buy, easy to install. Each shower combination is complete down to the fixing screws,

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

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

the sole distributors in Eire
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Tel 54251/2/3
or any builders and plumbers merchant

in opening or closing two seals on the hot and cold supplies, mixes a constant quantity of water to any selected temperature. The manufacturers are Walker Crossweller & Co. Ltd.

* * *

TWO MODELS of special interest in the new Belco range of fittings are the Belcomix Consort bath and handshower ($\frac{1}{4}$ " BSS. 1010) thermostatically controlled mixing valve, and their Shifta overhead shower.

The Consort is the only $\frac{1}{4}$ " BS.1010 combined bath and hand shower in production in the world to-day. Among its features is the new Stella streamlines screw-down headwork to the two taps: one operates the supply to the bath through a full bore outlet, the other the handshower.

Both, of course, are conducted at a pre-determined temperature. The calibrated temperature dial has a unique and valuable safety feature. An ingenious STOP check makes it impossible inadvertently to select a temperature over 100 degree.

PRODUCT REVIEW

from page eleven.

From Belco Manufacturing Co. Ltd. (Belco House, Shortlands, London, W.6).

* * *

THE new Broadstone Ballvalve features an instantly detachable clip for ease of maintenance, with a combined shut-off so that the water supply need not be turned off when detaching. There are also interchangeable seatings so that the valve can be quickly converted to high, medium or low pressure.

The ballvalve has a double anti-siphonage device to guard against flowback. To the merchant or plumber it has the advantage of reduction of stocks because of the interchangeable seatings; and to the tenant, the advantage that maintenance to storage and water cisterns can be carried out without depriving the rest of the house of water from the

mains. The manufacturers are the Broadstone Ballvalve Co. Ltd. (Hudson's Drive, Cotteridge, Birmingham).

* * *

DETAIL improvements have been made to the Supataps and Spa Taps Mixers ranges of F. H. Bourner & Co. (Engineers) Ltd., Manor Royal, Crawley, Sussex. Supataps are noted for the fact that the washer can be changed quickly and easily without the necessity for turning off the water.

The Dublin agents are George A. Reid, 16 Fade St., and the ranges are distributed in Northern Ireland by B. J. Caraher (Distributors), Alfred St., Belfast.

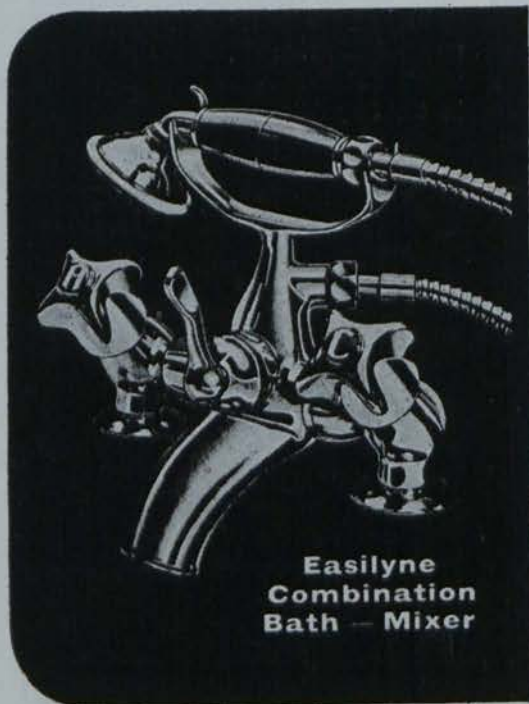
Temperfix Thermostatic Mixing Valve fittings have been introduced to Northern Ireland during recent months. They are ideal for showers and similar uses, not only in the home but also in hotels and hospitals, as they are accurate and reliable even when the pressures of incoming water fluctuate considerably.

Northern Ireland agents are B. J. *Continued overleaf*



on the board, Architects specify . . .

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Combination
Bath - Mixer

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- Valves, Stopcocks and Drawn Copper Traps.
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PILLARCOCK



SANBRA FYFFE LTD., CONEX WORKS, SANTRY AVE., DUBLIN 9.
Phone: Dublin 375131 (5 lines). Grams: Sanbra, Dublin. Telex 5325.

The Irish Plumbing and Heating Engineer.

PRODUCT REVIEW

from previous page

Caraher & Co. The Republic of Ireland Concessionaires are Rennert & Co. of Dusseldorf. The Dublin agents are G. F. Morely of Fitzwilliam Square.

* * *

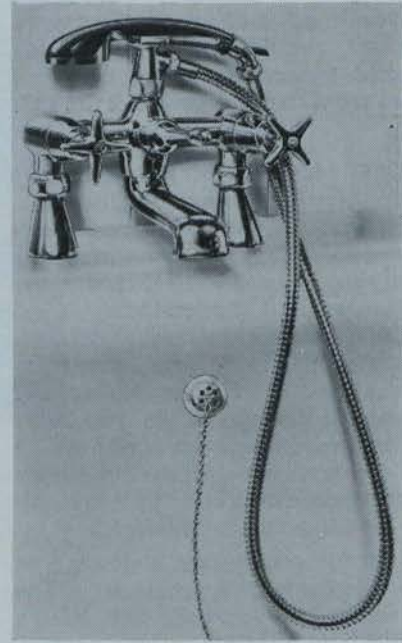
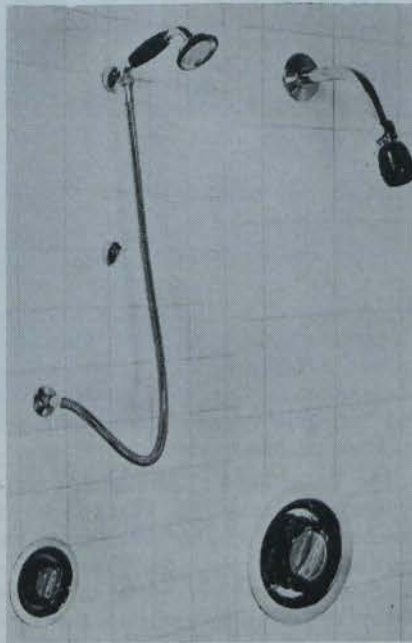
THE Fulbora rainwater outlet fitting is made in four parts. On top—a domed or flat grating; a clamping device; a funnel shaped outlet which at its top end is considerably greater in diameter than the waste pipe, and its base is fitted with a spigot or screw thread; and an anchor bolt which hooks onto a bar on the funnel and is secured to the grating with a fixing nut.

Any covering material from roofing felt to lead can be dressed into the perimeter of the installation. The clamping device holds it firmly in place and ensures that no moisture can escape under the membrane. The easily removable hook bolt gives immediate access to the pipe without danger of damage to the roofing material, and there are no small screws or studs to get corroded or lost.

* * *

IDEAL-Standard Ltd. are the manufacturers of the Ideal Kingston radiator valve, of hot-pressed brass or gun metal. All "Kingston" pattern valves are available for copper capillary joints. Lockshields are supplied at no extra charge. Lockshield valves fitted with dust cap are extra.

Four of the types available are No. 51HP angle valve brass finish; No. 51 angle valve cast gun metal; No. 56



Showing the two arrangements of the new recessed version of the Mira dual-control shower tap for built-in applications. (See Review). At right is shown the Sperryn fitting discussed in this Review.

HP Union gate valve brass finish; No. 56 Union gate valve cast gun metal.

head loss; and the minimum number of moving parts.

* * *

GUMMERS Limited (Rotherham) have introduced a new range of thermostatic mixing valves. In particular here we note the R.9361 which incorporates a number of advantages.

These include a single control operating both shut off and temperature control; automatic and immediate shut off should the bellows fracture or cold water supply fail; minimum

The valves conform to BSS 1415 and are supplied with isolating and non-return valves. Also from Gummers is the R9400 non-thermostatic mixing valve which is compact and inexpensive and capable of operating at a head of about 4 feet.

The Rotherham firm has appointed R. T. Large & Son of Stephens Place, rere 47 Merrion Square, Dublin, as agents and distributors of their fittings in the Republic.

**FLUED CONVECTOR
CEVE 2150
OIL HEATING UNIT**

- ★ Heat output 8,000 to 28,000 Btu/h.
- ★ Generates efficient heat throughout the house
- ★ The heater is rigidly constructed in sheet steel with wipe-clean vitreous enamel finish. Stainless steel burner guaranteed for 10 years.

Enquiries to Irish Agents:

ORBIT SALES LTD.

47 South William St., Dublin. Telephone: 71655.



in brief...

Due to expansion, Oil Fired Homes (I.) Ltd., 6 Harcourt Road, Dublin 2, are seeking Sales/Service Engineers for steam industrial and domestic oil fired boilers.

* * *

THE Technical Conference to be run in conjunction with The International Plumbing and Central Heating Exhibition will preserve the continuity of the Annual Domestic Heating Conference but the subject range will be extended to include the important interests of the plumbing trade. Alan White, B.Sc., former General Manager of The Heating Centre, London, is to carry out the organisation of this important function. The Conference will take place at Alexandra Palace, London, on October 7 and 8, concurrent with the Exhibition.

* * *

A further technical leaflet has been added to the series issued by Ascot Gas Water Heaters Limited for trade and technical distribution. This latest leaflet covers the Circulyn range of gas storage water heaters for domestic and commercial use, both of conventional and balanced flue types.

* * *

MEL Engineering Co. (Handforth, Cheshire), manufacturers of the Flo-Mel range of accelerators and Flame-lux Wallflame oil fired boilers, have made changes in the management of their business. General management of their works is now in the hands of Mr. Gordon Bennett, A.M.C.T., A.M.I., Mech.E., A.M.I., Prod.E.; while design, development and all technical matters will be handled by Mr. George Minshall, who has had very considerable experience with wallflame boilers.

* * *

THE British Waterworks Association has accepted the Aspect header tank, making it the first thermoplastic cistern designed to withstand hot water that has been recognised by the Association. These expansion cisterns are made by Allied Structural Plastics Ltd. (Dunstable), from polypropylene. They are suitable in size for most domestic central heating systems and will withstand water at a constant temperature of 80 deg. C. (176 deg. F.). They are less expensive than conventional cisterns.



**NEW
W.R.
ROOM
STAT**

WHITE-RODGERS Ltd. (75 South Western Road, Twickenham, Middlesex) have introduced the Type 1B65 Electric Heat Room

Thermostat, which is housed in a striking snap-on cover of walnut vinyl with gold side panels and an attractive knurled knob "touch-temperature" selector to give accurate temperature control of $\pm \frac{1}{2}^{\circ}\text{F}$. within the 40° to 90° F. range.

