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

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THE IRISH PLUMBER & HEATING CONTRACTOR



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IRISH SHELL AND BP LIMITED



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1

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

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LOW-PRICED

"IDEAL" RAD 66

SMALL-BORE ACCELERATOR



You've wanted this for a long time; a low-priced accelerator with all the advantages of more expensive models and some extra advantages of its own. It is the "Ideal" Rad 66, a small-bore accelerator designed to meet the special requirements of domestic central heating installations. An important new feature is the 'Hydromatic' electrical gap which, while starting, is very small to give high torque, and then automatically increases to give smooth, quiet running. Its output regulator is easily adjusted over a wide range of ratings. It has a self-cleaning bearing with reversed water flow. It is compact, and can be mounted close to a wall or in corners, at floor level, or in a confined space. The "Ideal" Rad 66 measures $7\frac{1}{2}$ " x 6" x $4\frac{1}{2}$ ", and weighs 13 lb. You cannot install a more advanced or efficient accelerator for small-bore central heating.

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LIMITED

List prices: "Ideal" Rad 66—£20, in bronze £27.10.0.



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Automatically Controlled Thermostatic Mixing Valves

Turn the gauge to the temperature required. Mixed Hot and Cold water of any temperature between 50° F. and 160° F. will be delivered automatically. The chosen temperature remains constant and no further adjustment is required. Detailed information is available from our Irish representatives.

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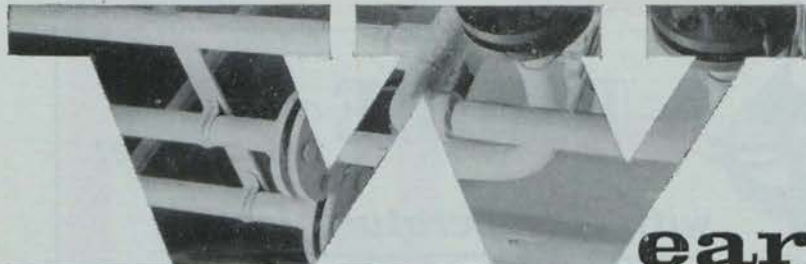


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Known throughout the world for the dependability and quality of their wide range of valves and fittings you cannot do better than ask Newman Hender *first* for the valve or fitting you require. Stocks are held in Dublin of many patterns to meet constant and urgent demands.

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Vol. 2. No. 9.

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

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DECEMBER, 1962.



THE IRISH PLUMBER & HEATING CONTRACTOR

IN THIS ISSUE

- Of special interest and value this month is a full-length article on pipesizing for hot and cold water supplies 18
- John G. Bolton deals with rotary pumps, displacement and centrifugal types, in his regular contribution 30
- A special correspondent reports a new idea in central heating 33
- The Contractor's Northern correspondent reports on page 34
- A. L. Townsend, M.R.S.H., M.I.P., continues his discussion of sanitary appliances in general 37
- SPECIAL SURVEY:** Review of electric heating systems and appliances—beginning page ten. A review of radiators and convectors begins on page twenty-three.
- Our regular "Questions Answered" feature has been held over until next month.—Ed.

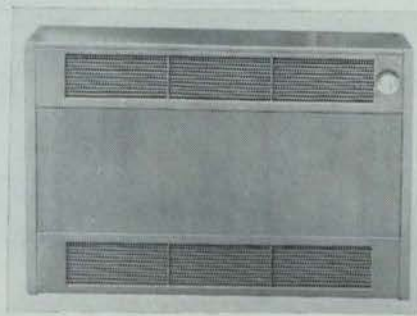
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WARMAC WILL HEAT DUBLIN, SHANNON AIRPORTS

WARMAC LTD. of Trafford Park, Manchester, have received substantial overseas orders from Ireland, Turkey, and Australia for their P.4 series of medium and high pressure units for hot water heating installations.

Of the units for Ireland, one will serve new buildings at Shannon Airport and another will be installed at Dublin Airport.



