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### The Irish Plumbing and Heating Engineer, February 1969 (complete issue)

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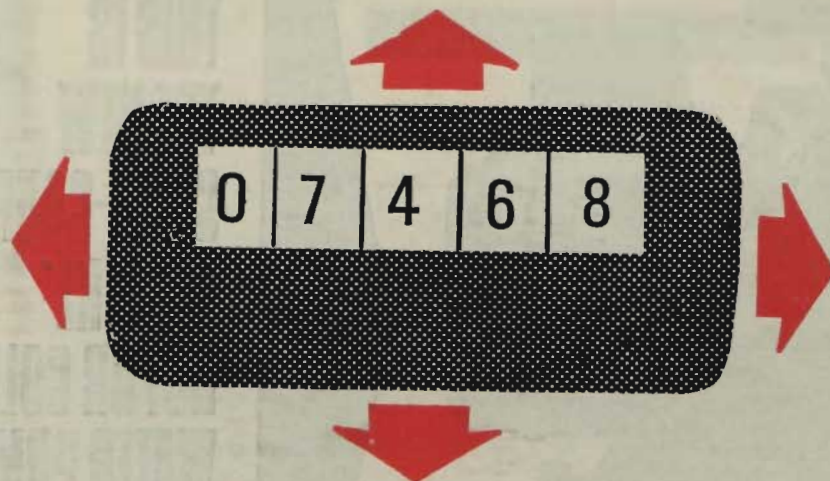
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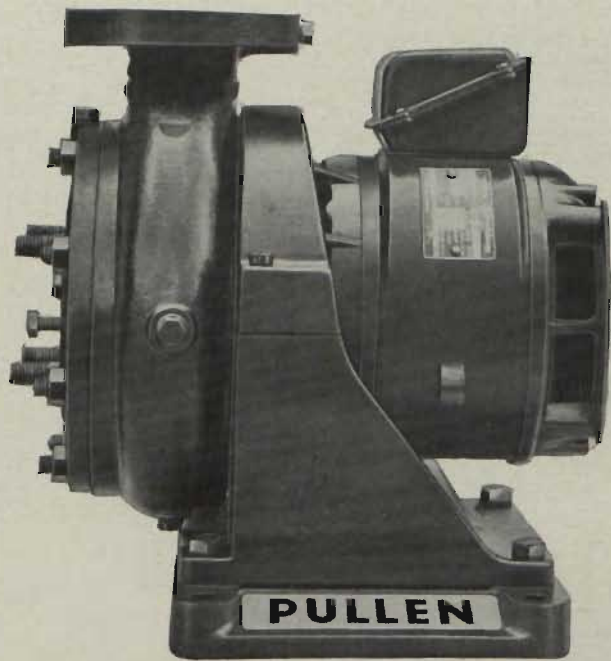


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**SUPPLEMENTS :**

Northern Ireland Monthly Review/Industrial Heating & Ventilating in Ireland.

FEBRUARY, 1969. Vol. 8. No. 11



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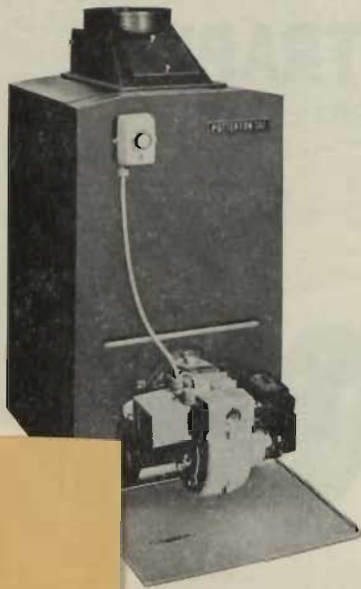
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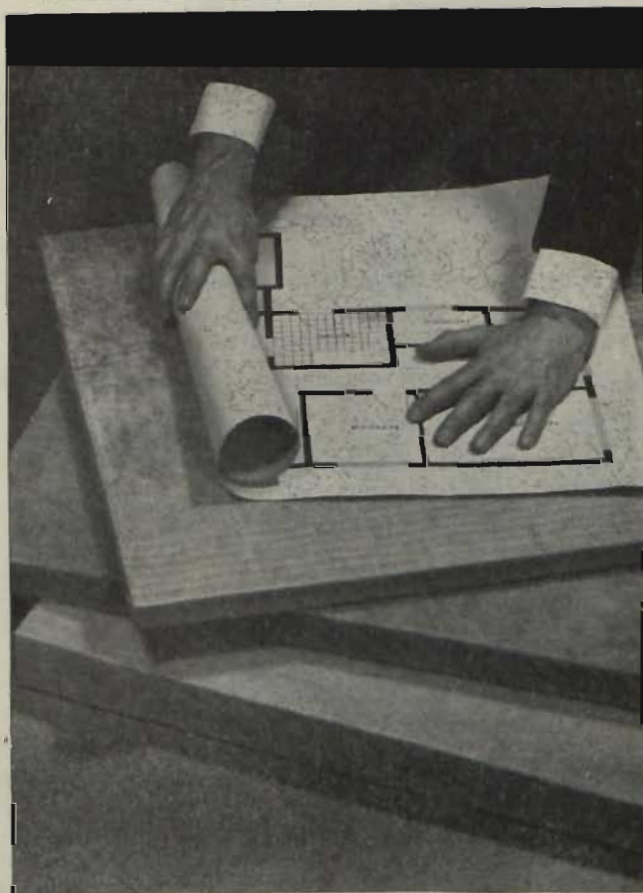
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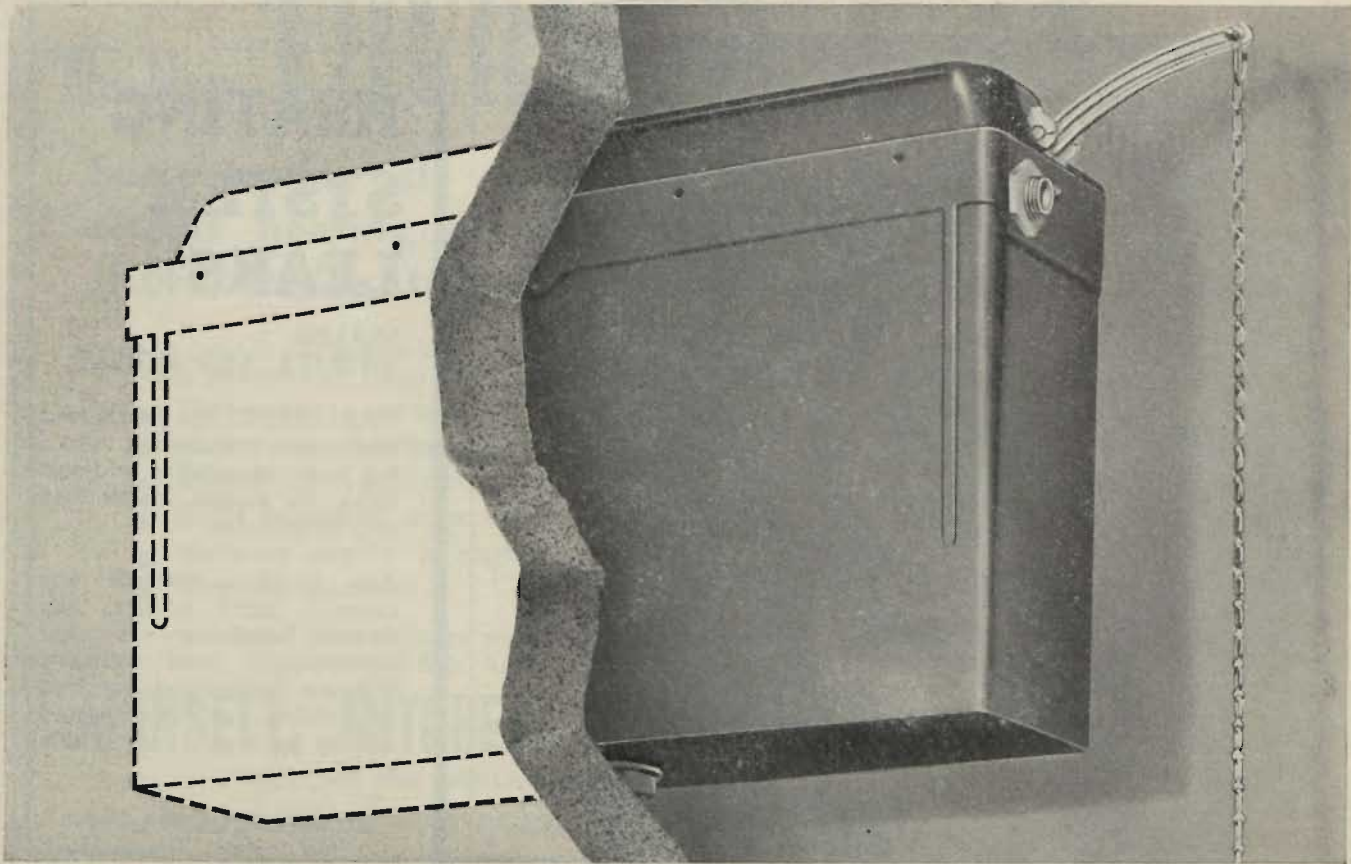
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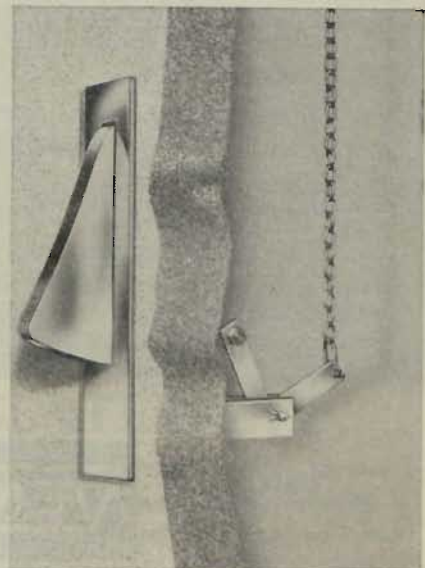
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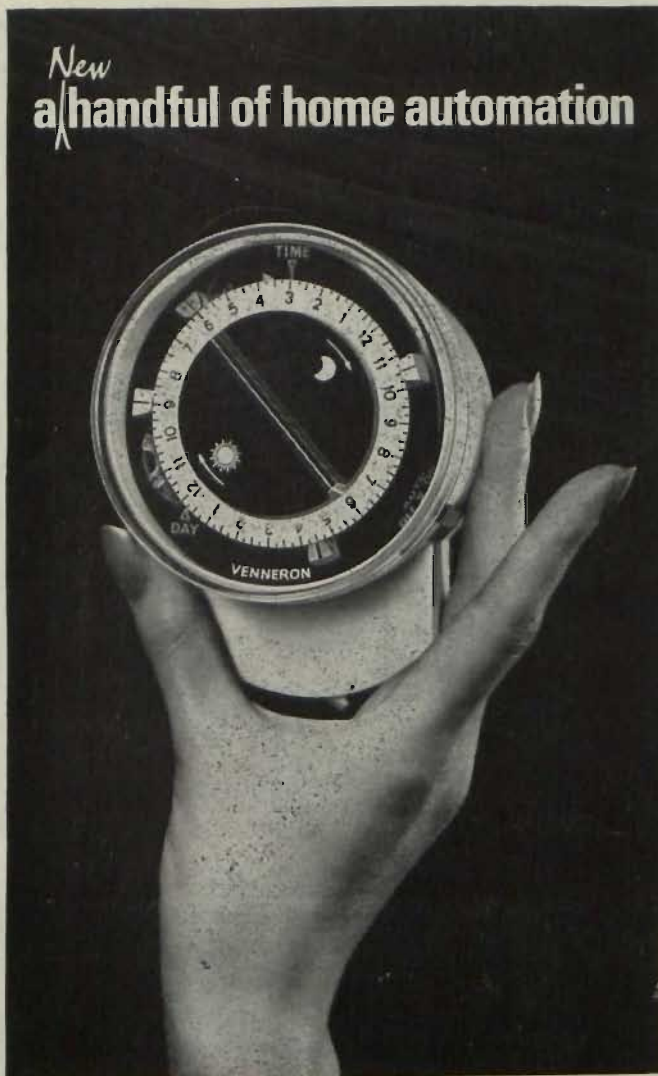
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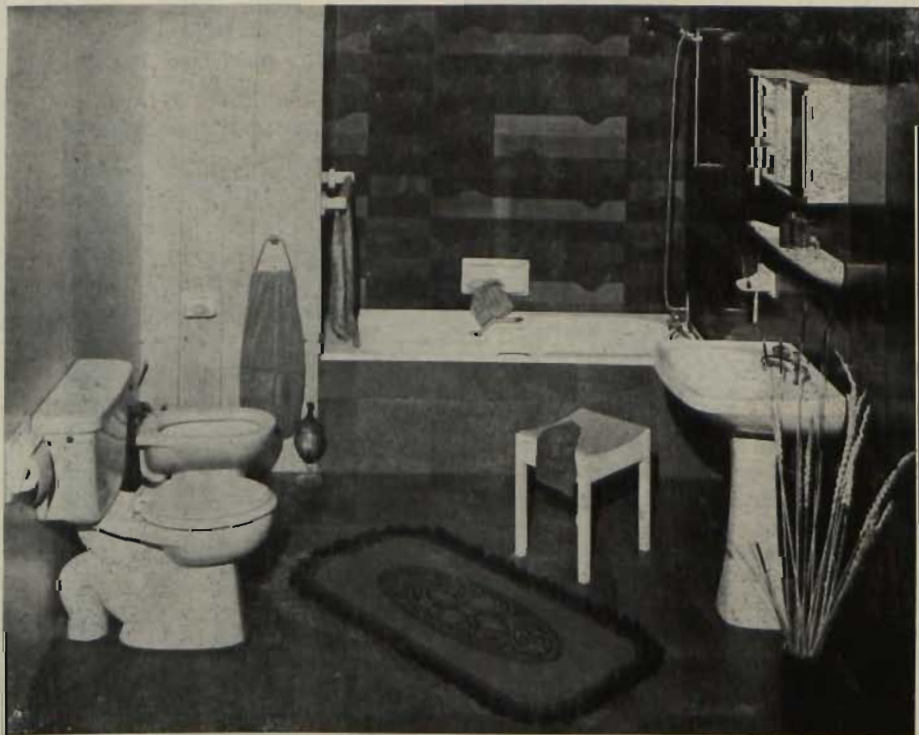
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## KOSANGAS ANNUAL DINNER

At the Kosangas annual dinner, held recently in the International Hotel, Bray, were (left to right): Miss Betty O'Farrell (committee member), Mr. Ray Tumulty (committee Chairman), Miss Angela Rooney (committee Secretary) and Mr. Gordon Pollard (committee member).