The 1B65 Thermostat has a snap-action switch which is actuated by a specially constructed bi-metal element which is acutely sensitive to temperature changes. The floating mounting of the sensitive element prevents any change in thermostat calibration due to uneven room wall surface.

'If you are looking for pumps', they said

'You are most likely to get the ones you need from Worthington-Simpson', they said



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The Irish Plumbing and Heating Engineer.



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Fry's now offer a comprehensive range of brazing and soft soldering alloys and fluxes. The newest addition, Flowsilver, provides alloys with the characteristics of high tensile strength and up to 780°C. melting point. Twelve grades are available, including one for use on stainless steel. Whatever the specifications of your soldering or brazing job, Fry's have the specialist alloys and fluxes available.

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Northern Ireland monthly review



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WARMEX

ELECTRIC RADIATORS WITH A DIFFERENCE



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- Time clocks set to your own particular requirements.
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The WARMEX system is
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Enquiries to Agents
for Northern Ireland:



By

F. R. McBRIDE, A.M.I.Mech.E., M.Inst.F.

The installation of boiler house instruments

IT has now become more or less standard for a degree of instrumentation to be called for in the specifications of new boiler plants, it is, however, regrettable that in the same specifications, little or no attempt is made to give directions as to how these instruments should be fitted. The drawings which are supplied to the contractor often only indicate the position at which the meters or sampling points are, leaving out the necessary "as fitted" instructions.

In an effort to give a little guidance to those contractors who are involved in the larger type of work, it is proposed to give a few hints in this article which may be of help and at the same time ensure that the equipment will be able to carry out its function in an efficient manner.

Liquid Meters.—The most common piece of equipment to be found in any boiler house is a water meter, and whether it be used for measuring cold or hot water there are one or two elementary principles which should be followed. Time and again the writer has visited boiler houses from which some remarkable figures have been produced and these figures have been the result of the poor installation of the recording meter.

THE first point to be remembered is that where possible the meter should be fitted as far away as possible from pumps, particularly when such pumps have on-off control; this is done to eliminate shock to the meter and this can be further reduced in the case of vertical steam pumps by the fitting of an air bottle to the pumps.

The meter should be accurately sized so that it is usually operating at about threequarters of its load capacity as many meters become inaccurate if they are operated at very

low capacities; in addition the same conditions apply if the meter is asked to operate with extreme overload conditions.

If the meter specified is a different size to the pipeline to which it is to be fitted many manufacturers declare that there shall be a length of pipe equal to the bore of the meter fitted on the flow and outlet side of the meter.

IRRESPECTIVE of the size of the pipe, meters should not be flanked on either side by a series of valves, bends, unions, reducers and other items of hard ware which heating engineers seem to delight in fitting around the instrument. There should be a length of straight pipe on either side of the meter, and this pipe should, for a distance, be clear of all such fittings. Again manufacturers' requirements as to this distance vary, but a general yardstick is a straight pipe equal in length to at least ten times its diameter.

Meters require to be serviced, in fact it is advisable to remove many types of meters once a year, to ensure that pistons are not cracked or that bearings or spindles have not become worn as this in turn produces inaccuracies over a period. It is therefore advisable to fit around the meter a bye-pass. The writer believes that the meter should be on the main direction of flow and that the bye-pass should be fitted around it, though it is quite common to find the bye-pass as the meter position.

Most manufacturers like the meters to be in a horizontal position, though there are many which are suitable for

a vertical installation. The fitting instructions should therefore be consulted.

How many meters, particularly in industrial boiler houses, have been mysteriously wrecked in their first day of working; then and only then has it been found that it was necessary to prime the meter before putting it into operation.

In the fitting of water and steam meters care must be taken to ensure that they are not fitted in a position whereby they may be subject to frost, particularly during periods of shut down.

The sub heading given to this section is fluid meters and so it is hoped that the reader will appreciate that most of the foregoing comments apply to water, steam and oil meters.

Steam Meters.—For years steam meters were associated only with power stations, but fortunately industry and public authorities now realise the use of these meters and they are now a regular fitment in any well designed boiler plant.

IN the fitting of steam meters there are many traps into which the uninitiated may fall. Most recording type meters work in conjunction with an orifice plate which is fitted in the steam line.

Many of the conditions pertaining to the fitting of fluid meters also apply to the fitting of orifice plates.

The orifice must for example be fitted in straight lengths of pipe and most certainly it must not be in the proximity of valves, tees, etc.

The surfaces between which the

from previous page

plate is to be installed must be perfectly clean, and if jointing material is allowed to project into the main, false readings will result.

Though an orifice plate may be only $\frac{1}{8}$ " thick it has an upstream and downstream side which is clearly marked, and yet it is often found that the plates are installed back to front.

If it is necessary to take steam temperatures or pressures the pockets should be on the downstream or outlet side of the plate so that they do not interfere with the flow.

THE fitting of the pressure pipes from the orifice to the actual meter is quite simple if one fact is remembered: if the meter is fitted either above or below the orifice these pipes must have a gradual fall or rise to the meter and they must be free from humps and lengths of horizontal run.

Temperature Recorders.—Temperature Recorders or Indicators come in various forms but the most common is the thermocouple type instrument both for recording and indicating, though sometimes in the latter case mercury and steel thermometers are used depending on the temperature range required.

In ordering thermocouples and

sheaths manufacturers should be consulted as the materials used in their manufacture is dependant on the maximum temperature which is to be expected; this in turn controls the price of the thermocouple. It may appear therefore that one firm's price for thermocouples is less than its competitors and the difference may be explained by the materials used.

For boiler work the most common thermocouples are Iron-Constantan or Chromal-Alumel.

In installing the couple care must be taken to ensure that the tip of the sheath is as near as possible to the point at which temperature measurement is required. If possible it should be tried in two or three positions as it is possible there may be pockets of either high or low temperatures.

The head of the sheath should always be maintained three or four inches away from any hot surface. The leads from the couples to the recording unit should not be drawn

over or allowed to remain in contact with extremely hot surfaces.

If it is necessary to join the leads, and this should be avoided if at all possible, such joins should be soldered and taped.

AS regards the installation of the recorder, instructions vary from type to type and from manufacturer to manufacturer, and as these are delicate instruments their requirements should be closely followed.

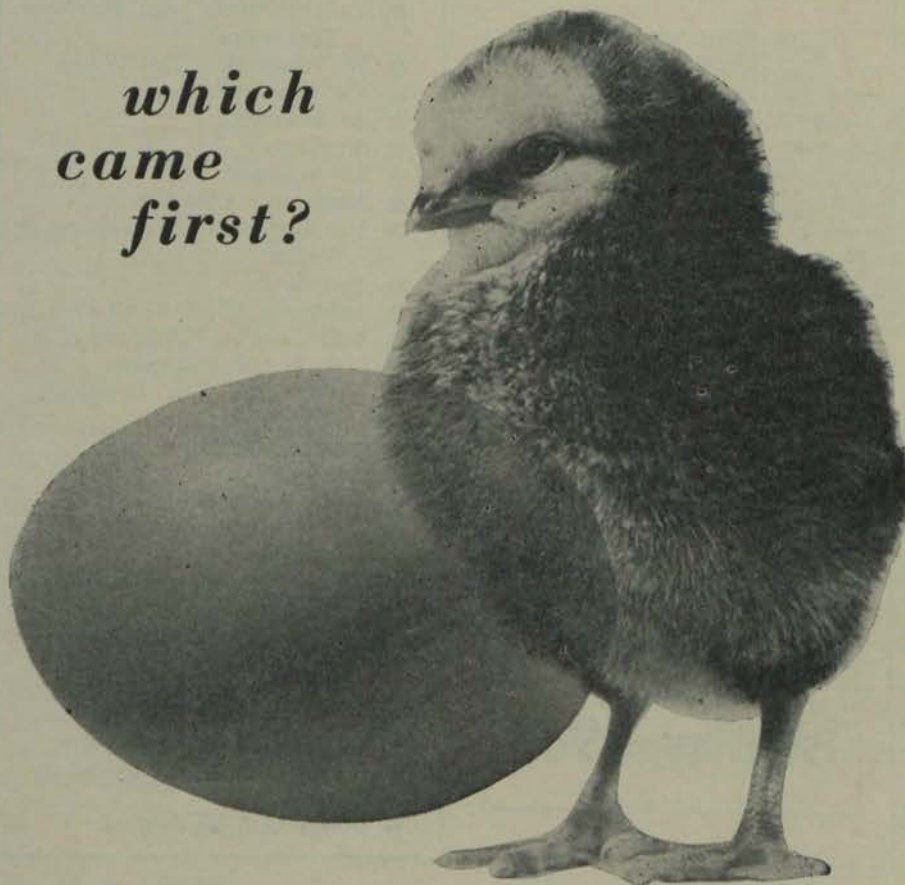
Irrespective of the type there are three basic points, namely, the recorder must be perfectly level and vertical, it must not be subject to excessive heat and it must not be subject to damp.

CO² Recorders.—It is in the installing of CO² Recorders that most mistakes occur, particularly in the positioning of the sampling point.

It is possible, particularly where flue

Continued overleaf

*which
came
first?*



WHO KNOWS? We don't, and frankly we haven't much time to think about it. Here at Davidson's we're much more concerned with other problems—moving air and other gases, for example. For over 80 years we have been thinking about the problems involved and solving them by designing and making fans and ancillary equipment exactly fitted to requirements. Whether it's heating and ventilating, air conditioning, fume or vapour removal, dust collection, air preheating or the pneumatic conveying of bulk material, Davidson's have the right equipment for the job. You'll find our products in thousands of British factories, in many British coal mines, in most British power stations, and in industrial establishments throughout the world. Our extensive range of technical literature is freely available on request.

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(Telephone Belfast 57251)

LONDON BRANCH: Morris House,
Jermyn Street, London, S.W.1
(Telephone Whitehall 3541)

ALSO AT MANCHESTER - GLASGOW
BIRMINGHAM - NEWCASTLE-ON-
TYNE - LEEDS - CARDIFF

Nineteen

Boiler house instruments

from previous page

ducts are very large, to get stratification in the gas flow and this will effect the qualities of the gas sample. In addition the sampling point must be placed in a position where it will be free from air infiltration.

The writer has found that if correct readings are to be obtained it is necessary to experiment so that the correct depth of insertion of the sampling point into the flue way can be obtained.

Most sampling points are fitted at the end with a ceramic filter; this filter is usually protected with a metal sheath on one side. The gas flow should impinge on the back side of this sheath.

THE gas leads from the sampling point to the recorder should be as short as possible and be kept away from positions of excessive heat.