VERSATILE SYSTEM

The "Slendair" unit conditioning system consists of a number of units located throughout a building (generally one or two in each room) and a central plant for handling the entire heating and cooling load. This type of system is ideally suited to all multi-room buildings. Each room has its own unit.

This system permits individual control without affecting other rooms or zones. It is produced by Dunham-Bush, Ltd. (Farlington, Portsmouth, Hampshire), in four models of varying sizes. Irish agents: Henry R. Ayton, Ltd., 20 Harcourt St., Dublin.

CONSTANT PRESSURE CONTROL SYSTEM

WITH THE increasing use of oil as the fuel for boiler firing in air conditioning and process heating systems, the need has arisen for a reliable automatic control for transfer pumps which form part of a ring main to prevent pressure surge in the event of a burner shut-down or blockage.

With many years of experience in the field of pumping, Plenty & Son Ltd., of Newbury (Berks), have perfected an hydraulic system of Constant Pressure Control which has been successfully employed in many of Britain's largest and most up-to-date installations.

Not only does this system automatically maintain the correct pressures in the ring main but also it has the advantages of eliminating all unnecessary re-circulation and economising in power input.

With infinitely variable output between 0 and 6,000 lb. per hour of 3,500 seconds Redwood Fuel Oil, the

TRADE

TOPICS

APPOINTED

● F. H. Biddle Limited, internationally known heating, cooling and ventilating engineers, have recently appointed Maxwell Clarke Limited as their advertising agents.

pressure in the ring main will be kept constant at 250 p.s.i. irrespective of flow rate.

Irish agent: D. P. Engert, Esq., 5 Ardee Road, Rathmines, Dublin 6.

NEW FROM IDEAL

IDEAL-STANDARD Limited expect a fast expanding market for their new "Ensign" Food Waste Disposer. Unobtrusively fitted below the kitchen sink, the "Ensign" will quickly dispose of food scraps, small bones, pips, tea leaves, peelings, bread crusts, cold fats, egg shells, etc.

The disposer, with its durable die cast aluminium alloy body and reversible stainless steel cutting teeth, will give years of reliable operation. The "Ensign" will fit sinks with a 3½" waste aperture.

Irish agent: E. J. Cocker, Stoneygate, Granville Road, Blackrock, Dublin.

NEW COMPANY

WITH THE object of carrying on business as manufacturers of patentees, dealers and agents for central heating apparatus and equipment, etc., Oilfired Homes (Ireland) Ltd. (private company) was recently registered. The registered office was not stated (Republic of Ireland). Nominal capital, £100 divided into 100 shares of £1 each.

Names and descriptions of Subscribers to Memorandum and Articles of Association (Subscribers of one share each): Arthur Patrick Blake, solicitor's assistant, and Arthur Dey, solicitor, both of 32 Kildare Street, Dublin. Names of First Directors not stated.

BATHS GALORE

EACH OF THE 438 bedrooms on floors five to 25, of the 30-storey £8 million London Hilton Hotel, has its own bathroom. The hotel is scheduled to open next spring.

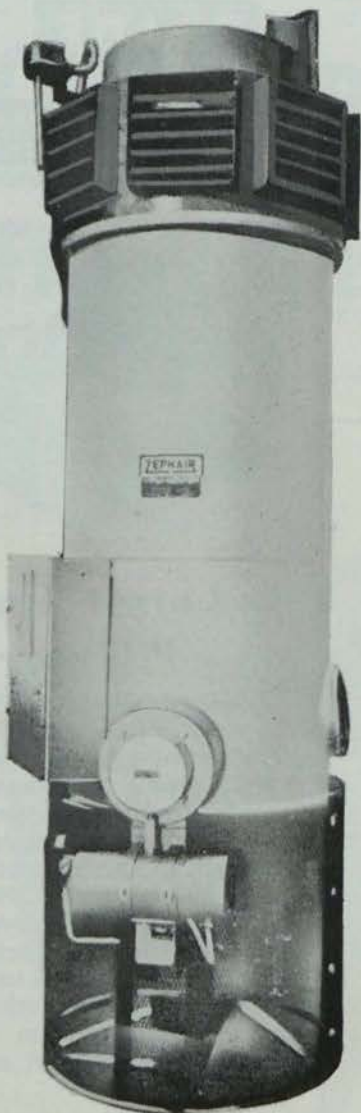
The baths are in acid-resisting white porcelain enamelled cast iron, produced to exacting dimensions and finish, commensurate with marble bathrooms. The front edges are lowered to provide easy access. Similar equipment, all supplied by John Bolding & Sons Ltd., Grosvenor Works, London, W.1, is fitted in the public accommodation areas.