## trade Topics

FORDHAM Pressings Limited are now in production with the Uni-Flush Panel Close Coupled Suite. This new Close Coupled Suite is a further development in the range of extremely slim cisterns produced by the Company.

The original Flush Panel, only 4½" in projection, introduced early last year, has already achieved enormous success, and the Close Coupled version now available offers many advantages to the discriminating buyer. As well as the obvious advantage of saving space, the Uni-Flush Panel Close Coupled Suite can be used most effectively for converting old high level cisterns to low level.

The flushing unit itself is manufactured from high impact Polystyrene and all the internal parts are made from the most suitable plastic for each particular function. Fitted as standard is the Fordham Acqasave Mk. 2 all Delrin Ballvalve

The vitreous china wash down pan is specially designed to save space and the overall projection of the unit is only 23" from wall to front of pan.

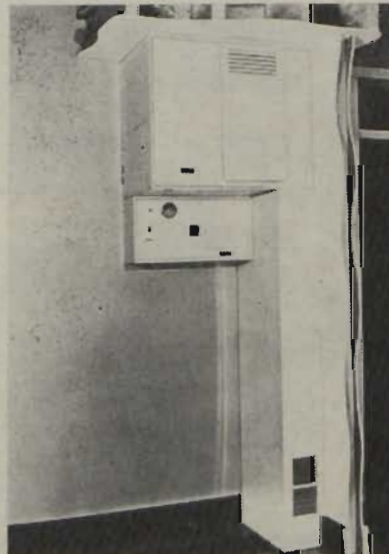
The Uni-Flush Panel Close Coupled Suite is available with a black or white cistern and a white pan. The flushing capacity of the unit is 2-gallons. Further

details from : R. T. Large, Stephen's Place, Rere 47 Merrion Square, Dublin.

★ ★ ★

BAXI'S newest appliance in the gas-fired home heating market is the Bahama—a free-standing radiant/convector room heater. It is a development from their successful Bermuda-Plus central heating unit, consisting of room heater plus back boiler, which was launched

*Continued opposite page*



● Also new from Baxi is their domestic hot water unit (B. 30/D) positioned under the Baxi-Gas 30 warm air central heating unit. The two units share the same flue, draught diverter and gas connections. The water heater has an output of 10,800 Btu/h. and the warm air unit 30,000 Btu/h. Together, they provide domestic hot water and central heating to most dwellings having two or three bedrooms.

# irish plumbing and heating engineer

THE IRISH PLUMBING AND HEATING ENGINEER is the only publication produced in Ireland catering exclusively for the heating, plumbing, ventilation and environmental industries with a guaranteed circulation covering the Republic of Ireland and Northern Ireland every month.

\* \* \*

SPECIAL Review Topics this month deal with — in the domestic section — tap fittings and controls including snower fittings and — in the industrial section — water treatment, descaling and anti-corrosion compositions.

WE continue our series on the control of domestic heating systems under the title : Those little black boxes.

IN conjunction with our special review of water treatment etc. we carry a report on water conservation developments on page forty.

INCLUDED in this month's trade news coverage are reports of a number of recent important events.

\* \* \*

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FEBRUARY \_\_\_\_\_ 1969  
VOLUME 8 \_\_\_\_\_ No. 11

et al.: The Irish Plumbing and Heating Engineer, February 1969 (complete

**L**IQUIL Petroleum Gas companies in Ireland have combined to form the first non-commercial Board in this country, in order to promote the advancement and well-being of the industry in all technical matters.

Membership of the Board will be confined to producers and first line distributors and a general committee has been formed, consisting of one representative from each of the participating companies.

Other objectives of the Board, which recently held its first meeting, will be to guide producers, distributors and users of liquid petroleum gas, by producing specifications and codes of practice for the quality of the produce and the means of distribution, storage and utilisation. The new Board will also guide and instigate liaison with governmental authorities in all matters dealing with LP gas.

Mr. Kenneth F. Bishop, the recently appointed Managing Director of Kosangas Ltd., and Kosangas (Northern Ireland) Ltd., has been elected Chairman of the Board. Mr. Bishop is an international authority on the specifications and marketing of LP gas. He is already widely experienced in this field, having worked with the Industrial Technical Committee of the LPG Association in Britain and with the N.L.P.G.A. in the United States, as well as having worked with the international Institute of Petroleum.

Two Sub-Committees have been set up, one responsible for gas specification under the Chairmanship of T. H. Taylor, Chief Engineer, Calor Gas, and the other for Installation and Appliances, under the Chairmanship of John H. Donovan,

## BAXI BAHAMA

• From previous page

last year.

The Bahama is a slim, compact heater made from satin-finish stainless steel with teak or rosewood end panels, which project at hearth level to form the legs. Primarily designed for hearth fitting, it can also be fixed off the floor as a panel fire and takes up very little space as it is only 6½ in. deep, 24½ in. high and 27¾ in. wide.

It has a heat input of 17,400 Btu/h. and will heat a room of up to 2,000 cu. ft. by radiation and convection, giving a quick heat gain and good circulation of warmth throughout the room.

The agent in Ireland for Baxi is A. G. Smyth & Co., 99 Upper Rathmines Rd., Dublin.

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# CONTROLS

THE CONTROL OF DOMESTIC HEATING SYSTEMS — THIS IS THE TITLE OF THIS SERIES OF ARTICLES BY A SPECIAL I P H E CORRESPONDENT WHICH WE CONTINUE HERE

## PART THREE

# INSIDE THOSE LITTLE BLACK BOXES

LAST months article dealt with the mechanisms associated with control systems — principally with thermostats. As controls become even more complete, we are becoming increasingly involved in systems which may have sequentral operation, or which may decide upon, and deal with, alternative conditions, or which may modulate rather than simply switch things on or off. In all of these areas there are certain, well-recognised, mechanisms and methods at the designers disposal. One may take as an example a chain of control action or commands which may be necessary to bring a particular oil burner into action. Let us postulate that there is some timed function that is necessary before ignition can take place. It may be the pre-heating of a combustion chamber, as in some types of wallflame, or the running of a fan for primary air, starting before ignition to ensure a good mixture or to establish air movement through the flue. If this is called function (A) then function (B) would probably be the start of the ignition arc via a transformer. Function (C) might be the ingress of prepared fuel, probably via a pump, and function (D) might be the detection of a satis-

factory flame. There would, of course, be a further two functions, the thermostat, detecting a satisfactory temperature level, cutting the burner off, and this would be ultimately followed by the thermostat calling for heat again and starting the whole sequence going afresh. In good practice there would be a second thermostat to safeguard against the failure of the first one, but arranged to lock out the burner on cut-off.

Taking arbitrary figures one may take sixty seconds for function (A), followed by function (B) with (C) following, say, fifteen seconds after.

If function (D), flame detection, does not take place within, say, fifteen seconds of (C) then the burner cuts out, goes through its cycle once more from the beginning, with a lock-out and the ignition of a warning light after a second failure.

Failure of any earlier function should also result in lock-out.

This sort of control requirement involves, of course, the choice of alternating as well as sequencing since the system either functions as it is intended to do or takes the appropriate action on either the first or the second failure. Clearly the initial call for heat from the thermostat activates the whole process although the operation of each function must be dependent on the satisfactory completion of the preceding function.

There are at least two ways of timing these with the necessary degree of accuracy. The first method depends on thermal relays. These are essentially switches; when first energised they remain off while a small heat motion warms up. This may be a simple bi-metallic strip, when this is warm enough it closes the main circuit. This process takes a set time, depending on the relay and there is often a means of adjustment.

### Precise

The second method involves the use of a synchronous motor, rather like those used in electric clocks. This motor, with a very low speed final drive, turns a set of cams, rollers bearing on these cams operate micro-switches. This is a very precise and reliable method, one cannot alter the timing sequences very easily since the cams can sometimes be moved relative to the spindle. Once the synchronous motor has started the high spot of each cam in turn will operate the appropriate switch. The cams must, of course, go through their complete cycle before they are ready for the next one and the control system must be able to cope with

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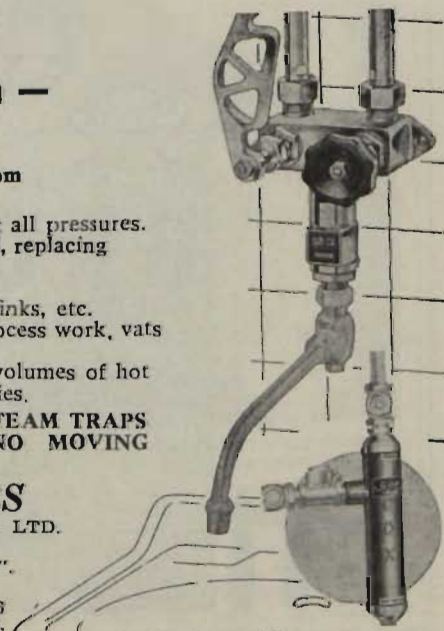
## COX WATER HEATERS

Manufactured by COX ENGINEERING CO. LTD.  
Dept. IP.21, 14 Park Lane, Sheffield 10.

Tel.: 64282. Telegrams: "Heaters Sheffield".

### Agents:

Halpin & Hayward Ltd., Unity Buildings, 16  
-17 Lower O'Connell St., DUBLIN, Tel. 48633.  
Riverdale House, Killyleagh, Co. Down, Tel. Killyleagh, Co. Down 288.



any interruption of the cycle. This is one reason why a timer with a pre-heated wallflame boiler, must not interrupt the mains but be connected to the appropriate terminals in the control box.

Getting back to our example, the completion of function (A) could be indicated by a thermostat if it was a heating function or a mechanical switch if a fan was involved. If completion is not indicated then, at the end of the timed sequence, the lock-out relay is activated. If all is well, function (B), ignition, is started by the timing device, this would activate the transformer and there might be a relay in series to ensure that function (C) could not follow unless the ignition was on. Again the failure of this relay to operate after a timed period could activate the lock-out relay. The control would normally be so arranged that if function (C) was not interrupted within, say, thirty seconds by a signal that flame was established then a lock-out or re-cycle would follow the thirty second period. At least three different methods of flame detection are now in use, photo-electric cells are most generally used with atomising burners, pyrostat relays have normally been used with wallflames although a newer design of detection

## DOMESTIC CONTROLS

● From previous page

device is now coming into use. Any flame failure during normal running would be detected and followed by immediate lock-out.

There is a good example here of parallel circuitry; in other words at any stage in the sequence a second circuit, to initial cut-off or final lock-out, is standing by, ready to take over in the event of any malfunction of the first one. The alternative circuit is common in modern heating control practice; another common example is the boiler/pump complex controlled either by a cylinder thermostat or room thermostat depending on design.

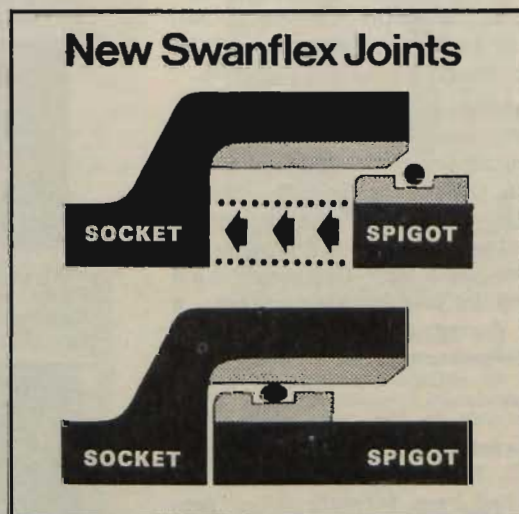
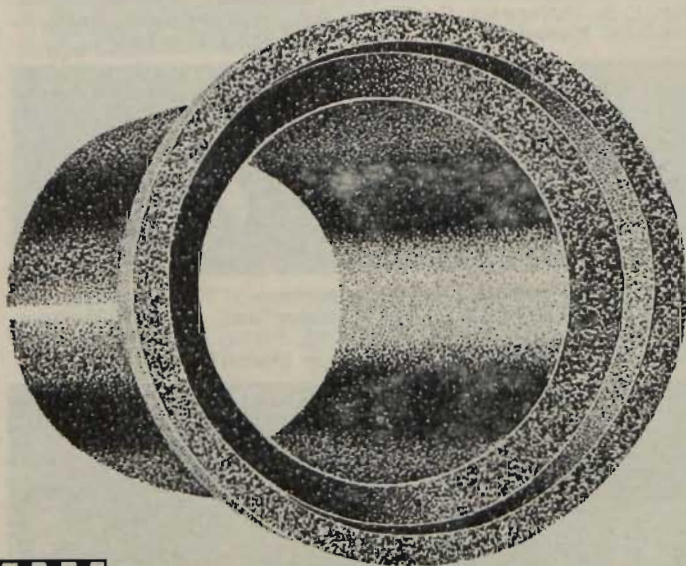
Modulating controls are essentially designed to vary a continuing condition. In heating practice the usual application of this type of control is the thermostatically controlled mixing valve. The more complex example of his type of valve incorporate two thermostats, one outside on a North wall and one immersed in the heating flow. The first thermostat signals that a controls variation is needed, following a change in the outside temperature. The second

thermostat senses what is going on in the system and ensures that the flow temperature bears the correct and pre-determined relationship to the outside temperature. The business end of this particular system is a motorised valve with three, or sometimes four, ports, and usually sited on the flow pipe. A valve of this type is designed to re-circulate, via a by-pass to the return pipe, a proportion of cooler water. This proportion will be varied as the valve setting changes. The flow temperature will vary with the proportion of cooler water. The final conversion from electrical signals from the two thermostats, via the control box, to mechanical movement of the valve is achieved by stopping and starting a powerful geared motor mounted on the valve head and driving via a linkage.