It is probable that water will form in the gas pipes and provision must be made for the draining off of this water, and as the methods vary for each type of meter it is essential that the instruction leaflets are closely followed.

Many of the inaccuracies and maintenance faults which attributed to CO₂ equipment stem from these minor rules of installation not being followed.

Conclusion.—Contractors usually obtain a specification for the installation of various boiler house equipment, but seldom does this specification contain instructions as to how these units should be erected. In addition the writers of the specification sometimes forget that due to the present system of extreme competitive tendering that the contract may have to be awarded to a concern which has little or no experience of dealing with equipment of the nature we are discussing.

It is with the foregoing points in mind that this article has been written and it is hoped that it will prove beneficial to all concerned.

● AEI Larne and the Manchester and Glasgow divisions are to share in a £4 millions contract for yet another turbine-generator and condensing plant for the Central Electricity Generating Board.

1965 DIRECTORY of MANUFACTURERS AGENTS, REPRESENTATIVES and DISTRIBUTORS

★ The June 1965 Register of Manufacturers, Agents, Representatives and Distributors of Domestic and Industrial Plumbing, Heating, Air Conditioning, Ventilation and Insulation equipment and materials available in the Republic of Ireland and Northern Ireland is now being prepared. The Directory this year will again be enlarged to accommodate the many additional entries under the various headings.

If you come under the heading of any of the categories listed here and have not supplied information already, or wish to make amendments or alterations to last year's entries, we would ask you to do so without delay. Changes of address should also be advised. Names and addresses of Irish Agents and/or Representatives should be included with all entries.

Specimen copies of the 1964 edition are available for checking.

Please Note!

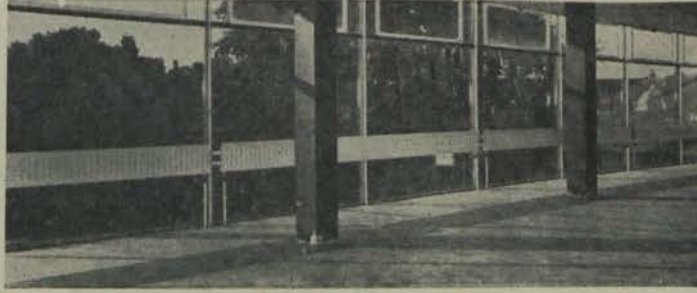
CLOSING DATE
Saturday,
1st May, 1965

Please Check This List Of Categories

— LIST NO. 1 —

- Accumulators, Steam and Hot Water
- Air Cleaners, Electronic
- Air Conditioning Equipment
- Air Curtains
- Air Diffusers
- Air Distribution and Handling Equipment
- Air Eliminators, Hot Water
- Air Flow Switches
- Air Receivers
- Air Vents
- Air Washers
- Aluminium Cladding
- Anti-Corrosion Compositions & Paints
- Autoclaves
- Automatic Clock Controllers
- Baths, Basins, Bidets and Sinks
- Blowers and Exhausters
- Blower and Fan Impellers, Wheels, etc.
- Boiler Controls
- Boiler Fittings
- Boiler Mountings
- Boiler Non-Conducting Composition
- Boiler Water Level Indicators, Controls and Alarms
- Boilers (Domestic & Industrial)
- Burner Controls
- Burners, Gas/Oil/Solid Fuel
- Calorifiers
- Chimneys, Tops and Cows
- Cisterns, Tanks and Cylinders
- Cocks, Coils
- Combustion Equipment

RADS SOLVE TWO PROBLEMS AT ONCE



● Here is a typical installation of 11" deep P.D. rads mounted at waist height.

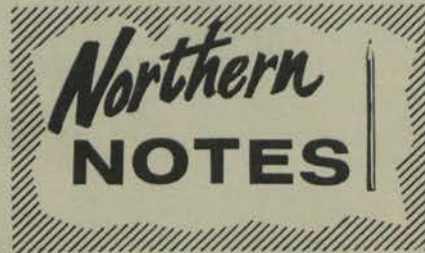
THE frame method of construction now commonly used in large buildings allows great freedom of choice in methods of cladding and the disposition of internal subdivision of the building. While the latter is variable at will, the external cladding must be regarded as permanent, and extensive use is being made of glass. As the illustrations show, entire walls glazed from floor to ceiling are quite common.

While this has many obvious advantages, some of which are particularly applicable to this country, it also creates certain problems. One of these is concerned with the retention of heat within the building for approximately half the year. The other disadvantage which becomes more acute as the building height increases is associated with the relative fragility of the glass. This hazard has both real and imaginary values, which make it desirable for the building to include a form of barrier which is physically effective, and what is more, gives the appearance of being effective.

There is no better way of overcoming both objections to these large glass areas than by combining the cure for them in a single fitting. Looking at the photographs it will be seen that the Powell Duffryn double panel radiators which are fitted at waist height, give a strong impression of security by their 11" height.

They provide an equally effective barrier against heat loss since there is a continuous warm air curtain rising across the greater part of the window area and so isolating it from the room.

This is one occasion when the radiator heating surface allocated to the window width is not designed for total heat loss replacement. The radiators shown perform a specific dual function in the course of which they provide a substantial amount of heat. If the room is of such a size or situation that more heat is required, this may then be provided by additional radiators around the perimeter.



O.B.C. Limited of Droitwich have recently been appointed sole stockists and distributors in the U.K. for the well-known range of Isopad heating tapes. Large stocks are held of the ITX and ITW ranges in lengths from 3' to 540' and ratings from 3½ to 15 watts per foot.

These tapes are suitable for oils with viscosity of 200 seconds Redwood

No. 1 at 100°F and above, as well as other high viscosity fluids.

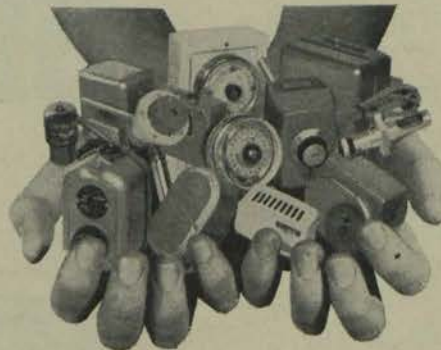
* * *

A NORTHERN Ireland manufacturing firm is to establish a branch of its industry in Galway. The firm is M.C.B. (Northern Ireland) Ltd., of Ballinamore, Co.

Antrim. It is one of the biggest makers of copper cylinders in these islands. It has taken over premises near the commercial docks in Galway and has advertised for staff. It is understood that about 60 men will be employed.

The cylinders will be used for the building trade and the project is understood to employ an investment of around £30,000 by the promoters.

Continued overleaf



OBC LIMITED can supply

from BELFAST, a wide range of Automatic Controls, including: Thermostats of all kinds, Thermometers, Contactors, Boiler Controls, Pressure Controls, Modulating Controls, Flow Controls, Oil Burner Controls, Motorised Valves, Solenoid Valves, Pulling Motors, Compensators, Times Switches, Domestic and Industrial Control Panels.

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Twenty-one

**Bill Maginnis
Talking . . .**

**Congratulations,
Mr. President**

MAY I take this opportunity of congratulating Mr. W. B. (Billy) Jefferson of William Coates & Son Ltd., on being elected President of the Heating and Plumbing Employers' Association of Northern Ireland, and to Mr. M. H. (Michael) Joyce, of J. N. Haden & Son Ltd., who was elected vice-president.

The following have been elected to the Executive Committee: Messrs. W. H. Tanner (Shillington Heating and Plumbing), the outgoing President, A. J. Vaughan (Vaughan Heating Co. Ltd.), J. A. Willis (Willis Plumbing and Heating), R. J. Brennan (W. Brennan & Sons), John Thompson (J. W. Thompson & Sons).

Looking at these names, one must say that the members of the Association have made a very popular choice. One person who has made a big impact in the trade here, since his arrival a few years ago, is Mr. M. H. (Michael) Joyce, the local Manager of J. N. Haden & Sons Ltd., and by his election to chairman of the Northern Ireland Association of Heating, Ventilating and Domestic Engineering Employers, he has no doubt made himself popular too. He succeeds one whom you could call the father of the trade here, namely, Mr. F. S. Haddow (Johnston Bros. & Wilson), the foundation chairman. Mr. W. H. Tanner of Shillingtons Plumbing and Heating has been re-elected Hon. Treasurer.

Earlier this month a large attendance turned up at the Glenmachan Tower Hotel, to hear a very interesting and instructive lecture on automatic controls and their application in the field of Heating, Ventilating and Air-conditioning, by Mr. L. G. Barnfield, General Manager of Billman Electromotion Ltd. On show was a large range of controls, etc., as manufactured by the Billman range of Companies, and I was told by Mr. Barnfield that he intends, in the near future, to run a similar show

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PART THREE

— Conclusion —

**ECONOMY IN
AIR DISTRIBUTION
OF FAN COIL
AND INDUCTION
UNITS THROUGH
REGULATION**

(Text of lecture given by **RICHARD BERNHARD**, at the 2nd Europair Congress, Brussels. Edited by **ALLAN CAVINDER**, A.Inst.M.S.M.).

There are only two factors which govern the proper sizing of these control valves.

- (1) The water flow rate in GPM.
- (2) The pressure drop available across the valve.

The pressure loss through the coil and connecting tubes, supply and return shut-off valves, etc., must be deducted from the total pressure difference between the supply and return headers in order to arrive at the available pressure for the control valve.

For example:—

Firstly, let it be assumed that the total pressure drop available between the supply and return headers is 17

pounds per square inch gauge.

Secondly, let it be assumed that the pressure drop through the supply and return shut-off valves, the connecting tubing to and from the coil, the run outs and the coil is 9 pounds per square inch gauge.

Thirdly, the difference between the available and actual pressure drop is 8 pounds per square inch gauge (17-9), which is available for the pressure loss through the control valve.

FOURTHLY, assume that the terminal unit coil specification requires 2.50 GPM flow for the rated capacity.

Finally, examination of the chart will show that at a flow capacity rate of 2.50 GPM and an available pressure drop across the control valve of 8 pounds, an "A" bulb should be used. If, however, the available pressure drop were only 4 pounds, then a "B" bulb should be used.

It may be felt that this is not a sophisticated method of selection, and it should therefore be mentioned that curves are available showing temperature variation versus flow and pressure drop, operating ranges of the "A" and "B" bulb, changeover characteristics, CV value, etc.

All valves have been designed for a maximum pressure drop of 35 pounds per square inch gauge, 190 degrees Fahrenheit maximum water temperature, and 250 pounds per

Continued overleaf

THE application of the Duoflow valve in a four-pipe system is shown in figure 11.