C. A. PARSON ACQUIRE S.M.E. BUILDINGS

C. A. PARSONS of Ireland Limited (Howth, Dublin) announce that they have acquired the buildings and plant of Sheet Metal Engineering Limited and are to carry on a similar type of business in the manufacture of all forms of fabricated steel work, including tanks, ducts, platforms, etc., also small low pressure heat exchangers, low pressure feed water heaters, oil coolers, etc.

RESIGNED

● Michael Conroy, publicity officer of Bord na Mona, has resigned to join Procter & Gamble in Geneva. He was formerly with the publicity department of Aer Lingus.



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

ZEPHAIR

INDUSTRIAL AIR HEATERS

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

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

AND

PREMIER OIL BURNERS

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

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

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



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WELDRYTE LTD.

ARKLOW, CO. WICKLOW

NEW GREENWOOD

"MECHADOME"

THE NEW "Greenwood Airvac Mechadome" powered Extractor is designed specifically for "flat roofs" and special emphasis has been given to clean modern lines, attractive style and low overall height.

Fitted with removable "Perspex" or Fibreglass domed head, the "Mechadome" Extractor conforms with standard Domelight Ventilator sizes and where such ventilators are

also installed on the roof, a neat and uniform elevation appearance can be achieved.

Weatherproof under all climatic conditions, the patent "Mechadome" is strongly constructed and includes many special features.

Performance: "Mechadome" Extractors can be supplied in a full range of sizes and speed ratings to meet most applications—12" up to 24" fan diameters with an exhaust capacity range from 700 c.f.m. to 5,200 c.f.m.

Irish agents: Technical Sales Ltd., 79 Lower Leeson St., Dublin.

A most exceptional opportunity occurs for an AGENT to represent in EIRE the very well-known firm of Engineers' and Plumbers' Brass-founders JAMES BARWELL LTD., GREAT HAMPTON STREET, BIRMINGHAM, 18

● He must be resident in Eire and have for some years been calling upon the Heating Engineers' and Plumbers' Merchants throughout Eire by whom he should be held in high esteem and respected for his integrity and honesty of purpose. The gentleman chosen to fill the appointment will have the advantage of the many and substantial accounts in Eire which Messrs. James Barwell Limited have enjoyed for many years.

● Apply please in writing to: THE SALES MANAGER, JAMES BARWELL LIMITED, GREAT HAMPTON ST., BIRMINGHAM, 18.