One of the toughest jobs an installer may have to face is to sort out a large and complicated heating control system that some anonymous individual has fitted years before. Fortunately this does not happen too often. However, the basic bits and pieces are fairly straightforward; given enough time, common-sense, and a test lamp most of the problems can be resolved with less difficulty than would at first appear.

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# MONSELL MITCHELL



## OPEN NEW PREMISES

Monsell & Mitchell and Co. Ltd., one of the oldest builders' providers in Ireland, embark on a second century of trading with the advantage of new, modern and well-appointed headquarters.

The new plant — situated at Sir John Rogerson's Quay—was officially opened last month by Mr. Michael O'Flaherty, deputising for the Chairman of the Company, and Mr. Stephen O'Flaherty.

The original Monsell & Mitchell Co. dates back to 1868. A second century of even greater success than the first now seems assured for the go-ahead concern.

Mr. M. J. O'Keefe, Managing Director of Monsell Mitchell and Co., Ltd., welcomed the guests at the reception to formally open the new premises. Many of the guests had travelled from the Continent and the United Kingdom for the occasion.

Speaking at the reception, Mr. O'Keefe stated that the absence through illness of the Chairman, Mr. Stephen O'Flaherty, and Dr. M. W. O'Reilly (Director) was regretted. Continuing, he said that the major progress of the Company had occurred in the last six years, a period during which other firms in the business experienced great difficulty.

Referring to the role which staff had played in the success of Monsell Mitchell, Mr. O'Keefe stated that his policy had been to work to a programme of staff and management development from within the company. It was a great pleasure that it was possible to invite the entire staff of Monsell Mitchell to the opening ceremony.



● Mr. Des O'Gorman, General Manager, at the Monsell Mitchell Sir John Rogerson's Quay new premises opening reception with, from left: Liam Dillon, Manager, Heating Dept.; Robert Haughton, Manager, Plumbing Dept.; Pat Doyle, Dublin Representative, and Mr. Gerry Keane, Manager, Pearse Street.



● Mr. Claude-Francois Maheu (Export Manager, Palyrey), Mr. Gerry Keane, (Manager, Pearse St. Branch, Monsell Mitchell), and Mr. Serge Afanasyan (Assistant Export Manager Palyrey) pictured at the Monsell Mitchell opening with Mr. Gerry O'Malley (right), Manager, Irish Heating Centre.



● Mr. James Mulloy (McKenzie), Mr. Tom Butler (do.), Mr. L. F. Peppard (Monsell Mitchell) and Mr. Paddy O'Gorman (Monsell Mitchell) opening.



● THE Fibreglass Ltd. party at the Monsell Mitchell opening. Left to right — Mr. C. K. Coulthard (Divisional Sales Manager), Mr. G. H. L. Andrew (Managing Director), Mr. J. B. McCormick (Irish Area Sales Manager) and Mr. C. E. Birkenhead (Divisional Manager).



● AT THE opening of Monsell Mitchell's new premises at Sir John Rogerson's Quay, were (left to right): Mr. J. S. Darcy (Director and General Manager, Sanbra Fyffe Ltd.), Mr. Frank Fahy (Crane), Mr. W. Tucker (ICI), Mr. Kenneth Lee (Kenneth Lee Ltd.) and Mr. Tom Bermingham (Monsell Mitchell).



● Mr. Joseph Shortall, Mr. T. C. Reilly, Mr. P. J. Dillon, Mr. Cathal Goulding and Mr. Michael Keogh photographed (left to right) at the opening of the new Monsell Mitchell premises.



● AN interior view of the new Monsell Mitchell headquarters at Sir John Rogerson's Quay — showing the spacious showrooms.

● From previous page

Mr. Michael O'Flaherty, Director of Monsell Mitchell & Co., Ltd., deputising for the Chairman, Mr. Stephen O'Flaherty, congratulated the Management and staff on their achievements and mentioned that the company had set a first-class headline for the other companies within the Group, in the matter of return on capital employed.



● Speaking at the opening — Mr. Michael O'Keefe, Managing Director, Monsell Mitchell.

Concluding, Mr. O'Flaherty stated that the Board of Monsell Mitchell had full confidence that an era of further expansion and development lay ahead, particularly as the com-

pany possessed an excellent management team headed by Mr. D. O'Gorman and because of the improved facilities that were now available.

Present at the reception were: Mr. M. J. O'Keefe, Managing Director, Monsell Mitchell & Co. Ltd.; Mr. Michael O'Flaherty, Director, Monsell Mitchell & Co. Ltd.; Mr. D. J. Ryan, Director, Monsell Mitchell & Co. Ltd.; Mr. D. O'Gorman, General Manager, Monsell Mitchell & Co. Ltd.; and Mr. W. J. Martin, Financial Controller, Monsell Mitchell & Co. Ltd.

★ ★ ★

Mr. B. E. Whichello has been appointed as Sales Director of Myson Heat Exchangers Limited.

Landon Kingsway Ltd., members of the Simms Group of Companies, have produced a leaflet on their type 500 Firecone induced draught gas burners which are designed for application on direct or indirect fired drying cabinets, ovens, crop dryers, paint dryers, re-circulation ducts for ventilation and process heating, etc. Copies of the leaflet (coded 426/1/69) are available on request to Landon Kingsway Ltd., The Avenue, Egham, Surrey.



● AMONG the attendance at the opening of the new Monsell Mitchell premises was an International Janitor Ltd. party which included (left to right) Mr. H. A. S. Moule (Sales Director), Mr. A. M. Campbell (General Manager, Service Company), Mr. F. Pridal (Export Manager) and Mr. John Nutt (Marketing Director, Sigmund Pulsometer Pumps).

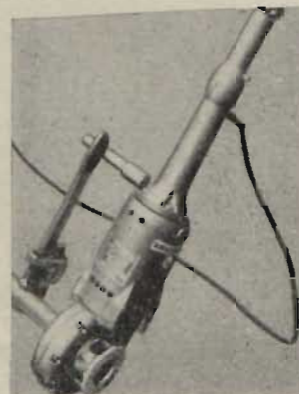
# COMING YOUR WAY

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# SPECIAL REVIEW

**THIS MONTH**

Tap Fittings, Controls  
Valves, Shower Fittings

**P**LUMBERS' brasswork, and specifically the wide range of taps, shower fittings and other devices which are designed to look good and to be turned on and off several times a day for an indefinite number of years, tends to be taken very much for granted. Many years ago chromium plated fittings came accompanied by all sorts of exciting looking tied-on labels and in some cases by a little instruction leaflet on how to keep chromium clean. Even then there were many instances of chrome finishes peeling within a matter of months rather than years.

Nowadays a really good and completely durable finish is taken absolutely for granted. In the same way it is taken for granted that complete closure will be achieved every time, that the washers will last for a number of years before replacement and that the packing glands will also stand up to a very long service before developing leaks. All of this is taken as read, so much so that it comes as rather a shock to realise that this sort of thing does not happen by accident but as the result of many years painstaking research, development and improvement.

The current trend towards an increasing use of shower fittings has

## PAINSTAKING RESEARCH, DEVELOPMENT AND IMPROVEMENT

posed a new set of problems which are being successfully handled by the trade. It is, however, worthwhile pointing out that there is a tendency for people to thoughtlessly instal showers where there is insufficient static head to supply the fitting satisfactorily and then to blame the manufacturer.

We are fortunate in that a wide range of high quality fittings are manufactured in this country. Sanbra-Fyffe Ltd even go so far as to turn out gold plated fittings to order. New designs have been recently introduced including taps with raised extended noses. These have aesthetic and technical advantages but many manufacturers tend to shy away from this type of fitting because of the demands placed on pressure dye casting tools.

This can be readily understood when one appreciates that the body of the tap is produced from a brass billet in a single operation. Sanbra Fyffe Ltd. are doing this with complete success and result in a very pleasing fitting indeed.

It has often been said that the design and development of relatively simple mechanisms may reach a point where further technical development is unlikely to result in significant improvement. This is the case, for example, with firearms and with reciprocating internal combustion engines.

The degree of finish and reliability with modern plumbers' brasswork has reached such a point in the last five years that one wonders whether the same semi-static position has now been reached.

**I**N this equipment review we take a look at new developments in the fields covered by this month's special review. (All claims made are those of the manufacturer).

**S**ANBRA FYFFE of Conex Works, Santry, Dublin, will be introducing Irlin Pillar Taps early next month which will be an important addition to their range.

These attractively designed raised nose taps for wash-hand basins and baths will satisfy the most discerning customer requiring quality fittings. A 1/2" Pillar Pattern Irlin Sink Mixer will be introduced at the same time and a range of Combination Basin Fittings and Bath Mixers will be available later on in the year.

The already well established Aquiline



● SANBRA Fyffe have obviously come up with a winner in this Irlin series tap (5301/CP/IR).

and Easilyne range of luxury fittings will continue to be available. The popular market is catered for by the No. 522 Bath Shower with handspray, as illustrated (See page fourteen). A bracket can also be supplied which enables the handspray to be

● Continued page fourteen

British Firm manufacturing large range of Plastic Building and Plumbing Products, requires

## AGENT

with established connection with merchants in Eire and Northern Ireland. Apply Box No. 40/2, c/o Irish Plumbing & Heating Engineer 14 Hawkins Street, Dublin 2.

# What every woman wants .....

# EASILYNE

*It may be a man's world, but when it comes to spending money on home improvements, women demand luxury plumbing fittings. You can't have the luxury look with old fashioned taps and fittings. Why not install Aqualyne/Easilyne luxury taps, mixers and showers.*



## THE SANBRA FYFFE RANGE INCLUDES:—

Radiator and Gate Valves, Drawn Copper Traps.

Gunmetal Underground Stopcocks and Ferrules

Sanbra Fyffe Brassware —including the renowned 'Easilyne' and 'Aqualyne' luxury taps and fittings — as well as Pillarcocks, Bibcocks, Wastes, Plugcocks etc.

ARCHITECTS & BUILDERS:—  
Specify Irish - made fittings by SANBRA-FYFFE, guaranteed to win your Clients approval, and complete satisfaction.

**MANUFACTURED  
IN IRELAND  
BY**

STOCKISTS :— " Make sure that your stocks are adequate to meet the ever-increasing demand for these luxury fittings."



## SANBRA FYFFE LTD

### Conex Works

### Santry Avenue

### Dublin 9

Phone 375131. Grams: SANBRA Dublin  
Telex 5325





## trade Topics

### BARRIMATIC CONVECTOR CUTS TIME

ONE of the most popular types of central heating now being installed is the solid fuel room heater incorporating a high output boiler. It is estimated that at the present time more than 150,000 such units are being installed in Britain each year of which the Parkray series is the most popular.

A recent development in the U.K. of this roomheater type of central heating has been the successful one-day installation scheme. This idea which has been extensively sponsored by Radiation Parkray is now being used by more than 50 qualified central heating installers.

Barrimatic have been closely associated with the originators of one-day installations and have accumulated a great deal of experience in this enterprise.

Barrimatic are represented in Ireland by Kenneth M. Reynolds of 23 Herbert Place, Dublin.

Knowing that time and labour saving ideas give extra profit margins, Barrimatic have developed and patented a clever idea which can save an installer up to 2 hours hard work. The Barrimatic connector which has been tested and approved by Room Heater Manufacturers is a device which enables an installer to connect the pipework to a room heater in just a few minutes. The connector is prefabricated and has a telescopic feature which allows the appliance to be fitted into any size of chimney breast.

The Barrimatic connector has another advantage, by having all the pipe connections on the same side of the boiler. The pipework arrangement is more satisfactory because both primary and heating return enter the boiler from the same side and reverse circulation caused through the high velocity heating re-

*Continued next column*



● THE Weatherglaze reception in the Gresham Hotel was attended by (left to right): Mr. Joseph Brennan, Area Sales Manager; Mr. David Preston, General Manager, Weatherglaze (Ireland) Ltd.; Mr. A. F. (Bill) St. Clair-Burton, Marketing Director, Weatherglaze Ltd.; Mr. Anthony C. Anselm, Chairman, Weatherglaze Group; Mr. Fred Moore (Advertising) and Mr. Jose D. de Cass (Publicity) BELOW: Also at the reception with Mr. Joseph Brennan (Area Sales Manager) were Mr. Robin Hall, Director Weatherglaze, and Mr. George Reid, of George Reid & Co.