The supply to the coil, through a Duoflow valve, throttling the flow of hot or chilled water, is exactly the same as in a three pipe system. A motorised "diverter" valve is mounted at the outlet of the coil unit. A thermostat at the supply to the coil controls the changeover at the diverter valve.

When the Duoflow valve supplies the unit with chilled water, the diverter valve returns the water to the return line of the chilled water system. Vice versa, when the Duoflow valve supplies the coil with hot water the diverter valve returns the water to the hot water system.

The selection of the four valves is relatively simple (Figure 12).

THE Summerflow, Winterflow and Selectaflow valves are available in two capacities, "A" and "B," whereas the Duoflow valve is only available in the large capacity "B" range. Actually the only physical difference between the "A" and "B" range is the length of the sensing bulb which is located in the return air stream.

Generally speaking, better control will result from any modulating device when it is working at or near its maximum rated capacity. Thus, while the larger capacity control with bulb "B" will control reasonably well at small capacities, it follows that better control will result if the smaller capacity control with "A" bulb is used when the capacities fall within its scope.

● **heating cycle**

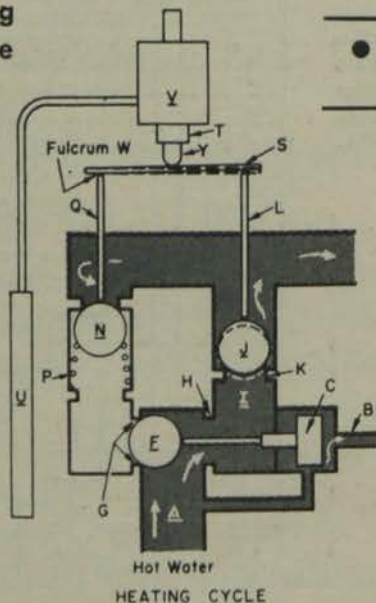


Fig. 4. HEATING CYCLE

● **cooling cycle**

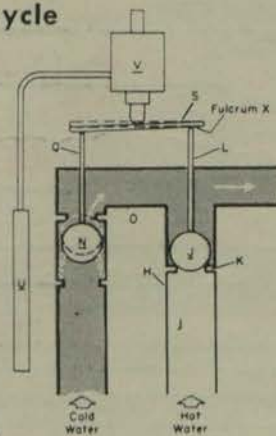


Fig. 5.

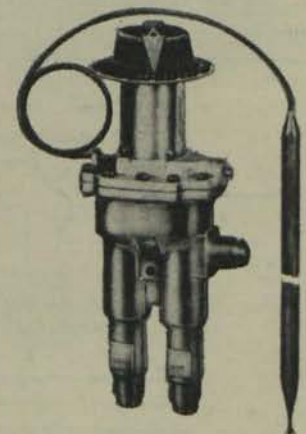
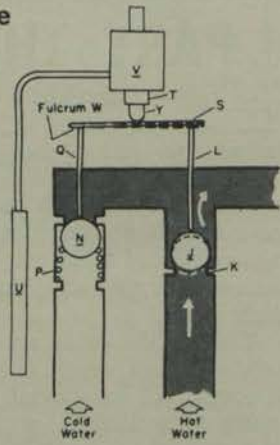


Fig. 6.

● These illustrations relate to the earlier part of Mr. Cavinder's series and should be studied in conjunction with last month's contribution.

● heating cycle

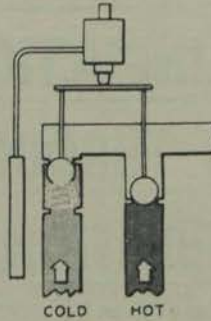


Left—Fig. 8.

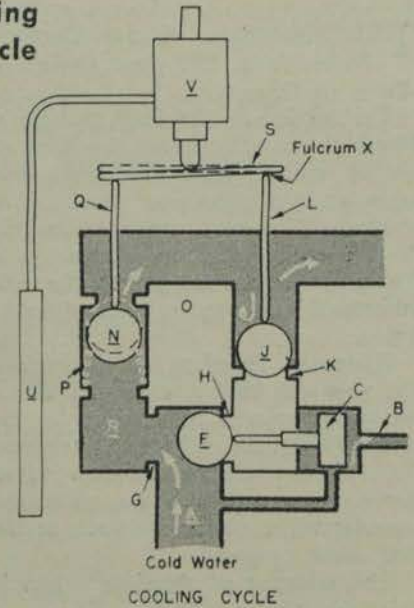
Below—Fig. 9.

Right—Fig. 10.

● neutral position



● cooling cycle



AIR DISTRIBUTION

from previous page

square inch gauge allowable static pressure. The adjustment range for all valves is from 65 degrees Fahrenheit to 85 degrees Fahrenheit, with the mid-point or neutral position setting the 72 degrees Fahrenheit. All valves are adjusted in the factory prior to shipment. However, field adjustment is a simple matter and any setting can be made in a matter of minutes. These valves will maintain room temperature within plus or minus one degree Fahrenheit, for a given thermostat setting, even though in the case of Selectaflow and Duoflow valves they may have modulated between heating and cooling several times a day. The return air type thermostat is a most important feature of these valves, especially where multiple terminal units serve the conditioned space as they are not influenced adversely by air from interior zone diffusers or draughts.

The features of this subject, namely, that of economy in air distribution of fan-coil and inductor units through regulation, can now be sum-

marised.

1. The valves are completely automatic and incorporate the unique changeover characteristic which eliminates the necessity for seasonal attention by maintenance staff and its accompanying expense.

2. All valves are of the modulating type which provide uniform room temperatures regardless of outside conditions. Because of this, it is not necessary for occupants to readjust the thermostatic setting. This feature eliminates complaints and costly service.

3. Installation is simple, and only requires connection of the valve to the supply lines, the coil, the small bypass to the return line and positioning of the thermostatic element in the return air section of each terminal unit.

4. There is no need for electric power supply lines or pneumatic lines leading to any of the valves. This is an advantage in itself. Further system simplifications are obtainable if zoning is incorporated in the building.

5. These valves are entirely self-contained, with no need for packings or packing glands which introduce friction and may affect smooth operation; thus maintenance is reduced to an absolute minimum.

6. The valves permit the comfort level to be controlled by the room occupants without upsetting the balance of the entire heating or cooling system.

7. The simple, sturdy construction together with factory testing and adjustment prior to shipment, provide long trouble-free service. Should maintenance be required, it can be performed easily without the requirement of any specialised training.

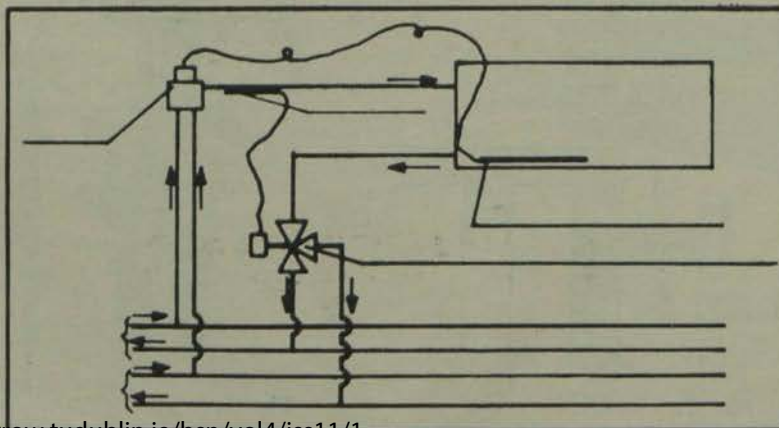
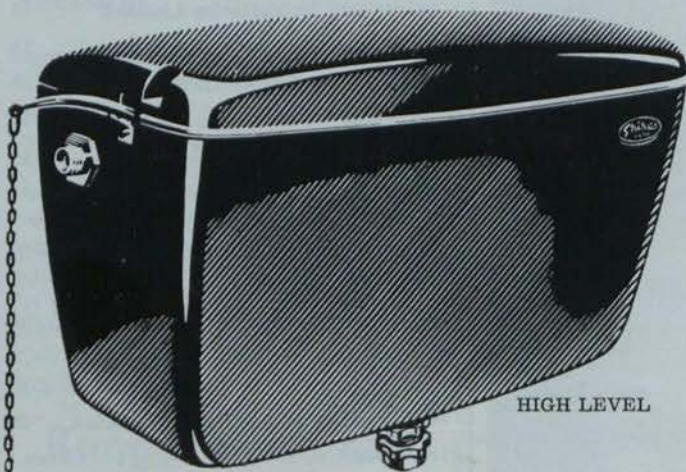


Fig. 11.

SELECTION CHART												
VD-213, VD-214, VD-215, VD-216, VD-217 and VD-218 (VD-219 and VD-220, "B" RANGE ONLY)												
CAPACITY G.P.M.	PRESSURE DROP AVAILABLE ACROSS VALVE											
	1	2	3	4	5	6	7	8	9	10	11	12
.25												
.5												
.75												
1.00												
1.25												
1.50												
1.75												
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Fig. 12.

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



HIGH LEVEL

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

Every genuine Lynx has the name engraved on the cistern

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

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

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

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Discreetly quiet with the most dependable mechanism ever.



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The Irish Plumbing and Heating Engineer.

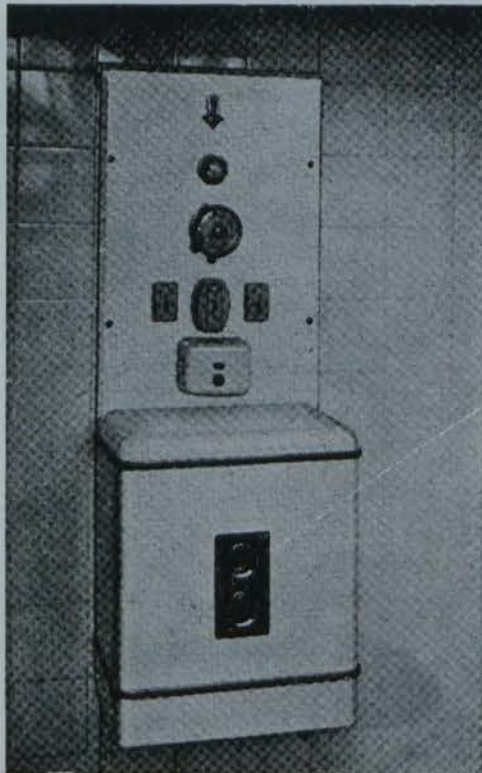
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per hour, and are the
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fully automatic boilers
available at **any** price.