TRADE

TOPICS



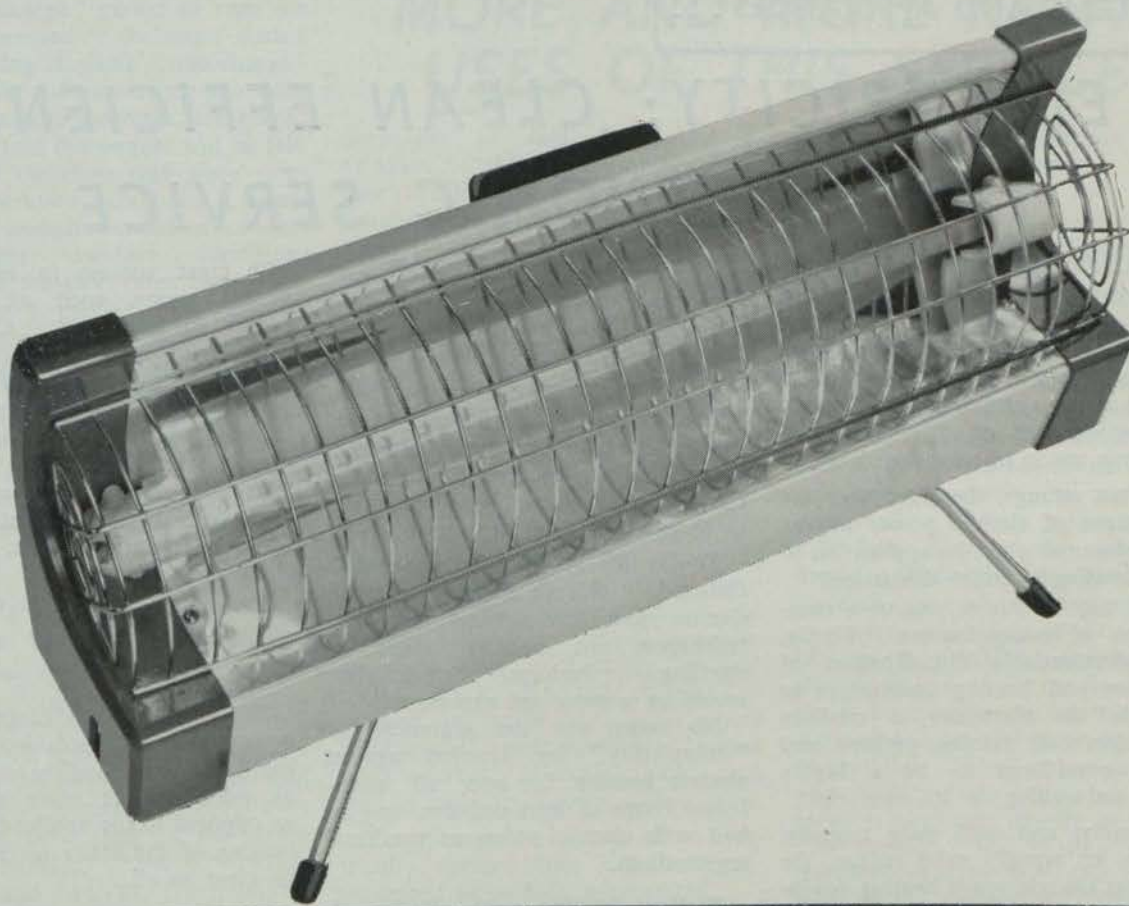
Latest from Pillinger

THE latest addition to the Pillinger range of fully automatic pressure jet oil burners is the Model PH (illustrated here). This burner uses 35 seconds viscosity gas oil (Redwood No. 1 at 37.8°C.) and the design is based on that of the successful burner Model 602 (60,000 to 250,000 B.t.u. per hour) which was introduced a year ago. The Model PH burner is rated at 250,000 to 650,000 B.t.u. per hour, an intermediate duty which this burner has been designed to meet with economy in both initial and running costs.

The burner is fixed to the boiler front plate by only two studs. Routine maintenance is thus greatly simplified, since access to the nozzle and spark electrodes is easily gained without breaking the oil and electrical connections.

A neat sheet steel box contains the motor starter and control unit. (Start and reset buttons, and "locked out" indicator light show externally). The Pillinger "Synchro-Safe" light sensitive control unit responds to flame failure or imperfect combustion caused by any electrical or mechanical defect, and in the operating sequence a purge period is followed by an ignition period, after which ignition is continuous or intermittent as required. Lock-out is instantaneous and the hand reset ensures complete re-cycling before re-firing. Irish office: 20 Sycamore St., Dublin.

NOW A PORTABLE THERMODARE INFRA RED HEATER FOR CHRISTMAS



**REMEMBER TO
STOCK
THERMODARE
PORTABLE
HEATERS**

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

Thermodare Infra-Red Warmwave Heaters



Manufactured by

Unidare Ltd., Finglas, Dublin 2. Phone 71801



REVIEW OF ELECTRIC HEATING SYSTEMS AND APPLIANCES . . .

ELECTRICITY: CLEAN EFFICIENT AND ECONOMIC SERVICE

ELECTRICITY, universally recognised and adopted as the power for artificial lighting, is also accepted as a first-rate cooking power. Its application in D.H.W. heating increases as more and more people come to experience its clean, efficient and economic use in this service.