### WEATHERGLAZE GROUP FORM AN IRISH SUBSIDIARY

THE Weatherglaze Group, which claims to be the biggest organisation in the U.K. concerned with house insulation and double glazing, has formed an Irish subsidiary with its own manufacturing facilities in Dublin.

Following an increasing level of enquiries from Ireland about their slimline anodised aluminium insulating windows, Weatherglaze conducted

turn opposing the primary return is eliminated. Barrimatic recommend that because of the very low cost of their prefabricated telescopic connectors, installers will use one for the output and one on the return side of the boiler. By using two connectors, it is possible to complete all the boiler pipework in about 10 minutes. This saving in time and labour will be of interest to not only one-day installations specialists but to all members of the trade.

a survey in this country and decided that the time had come to extend their fast and efficient service to cover this market. The only way to do this was by home production and a factory has been acquired and is now in production on the Greenhills Estate.

Weatherglaze are the only company in Ireland and the U.K. which offers a full 10 years' guarantee on its insulating windows and a 20 years' guarantee on cavity wall and roof insulation.

The new Dublin factory is part of a network of manufacturing plants owned by the Group. Others are located at Egham, Chesterfield and Glasgow, thus enabling the company to market their products with equal facility in England, Scotland and Ireland.

Mr. A. C. Anselm, Chairman of the Group, made the announcement to representatives of the press, the building industry, the architectural profession and other specialist organisations at a recent reception in the Gresham Hotel, Dublin.

"There has been a central heating boom in Ireland," he said, "and it is our experience when that happens, people find it is worth their while, now that they are paying good money to put heat in their houses, to pay a little extra and keep it there, thus saving money in the long run."

General Manager for Weatherglaze (Ireland) Ltd., Mr. David Preston, commented: "We are already receiving a great many enquiries, proving straight away that coming to Ireland was a good decision. It means, in fact, that we have had to take temporary offices earlier than expected in order to cope with the expected in order to cope with the flood of interest that has been shown in our products."

In addition to its Greenhills Estate premises, Weatherglaze Ireland has established a temporary sales office at 7 Upper Liffey Street, Dublin 1.

# industrial heating & ventilating

## IN IRELAND



### FRANKFURT SCENE OF RECORD EXHIBITION

**T**HE 5th i.s.h.—International exhibition for Plumbing and Heating Equipment, which takes place from 26-30 March, 1969, in Frankfurt am Main, will have 860 direct exhibitors and a further 80 enterprises which will be additionally represented. These figures are about 5 per cent and 21 per cent, respectively, higher than those for the previous 4th International Exhibition for Plumbing and Heating Equipment held two years ago. These increases can be regarded as very substantial since the experts in the trade from Germany and abroad were full of praise already for the comprehensiveness of the exhibition in 1965 and even more so in 1967.

This year, 135 direct exhibitors and 40 additionally represented enterprises will come from abroad. This represents an increase of more than 5 and 90 per cent, respectively, in the foreign contingent. Foreign participants come from 12 European countries while the United States, France, Italy, Switzerland, Belgium, the Netherlands and Austria are each represented with more than ten direct exhibitors.

The increase in the volume of goods to be displayed will naturally require a larger exhibition area, which will, in fact, be 15 per cent up on the previous exhibition.



● At a reception in their Leeson Park, Dublin, premises British Steam Specialties Ltd. introduced a comprehensive range of Teddington Controls, automatic controls and bellows. Above, from left : Mr. David Wheeler, General Manager, British Steam Specialties Ltd., with Mr. Michael Gannon, E. G. Pettit and Partners; Mr. Matt McKeon Bros. Ltd., and Mr. Kevin Mortimer.

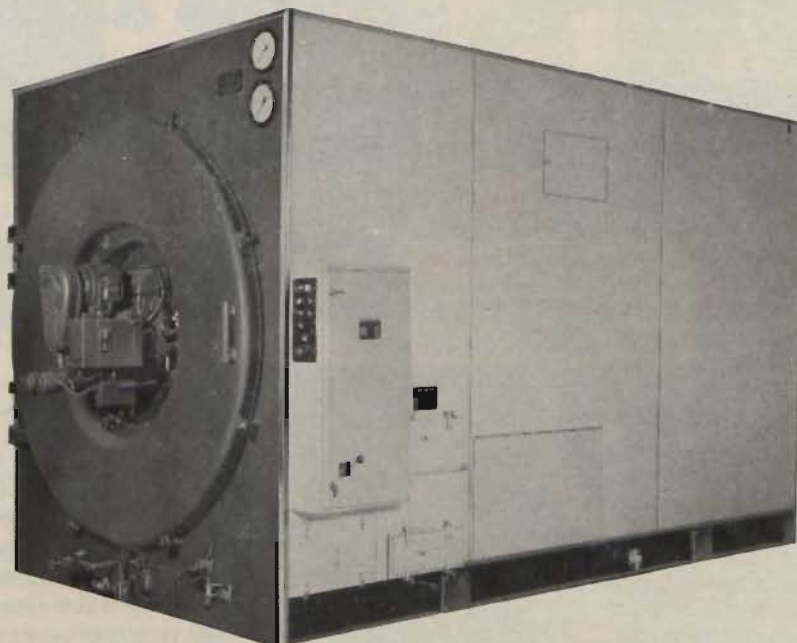


Mr. Robin Sellick, Dept. Manager Director B.S.S.; Mr. Joseph Osborne, Plant Engineer, Guinnesses; Mr. Allan Hague, General Sales Manager, Teddington Auto.



● The attendance at the B.S.S.-Teddington reception also included, from left: Mr. A. Lappin, Irish Oil and Cake Mills; Mr. Peter Doolan, Company Manager, Teddington Bellows; Mr. John Harrison, Manager Director, Teddington Bellows, and Mr. Robert H. Hogarthy, Group Publicity Manager, Teddington Group of Companies.

# The Cochran Clansman



## The hot water boiler designed to meet the needs of Industry today

Positive design advantages incorporating the Cochran unique patented internal re-circulator, make the Clansman one of the world's most reliable and efficient fully flooded hot water boilers.

- ★ Gas and oil firing.
- ★ No water stratification.
- ★ Wide temperature differentials—up to 150°F (66°C)—more if required.
- ★ Automatic magnesite injection—neutralises sulphuric acid in flue gases.
- ★ High thermal efficiency—constant over full range of operation.

Cochran Clansman boilers are available for low, medium and high temperature hot water applications from 1 million to 25 million Btu/h.

# COCHRAN CLANSMAN

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12 Lower Mount Street, Dublin 2 (Tel : 62018 and 66546).  
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Parnell Place, Cork (Tel : 21712).  
W. H. SCOTT & SON,  
130 Upper Newtownards Road, Belfast 4 (Tel : 654680).

COCHRAN & CO., ANNAN, LIMITED, ANNAN,  
DUMFRIESSHIRE, SCOTLAND.  
TELEPHONE : ANNAN 2111. TELEX : 778183.  
LONDON : 01-222 4441. TELEX : 27214.

The Cochran Construction Co. Ltd. is able to quote for complete boilerhouse installations, renovations and repairs.

# trade TOPICS

IN THE past, there have been a few criticisms of the Heating and Ventilating Year Book on the grounds that it is difficult to find one's way around the book. The sponsors of the Heating and Ventilating Year Book have given a great deal of thought as to how to meet these few criticisms.

The result will shortly be published as the Heating and Ventilating Year Book, 1969, completely revised and re-designed.

The largest section of the book, the Buyers' Guide, gives information about where to buy a comprehensive range of equipment from cooling towers to pipe bending machines. The section ends with an up-to-date list of trade names.

Sponsors of the Year Book are the Heating and Ventilating Contractors' Association, Institution of Heating and Ventilating Engineers, HEVAC Association Heating and Ventilating Research Association.

**FENTON, BYRN Limited** announce that they are now manufacturing and marketing their **Airdor Warm Air Curtain** in a range of sizes and packaged units. Airdor is based on the extremely successful equipment originally developed and sold by the Norris Warming Company Limited.

The Fenton, Byrn equipment provides a curtain of warm air across entrances and doorways to any type of building where uninterrupted access from the open air is vital. The principle has a number of advantages, particularly in the case of shops and large stores. It provides a large display area straight through the entrance, dispensing with the need for doors and provides a clear passage for the maximum number of customers to enter and leave freely. Apart from greatly improving access, Airdor curtains prevent cold and draughts from entering the store.

A cold air version of Airdor has also been introduced by Fenton, Byrn. Further details from W. Finucane & Co., 5 Upper Pembroke St., Dublin 2.

INDUSTRIAL SECTION  
CONTINUED PAGE 24

# You must show the product

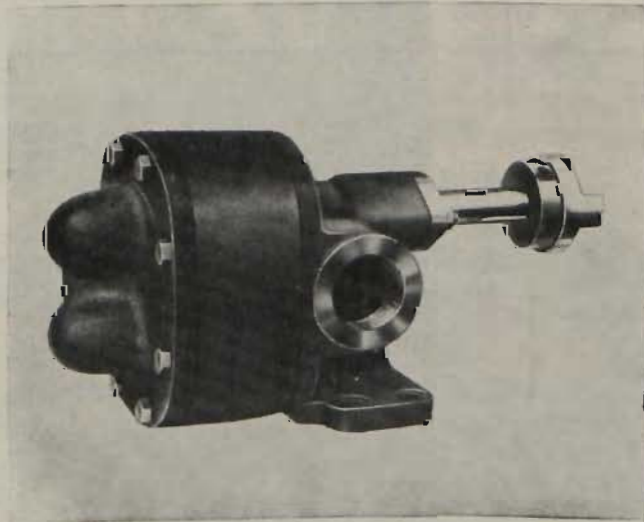
said our Guv'nor

But performance, we argued, was the main thing about Worthington-Simpson gear pumps. They will handle liquids up to 9000 seconds Redwood No. 1. The herringbone gears, which will not trap liquid, give low power consumption and smooth flow. Motors can be drip proof or totally enclosed fan-cooled. Capacities are up to 46 G.P.M. and pressures up to 150 p.s.i.

These pumps are particularly suitable for building into other equipment. With this in mind, they are available in four sizes of flange mounting units, with double suction and discharge ports giving 28 different piping arrangements. The pumps are also available foot mounted for direct coupling, or with pump and motor combined.

**But you must show the pumps, he said.**

So here is a Worthington-Simpson rotary gear pump, type G.A. foot mounted.



Bulletin WS-5185 gives full details.

**Worthington - Simpson Ltd**

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Represented throughout the world.

PUMPS · COMPRESSORS · HEAT EXCHANGE EQUIPMENT

**Northern  
Ireland  
monthly  
review**

**FEBRUARY 1969**

**'CONGRATS!  
ON FIRST  
ANNUAL  
DINNER**

**I**T was congratulations all round for the Northern Ireland Branch of the Institute of Domestic Heating Engineers when it held its first annual dinner recently in the Stormont Hotel, Belfast.

The occasion was a most successful one with a large attendance enjoying a first-class night's entertainment. After-dinner speakers congratulated the



● Pictured (above) at the annual dinner of the Northern Ireland Branch of the Institute of Domestic Heating Engineers were : Seated (left to right) — Mr. G. O'Malley, Mr. M. Stevenson, Mr. W. Williams and Mr. W. Maginnis. Standing: Mr. W. Crowthers, Mr. Eric McBride, Mr. W. McMaster, and Mr. W. Watson. Below : A section of the big attendance at the dinner.



branch on its courage in having organised a dinner so early in what promises to be an excellent career.

Particular praise was showered on Honorary Secretary, Mr. Bill Maginnis. *Continued page twenty-one*

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- *Kosangas* service has earned a high reputation for promptness and efficiency. Skilled technicians and fitters are available.
- *Kosangas* Propane is supplied in 73 lb., 24 lb., and 11 lb. cylinders. *Kosangas* can also be delivered in bulk into customer's own storage.
- *Kosangas* technicians can provide guidance on any industrial fuel problem without obligation.
- *Kosangas* offer a HIRE SERVICE for certain equipment.

*If you would like a copy of our new Leaflet of Kosangas Industrial Applications please telephone our Industrial Sales Dept: Belfast 33221 or Dublin 74774*

KOSANGAS (N.I.) LIMITED, 7 FOUNTAIN STREET, BELFAST. 1 TELEPHONE: BELFAST 33221  
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# Northern NOTES

## N.I. DANFOSS STOCKISTS

**D**ANFOSS (London) Ltd. announce that they have recently appointed stockists in Northern Ireland for their complete range of electrical equipment. The new stockists are : Potter Cowan & Co. (Belfast) Ltd., 114-122, Henry St., Belfast 15. Telephone : Belfast 32993 (10 lines).

## N.I. HEATING EXHIBITION FROM APRIL 1-4

The 1969 Heating, Ventilating and Air Conditioning Exhibition, promoted annually by the Northern Ireland Chamber of Commerce and Industry will be held this year in the Trade Centre from April 1 to April 4.

The event promises to be as big a success as the previous exhibitions staged by the Chamber have been.

To maintain its unrivalled quality, the Chamber this year has restricted stands of ten, with the trade being represented by ten top Companies engaged in the heating profession. The most modern equipment will be on exhibit.

## IDHE DINNER

• From page nineteen

nis, whose work was undoubtedly a major contribution towards the success of the function.

Pride of place among the post-prandial speakers undoubtedly went to Mr. Gerry O'Malley of the Heating Centre in Dublin, whose witty and constructive address was very well received by the attendance, which included Mr. M. Stevenson (chairman), Mr. W. Williams, Mr. W. Maginnis, Mr. W. Crowthers, Mr. E. McBride, Mr. D. McMaster and Mr. W. Watson.