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INDEX TO ADVERTISERS

Barking Brassware Limited	11
Baxendale & Company Limited ..	27
Biddle, F. H., Limited	29
British Berkefeld Filters Limited ..	38
Cleenair Cental Heating Company ..	17
Corbet-Corr Refractories Limited ..	24
Davidson & Company Limited ..	19
Du Bois Company Limited, The, Cover	iii
Fibreglass Limited	36
Fry's Metal Foundries Limited ..	16
Harper, John & Company Limited ..	33
Heating Controls & Devices Limited Cover iii	
Ideal Standard Limited	2
Industrial Gases (I.F.S.) Limited ..	34
International Boilers & Radiators Limited 7-35	
Irish Feedwater Specialists Limited...	39
Irish Shell & B.P. Limited .. Cover	i
Johnson & Slater Limited .. Cover	ii
McCann Limited	28
Monsell, Mitchell & Co. Ltd. .. Cover	ii
O.B.C. Limited	21
Oil Fired Homes (Ireland) Limited ..	26
Orbit Sales Limited	14
Pickup, H., Limited	27
Potterton, Thomas, Limited	1
Quadrant Engineers	31
Rotatools (U.K.) Ltd.	39
Sanbra Fyffe Limited	13
Satchwell Control Systems Limited Cover iv	
Shires & Company (Ireland) Limited	25
Smail, Sons & Company Limited ..	22
Sperryn & Company Limited	10
Van Den Bosch Limited	31
Walker Crowweller & Company Limited 12	
Wavin Pipes Limited	5
Wilson, Henry & Company Limited...	8
Worthington-Simpson Limited ..	15

INDEX TO ADVERTISERS

trade Topics

RECENTLY introduced here is the Konus boiler which operates entirely without pressure

THIS BOILER ELIMINATES PRESSURE and using heat transfer oil can attain temperatures up to 300° C., even

higher if desired.

This fully automatic boiler is self regulating with constant temperatures, technical and chemical processes.

Heat transfer oil does not vapourise and hence does not develop pressure. No special safety precautions are necessary even from the smallest boiler with a rating of 40,000 B.t.u./hr. to the largest unit for Calenders, Drying Machines, Mixing Plants, and the like. Irish agents are Tedcastle McCormick & Co. Ltd.

Range extended

POWELL-DUFFRYN Heating Limited have extended their range of gas-fired appliances. There is a new balanced flue boiler, the G-85B of 85,000 B.t.u./h. output which completes the domestic range of balanced flue boilers, G-30B, G-45B, and G-60B. The new boiler, like the others, will be available in two forms. There is the standard model, and the small bore complete with low voltage programme selector and circulating pump, and the cased models in both instances conform to the standard kitchen height of 36 inches.

FOR the family with a changing pattern of day to day life, who require the utmost flexibility in regulating their central heating system, a new all-in-one control has been designed by Thomas Potterton Limited.

The Potterton Presetter incorporates a room temperature thermostat and switch which can be turned back to cut the boiler off for any period up to 18 hours. This means, for example, that the exact moment for the heating to come on can be simply set each morning as the family leave the house and again when they go to bed at night.

The flexibility of this wall-mounted unit also means that by turning the thermostat to its lowest setting, the central heating can be shut off in the summer, while still controlling the hot water supply.

Designed by Eric Marshall, F.S.I.A., the Presetter is attractively styled in beige with front panels in dark brown and gold and is suitable for installing in the living room.

BAXENDALE & CO., LTD.

Stockists of:

POTTERTON JET BOILERS
POTTERTON WALL FLAME BOILERS
WILSON WALL FLAME BOILERS
TRIANCO and IDEAL BOILERS
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PARKRAY ROOM HEATERS

Also Large Stocks of:

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

Faulty fittings, bad threads, sand holes, any leak through any cause is sealed economically and quickly. No dismantling needed; no patches or welding; no need to even find the leak; no trouble at all! *Oxypic prevents rust and scale. It can also be used as an active leak preventive.

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industrial heating & ventilating

IN IRELAND



THE first series of suspended gas-fired unit space heaters to be produced by the Reznor Nesbitt Division of ITT Industries Ltd., Connaught House, Aldwych, London, W.C.2, is now being marketed.

NEW GAS HEATERS SERIES

The Division was set up in Britain recently to manufacture and market gas fired space and process heaters and heating, ventilating and air conditioning equipment for commercial and industrial applications.

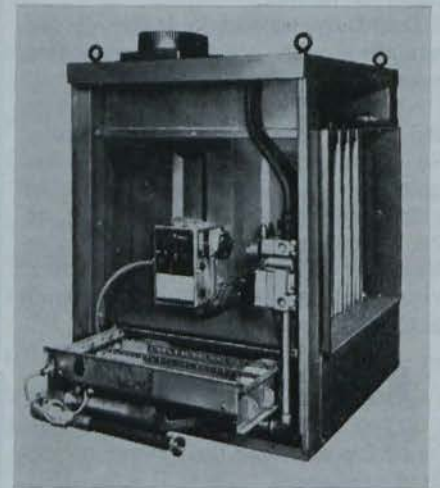
The first series of heaters—the XA range—consists of 12 sizes of fan-driven models, with outputs from 50,000 to 400,000 B.t.u./hr. The units are suitable for space heating factories, warehouses, canteens, shops, offices and similar types of premises.

The basis of all the Division's heaters is their Flamecore heating unit consisting of an automatically controlled gas/air heat exchanger, a pull-out drawer of burners and gas and ignition controls. A principal feature of the Flamecore is that all major components are standardised.

ENGINEERS, consulting engineers and architects were told of a new method of sewage disposal after a reception early this month, at the premises of Coote & Co. Ltd., 9 Appian Way, Dublin. Representatives of the Departments of Defence, Local Government and Lands were also present.

The attendance was told that a higher standard of purification than could be obtained by treatment in a septic tank was now usually demanded before an effluent was considered suitable for discharge into a stream. This had led to the Oxigest range of purification plants, which were either factory built units or for on-site erection. These plants had been manufactured in Britain since 1961, and were utilised for small housing developments, factories, public works, building contracts, caravan sites and schools. Coote & Co. have been appointed sole agents in the Republic of Ireland for this Smith and Loveless range of sewage treatment and movement plant.

VAN DEN BOSCH Ltd., Europair House, Alexandra Road, Wimbledon, S.W.19, sole U.K. agents for Tuttle & Bailey air distribution equipment, have introduced a range of Tuttle & Bailey perforated supply and return diffusers. The new ceiling air diffusers are designed to meet specifications for air outlets that blend unobtrusively with acoustical ceilings.



● THE Reznor Nesbitt unit heater showing the burner drawer partially open with aerated universal burners. On the right are the ignition and safety cut-off controls. The venturi tubes of the heat exchanger can be seen with the integral draught diverter above.

FOR IMMEDIATE SALE

Three secondhand Cyclotherm Packaged Steam Boilers. WP 100 P.S.I.G. EVAP. Approx. 700lbs./Hour 45 Secs. Oil. Fully automatic. Two operational, one requires a lot of preparation to make operational.

● Seen by appointment.

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Successful Heating Centre function

"BARBER Colman makes air behave," was the theme of a film show and reception for Consulting Engineers and Heating Contractors held last month in the Irish Heating Centre, Dublin. The first of two films shown dealt with movement of air in a space being treated with Barber Colman grilles and diffusers. From the film sequences it was possible for the audience to see

the actual motion of the air in the space under test. In the second film, on the subject of sound, the audience was able to listen to variations in noise levels from "0" to 20 decibels. Present at the function were Mr. Roy Williams, Managing Director; Mr. John Hunt, Design Engineer, and Mr. H. McGeough, B.E., Technical Representative, Barber Colman & Co. Ltd.

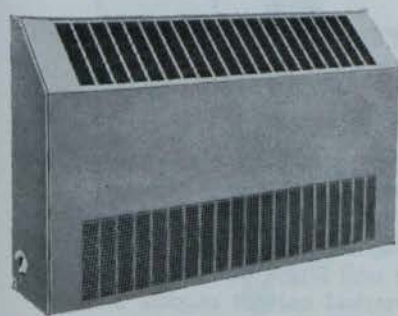
Heating Consultants and Engineers

et al.: The Irish Plumbing and Heating Engineer, February 1965 (complete)



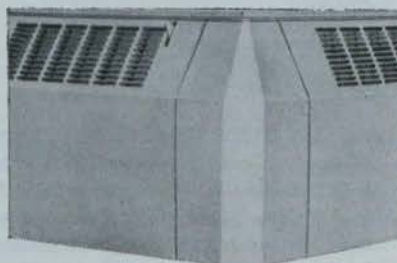
Here are five good reasons
for specifying
Biddle Heating Equipment
(write in and you can
have plenty more)

forceflow



Trim - Elegant - Quiet . . . a guaranteed noise rating criteria under any conditions. When you have sound level problems specify Forceflow, because Forceflow is the only unit tested through all audible frequencies. There is a wide variety of sizes, outputs (up to 62,000 Btu/h) and designs; free-standing, concealed, remote and ceiling mounted. Standard Forceflow is 28" high. Other heights are in production and readily available for all applications.

warmline



Warmline is a highly efficient and adaptable method of heating ideally suited to modern building design. Warmline skirts the perimeter of a room to supply unobtrusive warmth. Three heights (12½", 16½", 20½") are available, offering a high heat emission per foot run . . . inexpensively! Heat is distributed evenly over the run so that partitioning can be erected anywhere without interfering with output. A damper can be provided in each panel length for individual control. Warmline is available in two styles, both smart and neat in appearance. Easy to install and maintain, Warmline is perfect for long straight runs and fits smoothly around corners.

As one of the largest and most progressive organisations in the fields of heating, cooling, ventilating and air conditioning in the United Kingdom spreading warmth and goodwill is Biddle tradition. They have made the presence felt in the comfortable conditions prevailing in many of the world's largest and most famous structures. Coventry Cathedral, Shell Centre, South Bank, London Airport, Royal Festival Hall, Vickers House, The British Museum, The Old Bailey and The Queen Elizabeth II Hospital, Weymouth Garden City, are just a few of the buildings in the U.K. where Biddle installations are in operation. The wide experience and resources of the Biddle organisation are combined with imagination. Research and Development Engineers are continuously engaged in projects designed to meet the needs of modern industrial and commercial building for the best heating and ventilating equipment.

Your heating problems of tomorrow could be solved by a call to Biddle today.