A most enjoyable social "happening" followed the dinner!

## LECTURED ON NORTH SEA GAS DEVELOPMENT



● Mr. R. F. Hayman (left), Gas Council, with Mr. S. B. Hamilton, Chairman, and Mr. F. R. McBride, Hon. Sec. of the Institute of Fuel, prior to Mr. Hayman's lecture on the Development of North Sea Gas, to the Institute of Fuel in Belfast.

## Northern Ireland's Finest Plumbing Showroom

Here you will find the largest and most modern selection of plumbing and sanitary fittings on view, in Northern Ireland, displayed so as to make the fullest inspection and examination possible.

Of especial interest are our examples of fitted kitchens (5) and complete bathroom suites (12) together with no fewer than 20 different stainless steel sinks.



SHOWER CUBICLES  
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**TANK SECRETS REVEALED**  
-a Normond Gauge exclusive

You may now read the inside story of a tank—as it happens—frankly confessed to and factually reported by Normond—Britain's leading content investigator. Heating Engineers who want their clients to know the whole truth at all times should subscribe to the Normond fact-finding service.

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## BSA REBATE SCHEME FOR OPIOMATIC INSTALLERS

**A**N Installer Rebate Scheme offering high bonuses on Opiomatic Compact type circulating pumps to Heating Installers. This scheme coupled with corresponding sales advantages to the Builder's Merchant trade are the bare bones behind a unique heating promotion which has been announced by B.S.A. Harford Heating Ltd.

The scheme will apply in Ireland also.

As part of their sales campaign following the launch of the Opiomatic Compact 5 and 10 circulating pumps, B.S.A. Harford are offering to Heating Installers a 7/6d. cash discount off each and every Opiomatic Compact 5 and 10 and Popular up to a quantity of 99 units; 12/6d. per pump discount being given retrospectively on quantities of 100 and over.

The offer, entitled "The B.S.A. Harford Installer Rebate Scheme," commenced on December 1st and will run in four monthly periods. The first period will end on 31st March, 1969. A spokesman for the Company states that "the four month period should allow a large percentage of Installers to take advantage of the maximum rebate offered, even to Installers who do not reach the 100 figure, the incentive rebate offered still remains extremely attractive."

All the Installer has to do to receive his rebate is to return the guarantee card portion of the warranty card located in the circulating pump box. B.S.A. Harford's computer checking system will then verify the Installer customer's claim and arrange to issue a cheque at the end of the four month period.

B.S.A. Harford claim that this is the first time that an Installer Rebate Scheme covering sales of circulating pumps has been introduced in the U.K. and Ireland.

B.S.A. Harford are currently marketing circulating pumps in over 24 countries throughout the world and in general terms are possibly the largest exporters of heating equipment in the country.

# EUROGAUGE

TANK CONTENTS GAUGES, LEVEL CONTROLLERS, PRESSURE GAUGES



## MTF 500

Direct Mounting Tank Contents Gauge, float operated, for domestic oil storage tanks, etc., calibrated to requirements, screwed 1½" B.S.P.



## EG 161 POPULAR

Semi-Permanent Pneumatic Tank Contents Gauge for all applications. Distant Reading up to 150 feet. Calibrated to requirements.

## MTF 2000

Superior quality Direct Mounting Tank Contents Gauge for tanks up to 8 feet deep, calibrated to requirements, screwed 1½" and 2" B.S.P.



## EG 85

Remote Reading Pneumatic Tank Contents Gauge for the smaller oil-fired installation, Simple push-button operation. Individually calibrated for tanks up to 8 feet in depth.



## TFA

Whistle type Tank Filling Alarm of robust construction, 1¼", 1½", 2" and 2½" B.S.P. threads available.



## EG 160 PERMANENT

Permanent Reading Tank Contents Gauge for the larger storage tank installations, Remote reading up to 500 feet and tank depths in excess of 20 feet. Calibrated to requirements. Internal or external airbell transmitters available.

## EG 100

High quality Combined Altitude/Temperature Gauge with pocket, Temperature Range 70°F—250°F. Altitude Range up to 120 feet.



## EFT 2

Electronic Tank Contents Gauge for the larger installation. Capacitance type. Available with probes up to 10 feet in length.



# EUROGAUGE

COMPANY LIMITED

EAST GRINSTEAD, SUSSEX. Telephone 23641/2/3.

Agent for Republic of Ireland: W. Fitzcane & Co., 5 Upper Pembroke Street, Dublin.

*The Irish Plumbing and Heating Engineer.*

# SCANGLO OPEN CO. LIMERICK FACTORY

A new internationally owned manufacturing Company — Scanglo International Ltd.—has been formed in Ireland to manufacture mainly for United Kingdom and Commonwealth markets.

Details of the new concern—which will be based in a new 45,000 sq. foot factory in Newcastle West, County Limerick—were re-leased at a Press Conference in the Shelbourne Hotel, Dublin, where a spokesman said that only a fractional part of the Co.



● AT THE Scanglo Industries press conference in the Shelbourne Hotel were (left to right): Mr. P. Quigley, General Manager, Shannon Development Co.; Mr. T. S. O'Neill, Director, I.D.A.; Mr. Peter Matson, Managing Director, Scanglo Industries, Ltd., Manchester, and Mr. George Colley, T.D., Minister for Industry and Commerce.

Limerick factory's radiator valve production would go to the Irish market.

Among those present at the Conference were the Minister for Industry and Commerce, Mr. Colley, directors of the Charterhouse Group,

and Mr. P. R. Matson, and Managing Director of Scanglo Industries.

The establishment of Scanglo International Ltd. at Newcastle West marks both the birth of a new company and a fresh phase in the development of the Scanglo Group of companies.

The Group is largely the result of the dynamic marketing efforts of 28 year old Peter Matson, the founder and Managing Director of the Group.

The new Scanglo factory will be situated at Newcastle West, County Limerick, and at completion, which is planned for next November, it will cover some 45,300 sq. ft. and will eventually provide both shop floor and administrative jobs for nearly 150 employees, almost all of whom will be recruited locally.

The new factory will be highly automated, and will be among the most modern of its type in the world. A special feature will be the £12,000 effluent disposal plant. This will be virtually a small-scale sewage disposal unit in its own right, and the company has gone to considerable trouble to prevent any risk of pollution.

## Modern

The factory is situated on a 5-acre site to the east of the town and adjacent to a new modern housing estate. The factory is designed on the most modern lines to allow for easy expansion with large clear areas unobstructed by internal columns or supports. The roof will consist of steel space frames constructed from light hollow steel sections on a continuous A type principle, with north lighting which provides excellent and even light on the working plain throughout. Another special feature is that the floor is constructed from

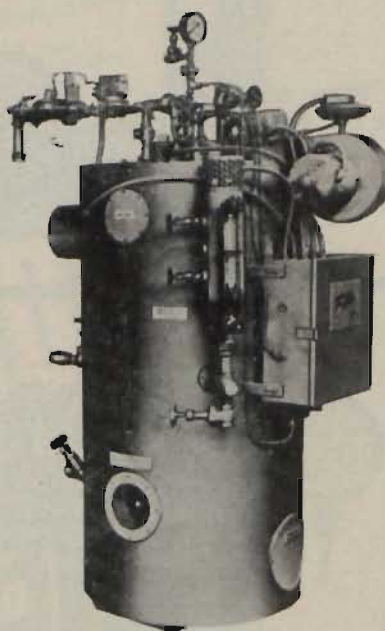
*Continued page twenty-six*



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NO TUBES • NO COILS

- Engineered from top to bottom to be the world's best vertical, tubeless boiler!
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- Efficient performance unequalled by any other boiler!
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- One complete package!

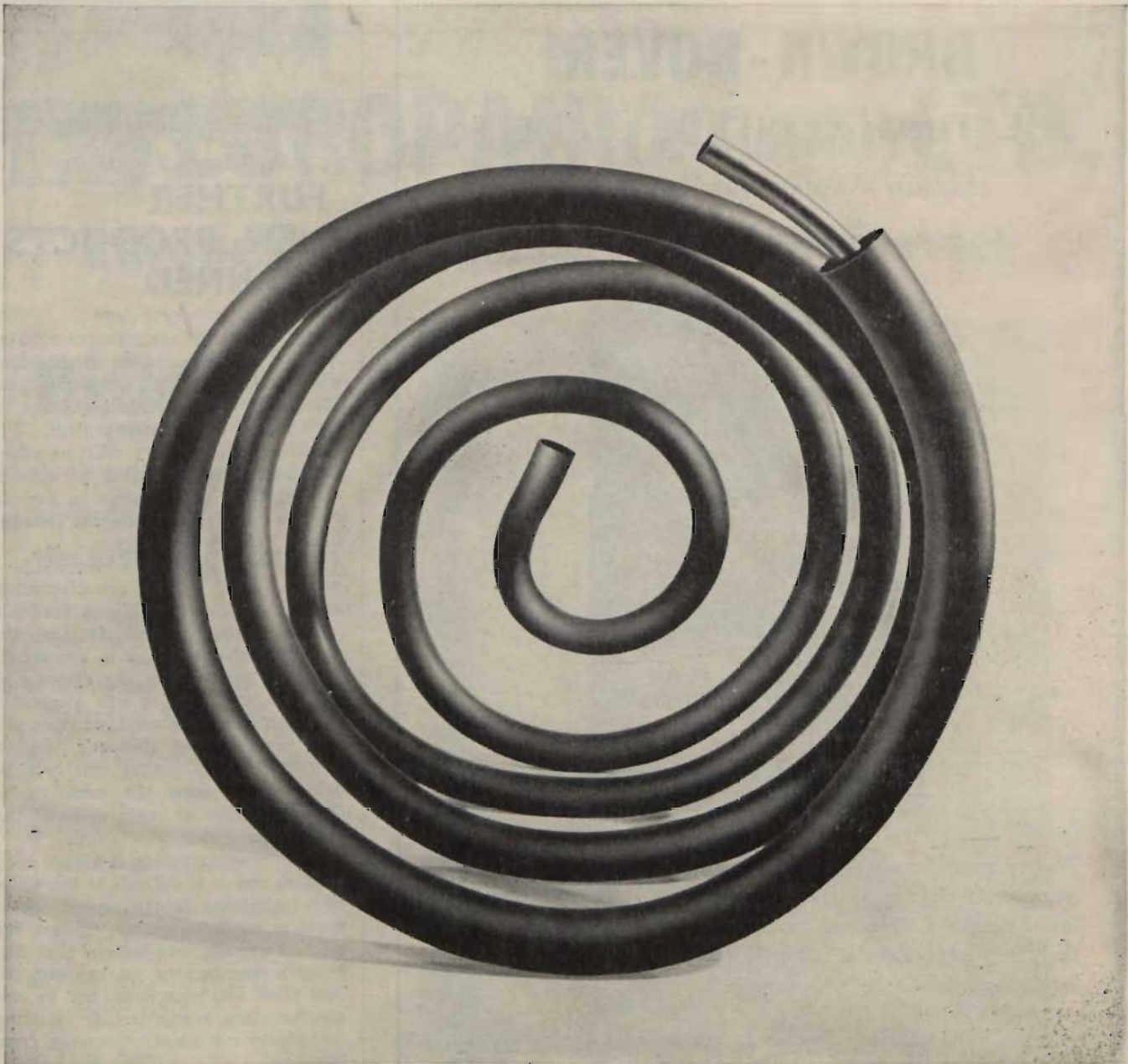


GAS OR OIL FIRED

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(IRELAND) LTD.

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coil it, turn it,  
ARMAFLEX**

**goes anywhere a pipe goes  
-but quick**

AR18E

Armaflex makes all pipe insulating jobs dead easy. For new piping, simply sleeve it on as the pipes are installed. For existing pipework, use pre-slit Armaflex and snap round. Armaflex is flexible foamed pipe insulation with a closed-cell structure, making it almost totally non-absorbent. It is self-extinguishing, has a low conductivity, doesn't break, and can be painted for instant identification of service pipes. *And there's no waste with Armaflex, so insulation work is clean and easy.*

Armaflex is suitable for all pipes from  $\frac{1}{4}$ " to 4" o.d. and gives efficient insulation from below zero to 220°F. Because it's so quick and simple to use, *Armaflex can save you up to 50% on installation costs.*

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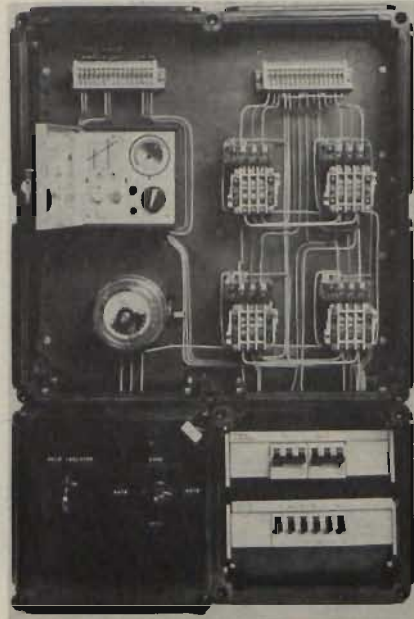
Write for details and the name of your nearest stockist to:  
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*Twenty-five*

# BROWN-BOVERI HEATING CONTROL PANELS

DESIGNED AND MANUFACTURED IN DUBLIN

Realistic Prices — Guaranteed Quality



We represent Landis & Gyr in Ireland and have the specialist personnel necessary to design and service L & G central heating installations. This places us in an unique position as regards designing and manufacturing Control Panels using Brown Boveri and Landis & Gyr equipment.