Literature giving details of construction and dimensions is available from our offices or representatives.

uniflow



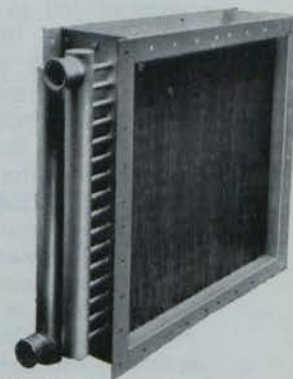
The modern styling and recognised efficiency of Biddle Uniflow Unit Heaters has made them a popular choice for many new factories and industrial organisations. Uniflows are available as horizontal or vertical discharge units for use with low, medium and high pressure hot water, low or high pressure steam. The horizontal unit is ideal for creating a flow of warm air along exposed walls, into narrow aisles and blanketing large doorways. The vertical unit is particularly useful in projecting heat downward, regardless of obstacles which may impede the airflow from a horizontal unit. Uniflows are available for direct attachment to ductwork where a positive supply of outside air is required.

vectair



Vectairs are the last word in convection heating. Available as floor, wall, recessed and semi-concealed units. These outstanding convectors have heating elements that are unique in construction: the plate fins and tubes are mechanically bonded, metal to metal, ensuring the most permanent and efficient heat transfer yet made. Vectairs are available in a comprehensive range of sizes for hot water or steam systems—conventional or small bore. Installation is simple and the clean design harmonises with every decor.

coils



Standardised Biddle Coils have been designed to meet all the requirements of modern air heating and cooling equipment. These coils are of welded construction and are tested to 40 p.s.i.g. air under water for a working pressure of 200 p.s.i.g. for special applications. Over 60 fin and tube combinations are available in standard casings ranging from 12" x 12" x 1 row to 25 ft² nominal face area by 8 rows deep. Biddle Standardised Coils are available in four main types suitable for use with the normal heating and cooling mediums.

Forceflow and Uniflow both now available from stock in Ireland.



AGENT FOR EIRE:

Thermal (Ireland) Ltd., 85 Lower Baggot Street, Dublin 2. Dublin 61237.

AGENT FOR NORTHERN IRELAND:

Samuel Stewart (Thermal Engineering) Ltd., 26 Neills Hill Park, Belfast 5. Belfast 655759

F. H. BIDDLE LTD. 16 Upper Grosvenor Street, London, W.1. (HYDe Park 0532-9).

biddle



WHITE-RODGERS Ltd., 75 South Western Road, Twickenham, Middlesex, have introduced

NEW STRAP ON SURFACE THERMOSTATS

a new range of surface strap-on thermostats which are designed for use as hot water controls. The new units feature a unique system of hydraulic control with a sensing element in direct contact with the hot water pipe, giving rapid response and accurate control.

The new range consists of three units—the 11BO2-1, 11BO9-2, and 1127-2. The 11BO2-1 is designed for high limit control and has a "universal" contact structure that will handle all voltages from millivolts (gas valves) to 240 volts (motors). It has a temperature range of 100 to 240°F with a fixed differential of 10°F.

The 11BO9-2 is intended for use as a circulator control in forced hot water systems, or a fan control on unit heaters. It has a temperature range of 100 to 200°F with a fixed differential of 10°F and is provided with a manual "on" dial position for summer air circulation. The 1127-2 has SPDT switch action and can be used as a high limit control, low limit control, circulator control or combination low limit and circulator control. It has a temperature range of 100 to 240°F with a fixed differential of 10°F. All three units can be attached directly to the surface of a pipe and no tapping of the boiler or draining of the system is necessary.

Irish agents are Thos. Heiton & Co. Ltd.

* * *

A PERIMETER convection-radiation heating system designed for architects to complement

ARCHITECTURAL SILL-LINE HEAT SYSTEM

the interior structural design of buildings, is being marketed by the Reznor Nesbitt Division of I.T.T. Industries Ltd., Connaught House, Aldwych, London, W.C.2.

Called the Architectural Sill-Line, it is a low pressure hot water or steam heating system in contemporary style, suitable for offices, banks, flats, entrance halls, shops and other buildings

where it is important for heating units to be attractive as well as efficient.

The system, which is economical in space, consists of slim, clean-lined slab fronted sections, the depth and width depending on choice. Telescoping sleeves join the sections to give runs along walls and windows, between mullions and round inside and outside corners of up to 90°. Nine lengths of sections ranging from 1 ft. to 8 ft. are available and there are five standard enclosure styles meeting a variety of shapes, sizes and heating outputs.

in brief . . .

VAN DEN BOSCH Ltd., Europair House, Alexandra Road, Wimbledon, S.W.19, sole U.K. agents for Tuttle and Bailey air distribution equipment, have introduced a range of Tuttle and Bailey perforated supply and return diffusers. The new ceiling air diffusers are designed to meet specifications for air outlets that blend unobtrusively with acoustical ceilings.

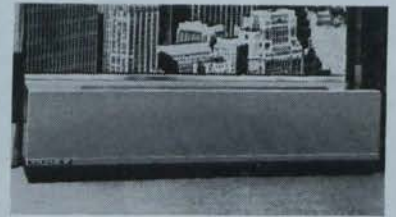
* * *

YORK Shipley Ltd., of North Circular Road, London, N.W.2, have extended their Yorkmatic range of air and water cooled condensing units by a further three units. At present the range comprises models from 1/5 h.p. to 1 1/2 h.p. The new condensing units will be a four-cylinder 3 h.p. air-cooled unit and a six-cylinder 5 h.p. water-cooled model. The two water-cooled units incorporate a new York type of cleanable condenser receiver.

The motor compressor assembly of the new units is encased inside a welded steel shell which is sealed against ingress of dirt, moisture and leakage of refrigerant and oil. The 3 h.p. condensing units have medium back pressure with a bore and stroke of 1 1/2 ins. by 19/32 in. The 5 h.p. unit has a high back pressure with a bore and stroke of 1 1/2 in. by 19/32 in.

* * *

THE latest addition to the CTC range of oil burners, available from CTC Heat (London) Ltd. (17 Sloane Street, London, S.W.1), is the CTC Type B—a small free-burning high pressure burner with single-phase 70W motor operating at 2,800 r.p.m. It can be used for conversion work as well as for new installations, and is particularly suitable for boiler units of small dimensions or where space is limited. Two models of the CTC Type B burner are available—Type B-210M, with capacity of 68,000 to 110,000 B.Th.U. per hour; and Type B-211M, with capacity of 95,000 to 190,000 B.Th.U. per hour.



● The low Silhouette Unitrane.

New conditioner from Trane

A NEW low silhouette fan-coil UniTrane room air conditioner has just been announced by Trane Limited, Donibristle, Fife. Although only 13 1/2 inches in

LOW VERTICAL FAN-COIL ROOM UNIT

height, the unit is the same length as standard vertical cabinet models and is said to be up to 35 per cent. shorter in length than "major competitive low vertical units."

Operating sound levels are said to be extremely quiet due to low operating speed (900 r.p.m. at rated cfm.), moulded glass fibre fans, and a cabinet insulated with heavy density fibre insulation. On low speed, where the unit would be running during most operating hours, the sound from the unit is virtually inaudible.

The moulded, fibre-reinforced fan wheel and scroll substantially reduces the higher, more objectionable frequencies characteristic of conventional metal fans. The fan scroll outlet expands in width as well as depth, reducing velocity and greatly improving distribution across the face of the coil.

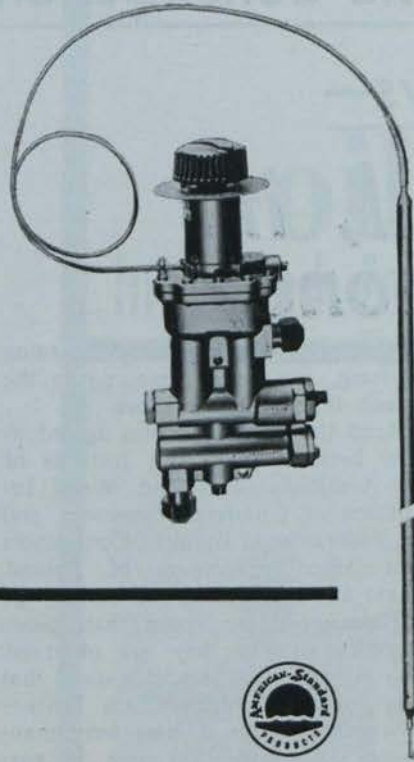
Styling features clean, sheer lines and complete concealment of all fasteners and latches. The standard cooling-heating coil is a two row, single serpentine design suitable for working pressures up to 250 PSIG. An auxiliary heating coil is also available. Filters are removable without unlocking the unit front panel. A 25 per cent. nominal outside air damper assembly is an optional accessory.

* * *

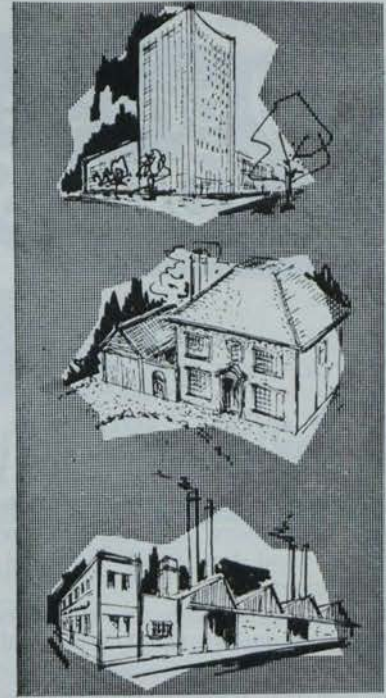
THE Vauxhall Boiler Co. Ltd. (Bondway House, Bondway, London, S.W.8) advise that under an agreement with Joseph Goder Incinerators they manufacture various types of these units for home and export markets. The incinerators were mentioned by J. L. Fitzgerald in his two-part series on Dust and Waste Collecting Plant.—(I.P.H.E., Nov.-Dec.).

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THE new automatic water softener, the BZA, is a simple ion exchange unit that has been developed by The Permutit Co. Ltd. Gunnersbury Ave., London, W.4) for use in canteens, hospitals, launderettes, hotels and for small industrial requirements.

NEW AUTO WATER SOFTENER

unit that has been developed by The Permutit Co. Ltd. Gunnersbury Ave., London, W.4) for

Hard water flows through a bed of Permutit ion exchange resin, and the calcium and magnesium salts which create the hardness are converted to sodium salts which have no hardness properties. When the resin contains no more exchangeable sodium ions, it is automatically regenerated by flushing with a solution of common salts. Sodium ions are thereby taken up by the resin and the calcium and magnesium salts are rejected. Regeneration of the BZA Softener is initiated by a push button or, if preferred, by a time clock or a water flow meter.



Joins board

MMR. David McIlvenna, who has been appointed to the Board of the General Electric Co. of Ireland Limited, is Managing Director of D. McIlvenna & Sons Ltd., Building Contractors, and is also one of the Dublin City Centre

Derry McCaffrey Writes On Hidden Costs In The Construction Industry And Says—

After all, it's your money

THIS article is intended to be hard hitting. If it arouses comment it will have achieved something, but if it forces action so much the better.

Remarks about rising costs are continually being flung at the construction industry. These statements are fair or unfair according to the context to which they are related but they are certainly fair when they refer to costs which we can avoid ourselves.

The first cost we should avoid is the cost of money. This article relates particularly to the costs involved in the relationship between contractor and sub-contractor. So many of us know the cost of cement or bricks or timber or glass but how many of us can accurately cost the value of our money, especially when it is wasted.

The specialist sub-contractor is the furthest removed from the source of payment and therefore the main sufferer. His invoices have to go to the main contractor, are incorporated in the contractor's statements, checked by the architect and quantity surveyor, sent to the client who pays the contractor, who eventually pays the sub-contractor. Rather like the House that Jack built.

Look at all the sources of delay. The account is handled twice through the contractor and probably more than once by both the architect and quantity surveyor and once by the client. At least five times. This means the sub-contractor's money is out all this time and he, like everyone else, must pay his labour and his suppliers. To stay in business he must cover himself for this delay in payment and therefore it is the client who bears the cost in the end.

Delays in payments where there are no holdups are bad enough but where an unscrupulous main contractor is involved then the field is wide open for him to hold on to the sub-contractor's money and use it himself. You may say that use of the Standard Conditions of Contract should prevent this. Agreed. But

these Conditions, especially regarding payment, are more honoured in the breach than the observance.

Read the Practice Notes agreed in 1960 between the Royal Institute of the Architects of Ireland, Royal Institution of Chartered Surveyors and the Federation of Builders, Contractors and Allied Employers of Ireland. These are excellent as far as they go but are worth no more than pious platitudes unless they are observed. Unfortunately the preamble states that they are recommendations only—how much better if they were mandatory. Consider this one in particular:—

3 (c) That when an amount is included in a Certificate in respect of nominated subcontract work, a notification of this fact and a statement of the amount should be forwarded by the Architect to the Nominated Sub-Contractor concerned.

One well-known sub-contractor can tell you that in the last two years he has only twice received a notification of this type and he has done business with practically all the architects, quantity surveyors and main contractors in the country. We know that some architects and quantity surveyors do this and they should be applauded. Would that all professional offices did the same!

Here is something that requires no new committees, no new decisions—it was agreed in 1960 by all the bodies concerned and only needs to be put into operation. Let us see a standard form to cover 3 (c) above agreed and let us see it being used. Without doubt this will speed up the flow of money and allow sub-contractors use of their own capital, which in turn should lower their tendering costs.

And this is just one of many practical steps suggested towards lowering hidden costs in the construction industry.

(The author is Managing Director of W. H. Heywood & Co. (I.) Ltd.)

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COSTS CUT BY WING MECHANICAL DRAUGHT EQUIPMENT

WE continue our discussion on wing mechanical draught equipment with a description of the workings of the wing draught inducer.

There are various types of draught inducers available. **Fig. 1** illustrates a popular wing design which replaces an elbow in the breeching. This breeching need never be disturbed for inspection or servicing.

And here is how this is accomplished. The wing draught inducer casing, Item 1, remains intact as connected to the breeching. The entire rotating assembly, however, Item 2, complete with motor, drive, bearing assembly, fan impeller, and supports can be withdrawn from the casing on inner slide rails and worked on at the mechanic's convenience. After servicing the unit is then replaced in the casing and secured by merely fastening eight bolts.

FAN shaft bearings are protectively concealed within an insulated housing through which cooling air flows continuously. These bearings are pre-lubricated and sealed, so no additional lubrication is required for their normal life.

The use of a V-belt drive eliminates the need for field alignment before start-up. The shaft and bearings are rigidly mounted at the factory and require no attention. The motor is mounted on a spring base, pre set at the factory, which automatically maintains correct belt tension.

This wing draught inducer comes complete with two inlet openings; a barometric damper, if specified, may be mounted on side panels of the casing, which are interchangeable, may easily be changed in the field to locate the gas inlet on either side, top or bottom. The discharge can be horizontal or vertical.

Capacity May Be Varied.

THE capacity of the unit may be varied in accordance with the load requirements. This is accomplished with a variable speed motor and a manual speed controller. Thus, to either increase or decrease the capacity, the speed is adjusted by merely turning the handle on the speed controller. Operating at the lowest speed consistent with adequate gas removal results in lower power consumption and reduced wear.

Wing draught inducers of the axial flow type are available in several sizes from units serving domestic boilers to steam generators producing up to 100,000 pounds of steam per hour.

Architectural trends toward one-storey structures are rapidly spelling the end of tall stacks for boiler draught. A wing draught inducer makes a tall stack unnecessary, a short vent in the roof being sufficient.

To-day many buildings are being extended and under normal circumstances the heating engineer and the architect would be recommending the building of a new chimney to cope with the increased heating load of a

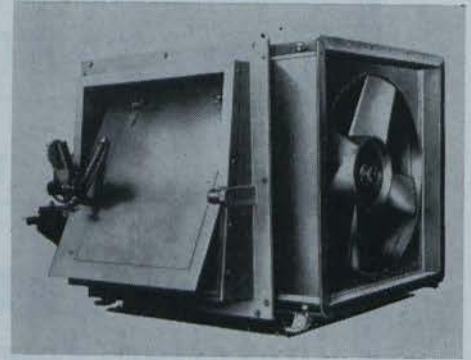
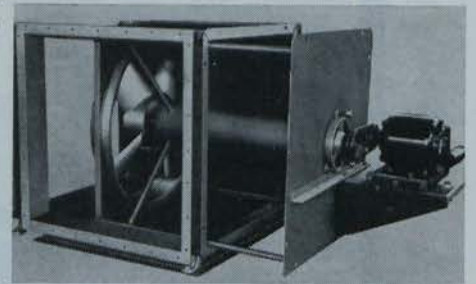


FIG. 1: Here the wing draught casing remains intact.



This illustration shows how the entire rotating assembly can be withdrawn from the casing.

larger or additional boiler plant. The installation of a wing draught inducer may make this necessity unnecessary and it is possible in many instances to double up boiler capacity on an existing flue when using a wing draught inducer. You would readily see the considerable capital savings which can thus be made, and at the same time the boiler plant will operate more efficiently.

● A SIX-ACRE site has been leased from the Wicklow Urban Council by Veba Ltd., a member of the J. B. Van Heijst Group in Holland, to expand manufacturing facilities in Ireland to supply the British market. The firm has been assembling radiators at its Finglas (Dublin) factory since 1956.



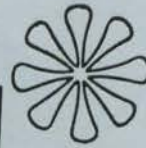
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MONTHLY SPECIAL REVIEW

WATER TREATMENT,
DE-SCALING,
ANTI-CORROSION
COMPOSITIONS

SOME OBSERVATIONS ON WATER TREATMENT FOR BOILERS

MUCH has been written regarding treatment of the feedwater for steam raising boilers, but little with regard to High Pressure and Low Pressure Hot Water Systems, although H.P.H.W. Systems are becoming more common every day.

Whereas care must be taken with steam raising boilers to prevent build up on the heating surfaces of Lime scale (i.e., chalk, etc.), only corrosion takes place in a Hot Water System, irrespective of the hardness of the water. This, of course, is due to the fact that there is no evaporation of the water and thus no concentration of scale forming salts.

What happens is, that the iron itself reacts with the water in the system to form oxide of iron and hydrogen. This reaction takes place in two stages. (See below).

It will often be found that when the air release valve is opened on a hot water radiator to allow collected air to escape, if a lighted match be applied to the escaping air, it will burn. In other words, it is not air but hydrogen.

THE magnetite will gather in the system as a black sludge. Only in the cases where oxygen is allowed to enter the system will the black magnetic oxide of iron—magnetite—be converted to Fe₂O₃ red oxide of iron, commonly termed rust.

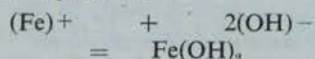
The reason why this corrosion proceeds is due to the fact that as the iron dissolves in the water, and corrosion of metal in water is purely the action of solution, the ferrous ion links up with the hydroxyl ion of water to

form Ferrous Hydroxide.

It should be explained here that water is composed of two atoms of hydrogen with one atom of oxygen, i.e., H₂O, but a small part of the water is ionised, that is, it is split, but it does not split to hydrogen and oxygen but to hydrogen ion H⁺ carrying a positive electrical charge, and hydroxyl OH⁻ carrying a negative charge.

Acidity of anything is due to the hydrogen ion, the more hydrogen ion present, the stronger the acid. In the same way, alkalinity is due to the hydroxyl ion, the more hydroxyl ion present, the stronger the alkalinity. It follows, therefore, that water, the perfect mixture of acid and alkali, is neutral.

When the positively charged ferrous ion enters the water, it immediately links up with hydroxyl ion to form ferrous hydroxide.



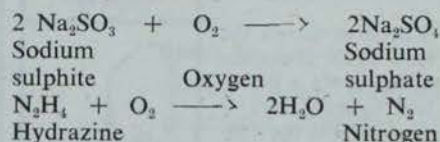
If the amount of hydroxyl ion in the water is low, and the amount in pure water is only one ten-millionth of a gram per litre, the ferrous ion has to search around for a hydroxyl ion before it links up. Thus the ferrous hydroxide is formed some distance from the metal.

However, if the hydroxyl ion (OH)⁻ content of the water is increased by the addition of hydroxyl ion, then the ferrous hydroxide is formed nearer and nearer to the metal until a stage is reached where a ferrous hydroxide film is formed on the metal itself, thus preventing any more iron going into solution. This film is gradually converted to a protective

magnetite film and corrosion is arrested.

The excess of hydroxyl ion is added to the water by the addition of caustic soda, NaOH, which in water dissociates almost completely to sodium ions and Hydroxyl ions, and the method of measuring whether sufficient caustic soda has been added to the water in the Hot Water System, is by measurement of the pH value. For correctly treated water the pH value should be pH 11.0.

MAINTENANCE of the pH value alone is not the complete answer, however, because if oxygen is allowed to enter the system, the oxygen can disrupt the protective film on the metal, and corrosion will proceed. It is necessary, therefore, to ensure removal of oxygen and this is achieved by the addition of sodium sulphite or hydrazine to the water.