Our own JN boxes are used and we can supply panels of all sizes to house the pump starters, time switches, heating controls, etc. The panels are completely wired and tested before despatch and the contractor need only connect his external wiring to the panel.

Panels are available both in resin-cored plastic  
and sheet-steel

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● THE new Scanglo plant

## FURTHER NEW PRODUCTS PLANNED

● From page twenty-four

a special quartz aggregate screed to provide resistance to oil penetration which is important in providing anti-slip conditions which is important in such a highly automated plant.

Initially the factory will manufacture radiator valves, but production will in time be extended to include further new products as the Scanglo Group expands its range.

The work is of a semi-skilled nature, and the manufacturing process will be traditional for this industry, that is, as far as the sequence of operations is concerned. What is new will be the systems of quality control which will guarantee the high standards required from the now sophisticated domestic heating market. Such quality can only be achieved by using the most up to date equipment at every stage of the production cycle.

Valve manufacturing is highly competitive and it is difficult to introduce new techniques as the newest equipment is available on the market for all. However, "we believe that this being a new factory, we can buy the best plant and equipment, and by employing improvements on existing techniques can obtain the most from it.

"Knowledge of the industry is important and it is necessary not only to concentrate on the well-known aspects of valve manufacture, but to harmonise these with the many small operations that will contribute to the final success of the product, and it is this that our technical management is most proud of having achieved throughout our last 40 years' experience," says Peter Matson.

Production will be built up in accordance with a five year plan. During the first year, this will call for the recruitment and training of some 45 operatives and four administrative staff. This will gradually be built up to nearly 150. About one-third of the labour force will be

female.



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### Biflex

**is the only flexible  
air-tube that combines  
the following features:**

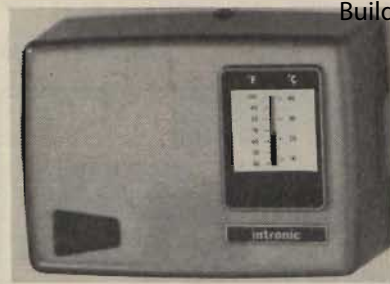
- High flexibility — can be bent back on itself.
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*AT YOUR SERVICE FOR YOUR COMFORT*



● SATCHWELL has introduced an addition to its range of modern low-cost transistorised controllers.

The Satchwell Intronic is a highly sensitive controller having proportional-speed floating control characteristics. With this system the rate of corrective action initiated by the Intronic motor is proportional to the deviation of the temperature from the control point. It has been specially developed for use with plant having small time-lag characteristics and it will provide a very rapid return to the control point when any deviation occurs. Typical applications include constant discharge air temperature or dewpoint temperature systems which may be controlled accurately using Intronic without experiencing the control point off-set that would result with proportional controllers.

The Intronic is an extension of the Satchwell range of compact transistor-



ised controllers and, like the Mono-tronic (proportional) and Compensator 7 (weather-sensitive) controllers. The basic Intronic system comprises a control box, a temperature detector and a valve motor. Two control box models are at present available having ranges to suit air (6-40°C) or water (40-110°C) control applications. Separate detectors are available for air or water temperature measurements and suitable control valves and operating motors are available from the extensive Satchwell range.

★ ★ ★

COPPERAD Limited have announced the introduction of a completely new

**COPPERAD  
NEW FAN  
CONVECTORS**

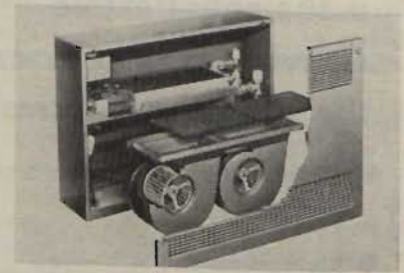
range of Fan Convector. Designated the Mk. V, it is a logical development of the previous Mk.

IV range, retaining all the best features and incorporating a number of new

ones. These include a re-designed cabinet with a one-piece access panel for maximum accessibility, a one-piece slide-out motor/fan assembly, horizontal connections and new style "Stream-line" grilles.

Units are available for every possible application, including schools, hospitals, offices, shops, churches, public halls and private houses. 44 basic models cover every combination of air flow—top outlet, front outlet, fresh air inlet etc. There are free standing, semi or fully concealed and extended height models. Also a range of horizontal units for ceiling mounting and similar applications.

A range of heat exchangers is available for low temperature or high temperature hot water or steam. The emission range is between 5,000 and 10,000 Btu/h.



● Copperad convector

# VOKES GENFLEX

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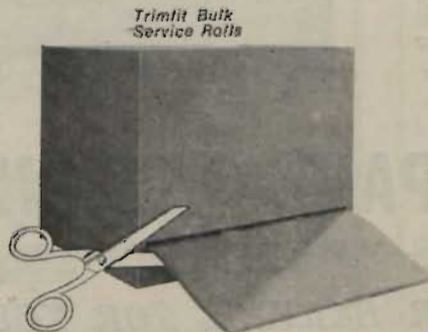
The simplest and most economical method of absorbing thermal movement in all planes. Full literature and technical information available on request.

# VOKES VEE-GLASS E.C.M.P. the new filter media for air filtration



Disposable Panels

New from Vokes—VEE-GLASS E.C.M.P. (electronically controlled media pattern) is suitable for most air conditioning applications, and has many technically advanced features which make it more efficient than ordinary glass fibre filtering media. Its tough, resilient structure combines long life with ideal filtering properties, and because it is impregnated with a powerful 'hygenising' agent which lasts the life of the filter, it destroys virtually all bacteria and germs, and eliminates air-borne fungi. Sizes? The Vokes Vee-Glass E.C.M.P. range is so wide that any filter installation—big or small—can be serviced from our stocks in Dublin.



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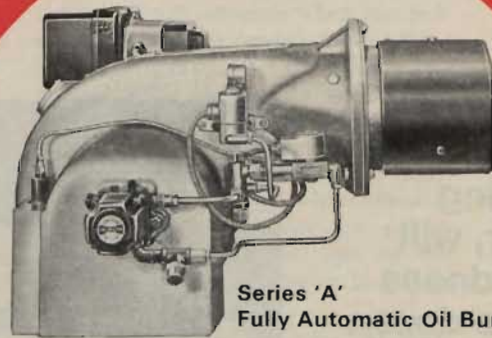


Refill Rolls

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# Combustion Systems

*a vital link in your heating scheme...*



**Series 'A'**  
Fully Automatic Oil Burner

This oil burner range is designed to operate with light distillate, medium and heavy fuel oils, and is particularly suitable for firing those appliances which offer a moderate or high resistance to the flow of combustion gases. Firing rates: 35 secs. fuel: 3-37.5 Imp. g.p.h. 200/950 secs. fuel: 3-35 Imp. g.p.h. Send for Data Sheet D110

Take a good heating system . . . take the best heating system in the world . . . its efficiency is the efficiency of the burner. Just that.

A clear case for specifying Nu-way—the combustion equipment that can be relied on for fine performance. This is something that needs saying but we don't say it. We leave it to the manufacturers of the heating systems—all the leaders.

And they don't say it—they just fit Nu-way.

The range of Nu-way fully automatic oil and gas combustion systems is designed for use as original or conversion equipment for hot water boilers, steam boilers, air heaters and process plant. Oil burners are suitable for operation with either light distillate, medium or heavy grade fuel oils whilst the gas burners can be used with natural, town or liquid petroleum gases. And behind every Nu-way unit sold is the backing of a nation-wide technical and spares service.

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Oil and Gas Combustion Systems



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# five yards of chalk an hour

**A 10,000-lb boiler, using moderately soft water, will have to cope with hardness salts equivalent to five dozen school chalks *every hour.***

And that assumes the boiler is working at only 50% make-up. Not *all* the hardness will stick as scale to the boiler, of course. But a lot will . . .

NALFLOC boiler water treatments inhibit scale and corrosion, and let you run your boiler plant efficiently under proper control.

Complete boiler treatment programmes are only a part of our wide range of proven products backed by specialist service and world-wide experience.



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## MONTHLY SPECIAL REVIEW

Water Treatment, Descaling,  
Anti-corrosion Compositions

**C**HOLESTEROL may be defined as a substance within the arteries of the body formed from animal fat. The greater the build-up of the substance in the arteries the more serious will be the effects of the heart and general health. What relation has cholesterol to scale formation in pipes? Well, if scale builds up on the inside of pipes, boilers and pumps, the effects will mean deterioration of the heating system and subsequent collapse.

During the past few years we discussed in this series of articles on water treatment the problems of proper water treatment for steam boilers, packaged boilers, corrosion and treatment procedures.

While it is most difficult for the specialist or physician to treat patients with a high build-up of cholesterol in the arteries, the problem of scale removal from pipes and boilers is not quite as difficult, while remaining a delicate problem.

In this short article, it is most relevant to discuss the prevention of scale build-up in mini-bore pipes, boilers and pumps and heating systems. With the introduction of the very successful mini-bore heating systems, one of the major problems facing the designer is the elimination of scale and sediment build-up in boilers, pumps and small bore pipes.

Closed systems that the properly de-

signed and operated do not generally require extensive water treatment. The size and type of system and its operating conditions will influence when and how much treatment is needed. When chemical water treatment is desirable a full understanding of all conditions is necessary and treatment should be kept to a minimum consistent with accomplishing its purpose. Excessive chemical treatment may cause trouble with automatic air vents, mechanical seals on pumps and heating equipment, just as the chemicals inherent in water itself can cause problems.

There are many different chemicals available for water treatment, probably the most used and popular combination is a mixture of chromate, phosphate and other chemicals often packaged under a trade name or number by most well-known water treatment chemical concerns. It is usually considered by pump companies in connection with their standard pumps that the amount of chromate in the system should not exceed 300 parts per million in the fluid pumped. Alternatively, if the amount of chromate drops below 100 parts per

million it may encourage corrosion instead of preventing it when in this low concentration.

The build-up of scale, sediment and sludge in a domestic closed heating system, particularly mini-bore, utilising  $\frac{1}{4}$ " and  $\frac{3}{8}$ " pipes is not quite so serious, since the volume of water is so small and the same water is continually used. Hence, there is no evaporation and no continuous use of make-up water. The important factor in such system for water treatment is the removal initially of all oxygen from the system, and thus eliminate corrosion problems.

For a clearer understanding of water treatment, the following facts should be understood :

**WHY** is water treatment necessary? Basically, the object of water treatment is to maintain the efficiency of the plant by the following methods :

1. The prevention of scale and deposits. Salts contained in the feed water are deposited as scale on internal boiler surfaces, reducing the level of heat transfer and therefore the efficiency of the boiler. A

*Continued overleaf*

## THE MINI TREND SPOTLIGHTS SCALE BUILD-UP PROBLEM

### SCALE IS A GREAT INSULATOR !

**Are you wasting fuel and endangering your boiler  
by steaming a dirty boiler ?**

THE COST OF RAPID CHEMICAL CLEANING CAN BE RECOVERED  
IN WEEKS. MAY WE ADVISE YOU ?

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# SPECIAL REVIEW

- combination of scale and sludge can bridge the space between boiler tubes leading to overheating and damage of the tubes.
2. The prevention of corrosion. Acidic water causes corrosion to occur within the boiler and the supply pipework. Aerated water will have a similar effect.
  3. The prevention of embrittlement. Water of excessively alkalinity can cause the metal of the boiler to crack, especially where it is in contact with the air. This condition is known as caustic embrittlement.
  4. The protection of the steam supply against impurities. Some impurities in water can be carried away by the escaping steam thus contaminating the supply system.

WHAT does water treatment do? One of the main aims of water treatment is to "soften" the water, i.e. remove or neutralise the scale-forming salts. The table herewith gives a guide to the hardness classification of water.

Classification	Hardness—Salt Content (parts per million)
Very Soft	less than 15 ppm
Soft	15 - 50 ppm
Medium Hard	50 - 100 ppm
Hard	100-200 ppm
Very Hard	over 200 ppm

● From previous page

Treatment is also required to achieve the correct alkaline condition in the boiler water. The acidity or alkalinity of water is indicated by the pH Value. This is based on a scale where the figure 7 represents a neutral condition. Figures less than 7 indicate an acid condition, those greater an alkaline one.

In addition, treatment removes the excess oxygen and carbon dioxide from the water.

WHAT is water Treatment? Water treatment for boiler feed purposes can be divided into three main categories.

1. Internal treatment. Broadly speaking this means dosing the boiler and boiler feed water with a proprietary brand of chemical which causes the hardness salts in the raw water to precipitate as a sludge which is removed from the boiler by blow down i.e. a quantity of water forced

out of the bottom of the boiler under pressure.

2. External treatment. If it is assumed that suspended solids have been removed by filtration this falls into two principal sections:

(a) Precipitation processes. Here the water is treated with hydrated lime and soda which remove the hardness salts and dissolved carbon dioxide.

(b) Ion - exchange processes. These are widely used and convert the scale-forming salts into harmless salts by passing the water through a softening resin. An ion-exchange plant is often used in conjunction with a lime-soda process. When external treatment is employed there is usually some need for 'after treatment'. This takes the form of a chemical injected into the boiler to eliminate the last traces of oxygen. An external deaerator can also be employed for this purpose.

The selection of treatment plant. The following table indicates the type of treatment used with different

*Continued page thirty-four*

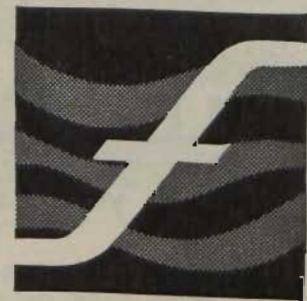
# If we can't solve your feed- water problem ...

## start worrying!

Fortunately Feedwater Specialists Company provide a complete service which will solve every water treatment problem. Each year millions of £'s are wasted in Industry due to inefficient boilers and cooling systems. We are Industrial Water Treatment Consultants, and supply all types of water treatment plants and feeding equipment, together with the appropriate chemicals. Fuel Additives are very much part of our business.

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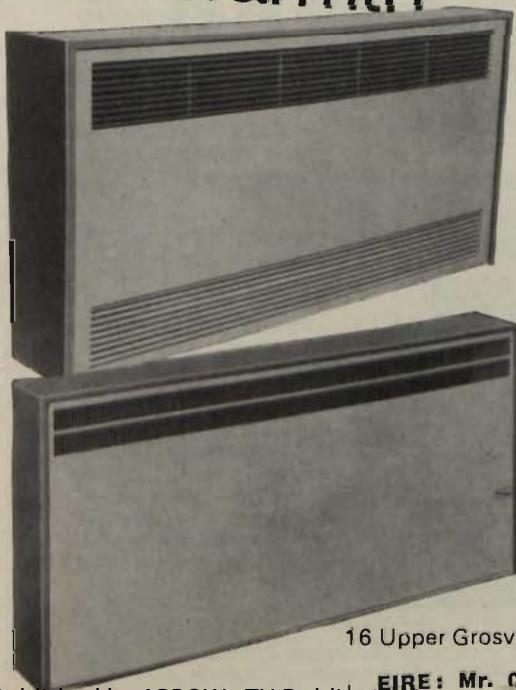
# biddle

et al.: The Irish Plumbing and Heating Engineer, February 1969 (complete



*Photographed at Antonio's Spanish Restaurant, Long Acre, London*

## for warmth



Biddle Forceflo fan assisted convectors are the only heaters of their type to be tested through all audible frequencies. Every unit is delivered with a guaranteed noise rating. There are six basic models with capacities from 9,500 to 62,000 Btu/h, each available in free-standing, recessed and ceiling arrangements. Forceflo heaters have a warm two tone finish and have been styled to harmonize with the Biddle Vectair.

There are two important reasons why the Biddle Vectair is the most widely used convector in the country. The first is efficiency, the second is choice of size. Biddle first introduced the Vectair almost 40 years ago so that today's models incorporate all the knowledge gained in that time. The range of sizes is based on a floor and a wall model. Both are available from 19" to 63" long in increments of 4" and in depths of 4½", 6½" and 8½". There are also 5 heights for each type.

Both of these units are fully described in our literature for which you are invited to write.



The new Vectair has been selected by the Council of Industrial Design for the Design Centre, London.

### F.H.BIDDLE LTD

16 Upper Grosvenor St, London W1X 0BQ Tel: 01-493 0532-9

# biddle



Published by ARROW@JTD/Dublin, 1968

**IRE:** Mr. G. F. Whelan, 10 Rochestown Ave.,  
Dunlaoghaire, Co. Dublin, Tele. Dublin 807969.

**N. IRELAND:** Stewart Thermal Engineering Ltd., 143 Ravenhill Road, Belfast 4, Tele. Belfast 51255.

# SPECIAL REVIEW

● From page thirty-two

types of boiler plant.

**Boiler Plant :** High Pressure (Over 400 p.s.i.)

**Treatment :** Ion-exchange or lime/base-exchange if condense constitutes a large proportion of the feed water. Conditioning.

**Boiler Plant :** Intermediate Pressure (180-400 p.s.i.)

**Treatment :** As for high pressure boilers. Alternatively lime/soda or internal treatment. Deaeration.

**Boiler Plant :** Low Pressure (Below 180 p.s.i.)

**Treatment :** Any of the above treatments but internal treatment and probably base-exchange softening are the most economical.

**I**N this equipment review we take a look at new developments in the fields covered by this month's special review. (All claims made are those of the manufacturer).

**C**OMPREHENSIVE stocks of Polygalv—the thixotropic non-drip cold galvanising primer which stops rusts on irons and steels — are available from L. R. Wood, of 174/5 Pearse St., Dublin.

The Dublin firm also distributes Supertol 001 made by Plow Products Ltd. of Maidenhead, and which is a new improved rust preventing fluid.

POLYGALV is the first thixotropic cold galvanizing zinc rich paint. It exists as a firm solid gel in the tin, and yet it brushes out into the smoothest coating imaginable. Sedimentation of zinc is not possible. There is no dripping from the brushes, no mess, and no losses of expensive material, whilst on the metal surfaces there will be no drips or runs.

Neither does it require addition of solvents and no mixing operation is involved. It conforms to the accepted specifications so that the dried film is about 75% zinc.

There is a complete absence of any gassing or blowing which eliminates a perennial hazard. There is no skinning. There are no special re-

quirements, in fact the material is foolproof and ideally suited for general use on iron and steel. There is no toxicity so that the material can be used in the food and drinks industries. Above all, there is no necessity for special inflammable thinners. All cleaning operations of brushes, etc., can be carried out with ordinary paint thinners.

POLYGALV can be regarded as a standard primer and integrated into normal building and maintenance schedules. Following on the usual wire brushing or blasting or other cleaning operation to remove loose rust and open up the surface, POLYGALV can be specified as primer, to be followed by all usual undercoats and finishing coats.

Supertol 001 is a rust proofing fluid consisting of specially blended rust inhibitors, oils and waxes. It sprays in a fine mist, easy to apply and economical in use.

Because Supertol 001 is able to creep and spread it will penetrate metal-to-metal joints and flanges to kill hidden rust.

For best results Supertol should be applied to clean dry surfaces. A useful degree of protection can be provided to surfaces which it is not possible to ensure are clean and dry, as Supertol displaces water, penetrates dirt and neutralizes existing rust.

★ ★ ★

THE PERMUTIT Company Limited of London manufactures ion exchange materials and treatment plant for water, sewage, effluent and process liquors, and is represented in Ireland by R. S. White Ltd. of 3 The Crescent, Donnybrook, Dublin.

At its London headquarters, it maintains extensive drawing offices, design departments, analytical and research laboratories, mechanical and chemical test houses, and a develop-

ment section where new designs are planned and perfected. In addition, the Company has two factories—for the production of mechanical equipment, and the other devoted to the manufacture of ion exchange resins used in its water softeners, demineralisers and de-alkalisers. Permutit is, in fact, the only company in Great Britain manufacturing both the ion exchange resins and the plant in which they are used, so that with Permutit equipment there is never any question of divided responsibility.

Bicarbonate alkalinity in water can, in many instances, cause difficulties in boiler feed, process, cooling and potable water supplies. 'Starvation' water treatment plant, first developed by Permutit, provides a safe, simple, and effective method of reducing alkalinity by removing the calcium and magnesium associated with bicarbonates in solution in water, that is temporary hardness. No other system of alkalinity reduction is as simple or as safe.

Previously, precipitation of alkalinity by careful dosing of lime was one of the systems employed. This involved large reaction tanks and filters, and the chemical dosing had to be regulated instantly according to variations in raw water composition. A voluminous sludge was produced which was often difficult to dispose of, and the water thus treated retained an alkalinity of 20-50 ppm because of calcium carbonate insolubility.

'Starvation' plant improves greatly on both the above systems by achieving alkalinity reduction in a single pass through a compact ion exchange unit charged with one of Permutit's own ion exchange resins. This is Zeo-Karb 216, a granular, carboxylic resin which has the property of ex-

● Continued page thirty-six



## NEW PRESIDENT

● THE 66th Annual General Meeting of the Engineering and Scientific Association of Ireland was held recently at the T.C.D. Physics Theatre when the Presidential Address was given by Mr. D. S. Carty, B.A., B.A.I., who is pictured here after receiving his chain of Office from the outgoing President, Mr. Roy Jameson.



compact  
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a completely automatic, silent packaged boiler with a  
guaranteed minimum efficiency of 75% ... oil or  
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**BABCOCK & WILCOX (PACKAGED BOILERS) LTD.,** Box No. 1/6, Renfrew, Scotland. Tel: 041-886 2281

Dublin : H. R. Holfeld Ltd., 2-4 Merville Rd., Stillorgan, Dublin. (Telephone : Dublin 881603)  
Belfast: C. T. Payne & Co., 16 Wellington Pk., Malone Rd., Belfast 9 Telephone : Belfast 669595

changing hydrogen ions for the calcium and magnesium cations associated with the alkalinity in the water. Being a weakly acidic type resin, it does not exchange its hydrogen ions with the metallic cations associated with any non-alkaline hardness, so that production of a treated water containing free acidity is impossible in normal operation. Zeo-Karb 216 is regenerated with virtually the theoretical amount of sulphuric or hydrochloric acid, which it uses at an efficiency approaching 100 per cent. There are thus no free acid effluents to be disposed of, and the plant is very compact and simple to operate.

As with all ion exchange processes, the treatment is continuous, and although the capacity from any unit varies according to fluctuations in the composition of the raw water, the quality remains constant. The end point of the de-alkalising run is determined by checking the pH value of the treated water, so that when the water supplied is variable, it is quite a simple matter to use an automatic pH tester to operate an audible or visual alarm, or to initiate the regeneration of a fully automatic unit when the plant is exhausted.

★ ★ ★

NO BOILER user can ever be sure what to expect in his boiler tubes until the plant is opened up for cleaning. Rotatool state that their latest electric cleaner will take any conditions in its stride from a soft coating of soot, through thicknesses of hard carbon, to clearing tubes that are blocked solid with hard deposit.

Messrs. John R. Taylor Ltd., 379 South Circular Road, Rialto, Dublin 8, Telephone 53026/9, are agents for the Republic, and Mr. E. M. Williamson, 46 Castlereagh Street, Belfast 5, Telephone No. Belfast 56894, is the agent for Northern Ireland.

A range of self-expanding brushes and scrapers for hand operation are also available in a wide range, and these are particularly useful for cleaning tubes in a hurry, even though they might be at peak temperatures of heat.

★ ★ ★

FOR MANY years water treatment companies have had to rely on natural products such as starch and tannin to help produce free flowing sludges. Unfortunately, the properties of these materials depend on the conditions during extraction and on the conditions during the life of the plant from which they are extracted.

# SPECIAL REVIEW

● From page thirty-four

A new class of synthetic sludge conditioners is now available from Irish Feedwater Specialists under the Code F.694. This material is sold under licence from the Dearborn Division of W. R. Grace and is a major breakthrough in water treatment. Not only is it suited to manufacture to close specification but has found to be superior in connection to the natural sludge conditioners.

F.694 is applied at a very low dose rate together with the normal water treatment chemicals to produce a fluffy, free flowing non-adherent sludge removable from the boiler by blowdown routine.

F.694 has shown considerable success throughout Ireland, particularly in cases where troublesome sludge had been formed due to metallic oxides being returned with condensate.

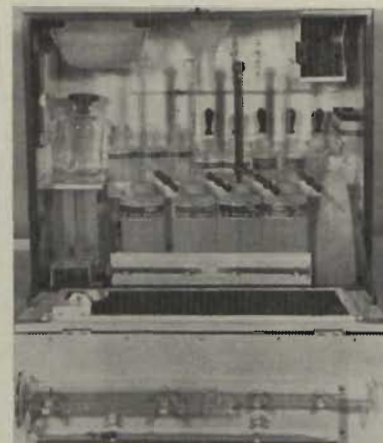
Irish Feedwater Specialists are now also able to offer a complete programming treatment and check control service for cooling systems of all sizes. As Licensees of the Dearborn Water Treatment Division of W. R. Grace & Co. they are able to offer a range of treatments suitable for open or closed recirculating systems and once through systems. Besides proven inhibitors of both low toxicity and dimetallic chromate types, biocides for algae and slime control are available together with antifoulants.

One of the outstanding developments in the range of cooling water corrosion inhibitors is 563 liquid which contains zinc and chromate in optimum proportions for the simultaneous cathodic and anodic protection of ferrous metals in cooling systems.

★ ★ ★

NALFLOC Limited, of 50 University St., Belfast, has now assumed responsibility for the operation of the former I.C.I. 'Alfloc' Water Treatment Service in Ireland.

NALFLOC is a new company jointly owned by I.C.I. and the Nalco Chemical Company. H. S. McCoubrey has been nominated Sales Manager, Ireland. To ensure prompt and efficient service throughout the



● A typical Nalfloc test kit for customers' use. (See Review)

## NALFLOC SERVICE



● (Some samples of Nalfloc chemical feeding equipment (See Review).

country, stocks of NALFLOC Chemicals are maintained both at Dublin and Belfast, and I. C. Hood has been appointed technical representative, resident in Dublin.

NALFLOC Limited, backed by the world-wide resource and technical know-how of I.C.I. and Nalco, can provide a wide range of services, equipment and specialty chemicals for water and effluent treatment, for paper-making, for the petroleum and metal industries, for the marine world and indeed for process uses throughout industry.

To ensure that water treatment is fully successful, it is necessary to have the right recommendations, the right chemicals and proper application and control.

Many years' experience in water treatment has confirmed the advantage of having specialist assistance not only when treatment is started, but also at regular intervals afterwards, to check that the treatment is being properly applied and controlled and to ensure that the best possible results are obtained.

*Continued page thirty-eight*

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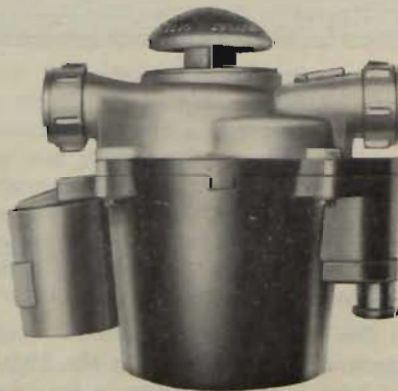


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This assistance is provided by the NALFLOC Technical Service. This service consists of regular visits by the Technical Representative during which conditions will be reviewed, the records kept by the staff on site examined and if necessary check tests carried out. In this way the progress of the treatment can be determined and a full history of operating conditions is on record. After each visit the Representative reports the conditions found and the recommendations made.