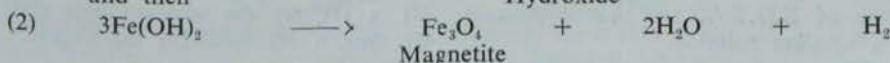
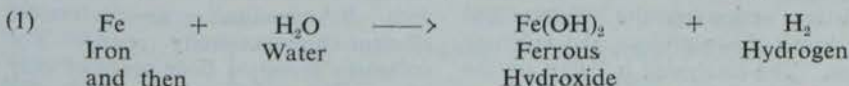
To sum up, therefore, water in a H.P.H.W. System should have a pH value of 11.0 and a sulphite reserve of 50 parts per million or a small hydrazine reserve.

In the majority of H.P.H.W. Systems, where the water temperature is constant over a 24-hour day, the make-up to the system is nil or negligible. However, if the temperature varies a lot, care must be taken, because the make-up to the system and, therefore, ingress of oxygen may be considerable. This is due to spill over from the system during raising of temperature, necessitating make-up during periods of cooling.

Closely allied to the correct treatment of Pressure Hot Water Systems

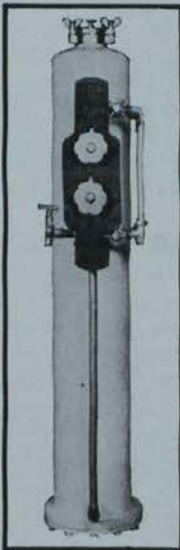
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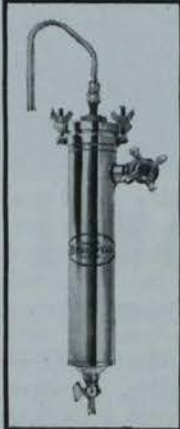


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SPECIAL REVIEW

from previous page

is the treatment of water in an idle steam raising boiler. Unless the treatment is correct more corrosion can take place in three months in an idle boiler standing filled with water, than would take place during many years of steaming.

Two conditions are essential. Elevation of the pH value to pH 11.0 and maintenance of a sulphite reserve of not less than 50 parts per million.

For the prevention of scale in steam raising boilers, many factors must be considered before it can be stated whether satisfactory results can be obtained by the use of chemicals added to the feedwater, or whether a plant is required to soften the water before it enters the boiler.

For example, the hardness of the water, the amount of condensate being returned, the type of boiler, etc., must be considered carefully before a decision is made regarding treatment. More will be written regarding this at a later date, but it is advisable for anyone considering feedwater treatment to contact specialists in this field of work.

At times an Engineer is faced with an ultimatum from the Boiler Inspector that scale must be removed from a boiler before it can be passed for use.

If the boiler is very dirty the Inspector is perfectly justified in his ultimatum, because safety is essential. Nevertheless, it can be a nightmare for an Engineer who has no standby boiler, and particularly when the boiler which he has, is of the Economic packaged type, which cannot be cleaned manually.

Provided the scale is chalk, then it can be removed very easily by the use of an inhibited acid, i.e., Hydrochloric acid containing an inhibitor to prevent the acid attacking the boiler metal.

However, until recently, if the scale was not amenable to acid, i.e., it was composed of calcium silicate, or calcium sulphate; then the only method of cleaning was to withdraw the tubes of the boiler, clean and then retube.

It is now possible, however, to digest the boiler for 48 hours at pressure, with a solution which has a chelating action on the calcium and will break down silicate and sulphate scales. The treatment is based on the use of E.D.T.A. and Boroheptonate in alkaline solution.

—S. T. PEAT, B.Sc., F.R.I.C.

IN this equipment review we look at new developments in the fields covered by this special review.

L. R. WOOD Ltd., Wholesale Distributors, Pearse St., Dublin, and Bridge St., Cork, have received initial stocks of Polygalv which has an anti-corrosive composition, and Polymar. They also stock Dinitrol 33B and have found it one of the most successful anti-corrosive compounds in systems where further painting is not desirable or possible.

Polygalv is a non-drip liquid zinc primer for iron and steel and is simply brushed on for complete rust immunity. It is also thixotropic, and is touch dry in half an hour. After a short time its rough film gives high resistance against mechanical or heat damage.

Polymar is a metal base which when mixed with its plastic hardener converts to a hard dense metallic material within two hours. It repairs iron and steel immediately. It is resistant to solvents, chemicals, oils, greases and corrosion, heat and cold. It can be used with other metals—stainless, lead, copper, brass, etc.

Polygalv is manufactured by Polybond Ltd., Warsash Rd., Warsash, Southampton, while Polymar is made by Corrosion Ltd., also of Warsash, Southampton. Denitrol 33B is a penetrating rust preventing fluid.

* * *

ALL Berkfield Water Softeners deliver softened water from the tap, more or less as fast as if there were no water softener. They have a "capacity" (not the same thing as a "size") for softening from 250 to 7,000 gallons (and upwards) of water between regenerations.

The Berkfield units are constructed throughout in mild steel with the exception of the internal strainer nozzles which are moulded in polypropylene. The softener and brine tank are heavily coated to prevent corrosion attack by brine when regenerating, and the valves which come into contact with the brine are of the rubber diaphragm type.

A Berkfield Mains softener is in reality a strong steel cylinder filled with "Amberlite," an extremely efficient high capacity resin. The softeners occupy a floor space of only 2ft. x 1ft. for the smallest unit and 4ft. 9ins. x 3ft. 6ins. for the largest.

Continued page forty

For any problem connected with treatment of water for steam raising, cooling systems, etc.

consult—

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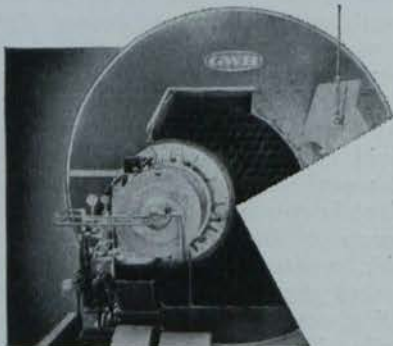
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TUBE CLEANING

EACH and every design of plant has its own peculiarities and difficulties. Rarely do identical problems occur, since these depend on external conditions, operating temperatures, and the length of time the plant has been allowed to run between shutdowns. Only when it is opened up for cleaning can an engineer see what he is really up against, and it is then essential for him to attack the work quickly and effectively. This means, right from the start, that appropriate tools are essential—they are half the battle.

In offering tube cleaning equipment, there must, of necessity, be the comprehensive range of tools and brushes available for all conditions of service, to ensure speedy, effective cleaning (without injury to the tube walls) and all these must be available at the right prices. It is, therefore, a condition of service that any reputable firm of tube cleaner manufacturers should take a personal interest in his customer's problems, and not adopt a "take it or leave it" attitude. Advice should always be forthcoming and the manufacturer should be prepared to demonstrate to his customer the effectiveness of the recommended equipment under working conditions.

Only the application of the right cleaning tool will ensure the thoroughly clean tubes which are so essential for the maximum transfer of heat and hence fuel economy, safety and plant efficiency.

IN smoke tube boilers of the economic or packaged types, it is desirable to clean as often as possible, even when the boilers are extremely hot. For temperatures of above 200°F mechanical cleaning equipment would not be recommended but there are the self-expanding hand brushes and scrapers which are suitable for "rodding" through at these higher temperatures, thereby keeping deposit down to a minimum. When the boiler is finally shut down for an overhaul, the mechanical cleaner can then be used most effectively. The same remarks equally apply to waste-heat boilers where, in gas works, iron and steel work, chemical works, etc., the hand-operated self-expanding brushes and scrapers are the most useful tools of their kind for keeping the tubes free from deposit whilst the boilers are on-load.

In the case of heat exchangers, where there are usually several hundred small tubes that require atten-

In conjunction with this month's special review we take a look at the question of tube cleaning—a vital maintenance operation with which maintenance engineers are already only conversant. But are they aware of what cleaning equipment manufacturers are doing to help them?

tion at a time, these are best dealt with by an outside cleaning motor with extendable solid rods; by this means adequate power can be applied for positive operation. In the case of water tube boilers, bad scaling conditions rarely arise these days because of water treatment and presumably it depends on the plant engineer as to whether the tubes are brushed through regularly; such an operation, however, could be considered desirable in the interests of efficiency.

With economizers, tubes at the hot end sometimes collect rather hard and thick scale formations which can usually be dealt with, quickly, and effectively, by a rotary tube cleaner.

PROCESS plant and auxiliary plant such as evaporators, heaters, coolers, etc., all have conditions that can vary from soft sludge to very hard—and even very thick—linings of scale. The appropriate cleaning tools must always be selected in such circumstances, consideration being also given to the preservation of those tubes in soft metals such as brass and copper. This is where the co-operation of the customer is always so important to enable the supplier to put forward the best equipment in the interests of rapid, positive cleaning. It is known, of course, that some users of tubular plant in this category find it advantageous to boil out the tubes first with a strong detergent. Having washed them through, they are left full of water and then cleaned mechanically. This usually makes the work much easier for the tube cleaner, and of course speeds the process.

Chemical cleaning is another useful means in this mechanical age. Although it does not lend itself to every problem, there are advantages in some cases.

The author is a director of Rotatools (U.K.) Ltd.

PRODUCT REVIEW

from page thirty-eight

The manufacturers, British Berkshire Filters Ltd. (Town Mills, Cannon Lane, Tonbridge, Kent) also market a comprehensive range of filters.

* * *

THEODOR CHRIST Demineralisation Plants have been installed in Ireland in increasing numbers in large and small installation over the last ten years. In demineralisation, as opposed to base exchange, all the impurities of the water supply are removed and deposited in the demineraliser.

This is easily and quickly regenerated. Sludge in the boiler is thereby reduced to a minimum and the danger of burning out tubes and tube plate is considerably reduced. With water boilers as distinct from super economic shell type boilers, demineralisation is of great importance.

For shell type boilers and especially package boilers, a simpler form of water treatment on the base exchange principle is also available from Theodor Christ. Both demineralisers and base exchangers are available on fairly short delivery.

From Dublin stock, a smaller range of complete demineralisers is available immediately. These are portable plants sold under the trade name of Ministil and are available from many laboratory suppliers as well as from the main agents, Quadrant Engineers, Strand Road, Sandymount. With these plants regeneration of the demineraliser is not necessary on the site, as when this is required it is carried out by Quadrant in their Dublin plant.

For occasions where high pressure hot water systems need to be topped up, and in which, because of the higher temperature, deposits in the pipes may be expected, demineralisers are available on loan ex-stock from Dublin.

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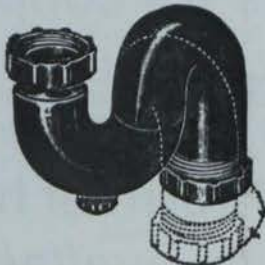
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