The Technical Representative is also available to answer queries on any water treatment problem that may arise, and to advise on the latest developments in this subject.

NALFLOC Technical Service is designed to ensure that the best results are obtained by the most economical use of the treatment chemicals, and to provide every assistance in water treatment to the operating staff.

New developments by NALFLOC include a range of chemical pumps by which water treatment for boilers can be controlled from the boiler instrument panel. A new design of control unit, incorporating a solid-state electronic timer, permits remote

appearance, and with attractive decorative finishes otherwise unobtainable except at great cost.

"Use of plated ABS will help us to hold future prices despite the tendency for continual rise in production costs," says E. J. R. Pimlott, sales director of the company which has been a leading British tap manufacturer for nearly 200 years. "Copper prices can fluctuate up to £150 per ton in a month but with Cycloc we can enter into standard contracts with moulders for 12-month periods at a fixed price and thus forecast costs more precisely."

★ ★ ★

AN ENTIRELY new version of the Unatap warm spray mixing tap, which is designed principally for basin mounted hand washing applications, has been successfully introduced by Walker Croweller & Co., Ltd., of Cheltenham, Glos.

Walker Croweller are represented in the Republic by Modern Plant Ltd. of John F. Kennedy Drive, Naas Rd., Dublin. and in Northern Ireland by W. H. Leech and Son, 414 Ravenhill Road Belfast.

## WATER TREATMENT

### ● From *Thirty-six*

control of the output of the chemical pump, so that the pump itself may be sited in the most suitable place, e.g., on the boiler chassis, whilst the control unit is conveniently mounted adjacent to or as part of the main boiler control panel. NALFLOC has also developed automatic intermittent blowdown valves with similar remote-control facilities. A wide range of other types of feeding equipment is also available, together with a comprehensive series of packaged test kits.

★ ★ ★

ONE of the most complete perfection products for central heating systems is RADLIFE, manufactured by Barrimatic Engineering Co. Ltd. of Birmingham, and distributed in Ireland by Kenneth M. Reynolds Ltd. 23 Herbert Place, Dublin.

Galvanic corrosion is an electrochemical action taking place between dissimilar metals. When copper and iron are together in the presence of

a conductor such as water, electro-lytic action is set up and the iron becomes the sacrificial element. This means that in a central heating system the steel panel radiator is in effect corroded away. Corrosiveness of the water is increased by additional impurities such as traces of soldering flux and tiny particles of copper and brass.

Sometimes mistaken for 'air,' when ignited burns with a yellow flame. Although produced by the Galvanic corrosion process, additional gas can be produced by bacterial activity in the water. Accumulations of Hydrogen gas reduce the water level and seriously impair the radiator's thermal efficiency.

Building up in every unprotected system Black Sludge is magnetic. As well as restricting the flow, it is abrasive and therefore, the greatest cause of pump failure.

When Radlife is added to a new system corrosion is immediately prevented. If Radlife is being added to an existing installation the system should first be drained and as much sediment as possible removed.

(See "Water Conservation" overleaf)

## TAP FITTINGS

### ● From *page fourteen*

places the previous model, the Unatap Type 14 and incorporates a number of new features claimed by the makers to overcome criticisms of basin mounted spray mixing taps.

The principle of operation of this type of fitting, is that it delivers a spray of water at a constant volume, but at a temperature which can be varied by the user, from cold through to warm and hot. It shows considerable savings of hot and cold water over the use of individual basin mounted hot and cold taps.

One of the most important new features of the Unatap is the fitting of inlet flow restrictions in the base of the tap, which enable the rate of discharge to be set at the required level to suit the installation.

This is an entirely new feature and can be used to cut down the force of the spray and so eliminate splashing in the majority of installations and reduce it to a minimum in all others.

The nozzle of the Unatap is now designed so that it can be locked in any position to suit the bowl or wash basin on which it is fitted, so achieving the best possible projection of the spray and further helping to eliminate splashing.

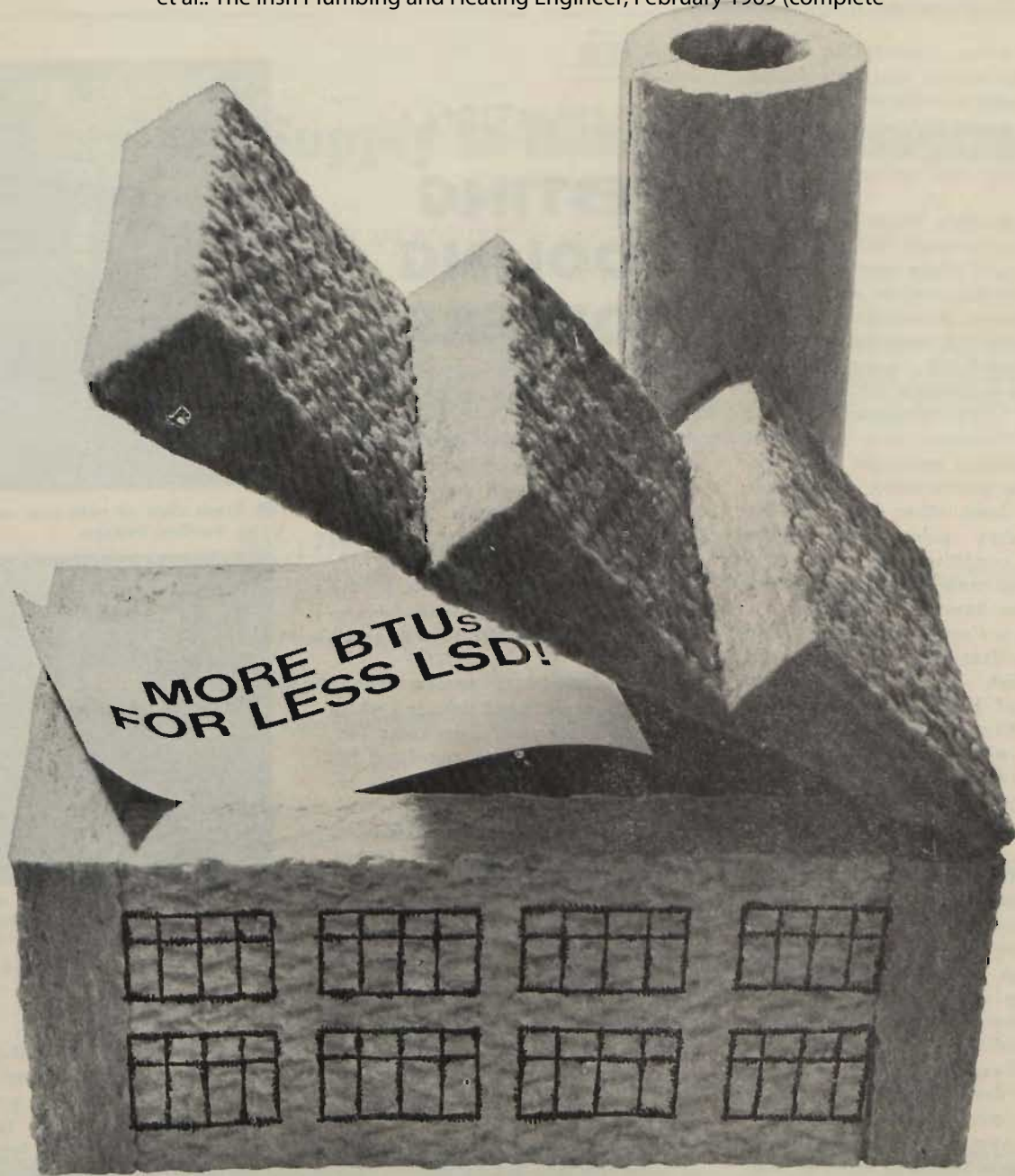
To simplify installation, the Unatap incorporates a dual connector and compression nut by which the chrome plated hot and cold inlet pipes are connected to the stem.

A new type of control knob is another of the features of the Unatap 11. Made from a suitable engineering plastic, it is specially designed for convenient finger operation.

★ ★ ★

A VERY extensive range of tap fittings and taps is produced by Delta Water Fittings Ltd. of Wolverhampton, who are represented in Ireland by C. B. Sheridan of 10 Herbert Place, Dublin, and 16 Linen Hall St., Belfast.

They include the vast range of "Star-Stream" basin, bath and sink fittings and the Delphic Suite water fittings.



**Locked-in heat saves money!** The fine fibre structure of Stillite mineral wool gives you better pound-for-pound insulation value than any other material for consistently lower costs. Stillite is resistant to heat and sound—suitable for application in the temperature range 0°F-1500°F.

The 16-product range—from loose wool to high density slabs and pipe sections—is backed by first-class delivery, with ample production capacity to meet planned schedules. And the Stillite Technical Research service is ready to help you find low-cost answers to thermal and acoustic insulation problems.

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**F**RESH water conservation is one of the biggest problems facing all industrialised countries today, and therefore, water cooling incorporated in industrial plant achieves an importance that was unknown several years ago.

The evaporative water cooler has been supplied in many forms over the past years and many excellent books have been written on the subject, but alas, there are tremendous gaps in our knowledge of evaporative water cooling especially when linking engineering perfection with economic possibility. The variables, many of which are uncontrollable on actual site installations, make the determination of the performance of a tower a difficult task, other than for the specified duty point. Only under controlled conditions, as exist on a sophisticated test plant, can accurate performance figures be obtained.

But now a Committee set up under the British Standards Institution will soon publish a standard on the "Methods of Testing and Acceptance Tests for Evaporative Water Cooling Towers," which will require the manufacturers to provide guarantees over a performance zone and not simply a specified duty point, and also to supply guaranteed performance data. This will ensure that the purchaser of such equipment is obtaining the best possible installation at the most economic price.

With this in mind, we at Serck Visco have designed and built the most advanced test installation known to exist in the U.K. and indeed possibly Western Europe, for research and development into evaporative water cooling towers. The plant covers an approximate area of 20' x 85' reaching a height of some 22' and comprises, in the main, two Counter-flow Mechanical Draught Towers, one Cross Flow Mechanical Draught Tower and a fully automatic control system.

Normal atmospheric air is drawn in through the humidifier system and



● Operating control panel for cooling tower test centre showing mimic diagrams.

## WATER CONSERVATION

# TESTING COOLING TOWERS

conditioned, the dew point and dry bulb temperatures being automatically controlled by auto-set controllers and pneumatically-operated control valves on the steam supply to the heater batteries. This system of control will automatically adjust and maintain the required wet and dry bulb conditions for any length of time and this condition, when obtained, is automatically recorded in graph form.

The conditioned air passes through a variable speed axial flow fan which is infinitely adjustable, the speed control of the fan can be regulated between 640 and 2,550 r.p.m., as required.

Measurement of the controlled air volume passing through the system is automatically recorded in graph form. At the same time the static pressure resistance of the packing is also indicated.

This air is then passed into the Cooling Tower under test and the air can easily be changed from one tower to the other by a simple damper linkage. This means that when testing two different types of packing, an immediate and accurate comparison be made. Automatic control is also provided for the hot water which is pumped into the tower, and this means that stable conditions can be maintained throughout the whole of the test that is being undertaken. At the same time, the cooled water temperature of the water from the tower is simultaneously and automatically recorded on the same chart as the inlet water temperature. The water flow rate into the test tower is measured and indicated by a meter with an accuracy of 99.4 per cent.

All auto controllers and recorders in this installation have an exceedingly high degree of accuracy, but to ensure complete reliability of calibrations of recordings, the water temperature entering and leaving the towers is additionally measured by N.P.L. certified mercury in glass



● Front view of twin test evaporative water cooling towers.



● General view of cooling tower test centre showing, on left, the twin cooling towers and, on right, the air conditioning equipment.

thermometers with scaled divisions of 0.1° C.

With this type of automatically controlled and sophisticated test installation, it is possible to provide hot water temperatures up to 160°F. (71°C) in a wet bulb temperature range up to 85°F. (29.4°C) saturated at any time or period of the year, the exception being that the wet bulb that is obtained cannot be lower than the normal ambient temperature existing at the test period.

Steam for testing purposes is drawn from the main factory boiler and, therefore, the company aims to conduct experiments requiring maximum steam during the summer months. They reckon to use anything up to 3,800,000 Btu/h and plan to install increased boiler capacity, semi-automatic oil-fired, to give 4,900,000 Btu/h thus allowing a good margin against future contingencies.

● Visco water cooling towers are now being marketed here by W. Finucane and Co., 5 Upper Pembroke St., Dublin 2.

# Electricity Supply to Housing Developments

## LOCAL GOVERNMENT (PLANNING & DEVELOPMENT) ACT, 1963

The Electricity Supply Board wishes to draw the attention of Architects, Builders and Developers to the importance of making provision in all housing schemes for an adequate supply of electricity. In particular, it is essential that sites for sub-stations are agreed at the design stage so that they will be included in the relevant planning applications in respect of the development.

Information on requirements for sub-stations can be readily obtained from any of the Board's District Offices or direct from the Board's Distribution Department, 27, Lower Fitzwilliam Street, Dublin 2.

J. G. GARGAN,  
SECRETARY.



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"I would recommend the 'Flush Panel' to my mates in the building trade. For instance, when replacing existing toilets in old property conversions, there's no need to move the soil pipe. That is just one advantage of the 4 1/2" projection of the 'Flush Panel'."

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