Is it not strange, therefore, that the advantages of electric power appear to be shunned when its application to space heating is under discussion?

This may be due to one or a combination of many factors. Firstly, the understandable disinclination of plumbers and heating contractors to "dabble" in electricity, a medium not within their training, perhaps, and rightly considered to be a highly specialised calling in its own right.

Secondly, and until quite recently, perhaps an equally valid reason, the fact that electric space heating equipment, for domestic use, anyway, was somewhat limited to the well-known "electric fires," and possibly the somewhat "mysterious" electrically warmed floors.

Examined

Those of us who examined these more closely found ourselves admitting the good points of these, but had reservations perhaps with regard to cost of running electric fires at ordinary tariff, and even if a little sceptical about running costs of electric floor warming systems of the embedded in concrete kind, we perhaps questioned—"Was this heat form really flexible enough in control" "Was it suited to intermit-

tent room warming?" "Could it be put into existing homes?" "Could it be used on upper floors of the conventional domestic dwelling?", and so on.

The answers were frequently found to be in the negative. In consequence, interest in electric power for space heating waned, possibly never to be revived again.

To-day the situation is very much changed. Recent developments in electric space heating equipment and techniques are nothing short of startling. Perhaps "electrifying" would be a more apt expression?

No longer can the argument of "inflexibility" be levelled against electric heating, for now all established forms of heat emission may be had with electric power as the heating medium.

Radiant heating, with all the advantages and particular applications of this emission form, as outlined in earlier Surveys, is provided by electrical heating in the following appliances or techniques.

Infra-red Local Radiant Heaters of the suspended or high level fixing kind employing the Infra-red glow elements in silica tube, offer immediate heat with low capital cost. Styled in the best contemporary taste and of impeccable engineering design, these appliances are safe (all metal parts have got earth protection) and economical in use because they are switched on only when heat is required at the working or living area they are installed to warm.

They are being extensively used

with great success in intermittently heated rooms such as committee rooms, canteens, etc. Church congregations are comfortably and cheaply warmed by carefully placed overhead Infra-red heaters. Offices, kitchens, bath rooms, indeed, any place where a temporary "island" of warmth is needed at infrequent times—all find simple, efficient heating by Infra-red electric heaters.

Clear To All

The economic advantage of radiant warming a localised working area, particularly a draughty situation such as workshops or other vast spaces, as opposed to the needlessly expensive heating of the entire air volume, will be clear to all.

Electric floor warming, another form of radiant heating, is available in a much wider range of equipment and installation method.

Embedded systems, as the term implies, comprise electric resistance cables embedded in the concrete floor, in some cases in the surface screed only. "Off Peak" current heats the cables and in turn the mass of the concrete floor slab or screed. The heat thus absorbed by the structural slab during the "Off-Peak" hours of the night is liberated to the room during the following daytime period when no current is consumed. In some cases a "Midday Boost" is applied when the cables are energised for a period of about two hours.



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

Clearly, the mass of concrete warmed must be such that it will absorb and store sufficient heat during the "charge" period to emit the heat requirement of the room during the following daytime "non-charge" period. At the same time the floor surface temperature must not exceed 75°F. or foot discomfort will be felt. It follows therefore that since concrete temperature maximum is determined, the overall heat content to meet room heat comfort conditions throughout the day, must be accommodated in a greater mass of slab. These factors, which of course involve computation of heat requirement for the room, govern whether whole floor slabs, or just screed, be heated. A 3-inch thick screed might not have sufficient internal storage capacity. The resistance cables may be "rewirable" or "embedded."

Preformed

Rewirable systems comprise some form of preformed cable ductings laid over the structural floor slab. The surface screed is then placed and heating cables subsequently drawn into the floor duct by way of access duct laid at the same time as the cable duct. "Panelec," "Tyrad," "Thermotare," and "H.V.E. Thermotact" are examples of rewirable systems.

Embedded systems comprise electric heating cables fully enclosed in the concrete, i.e., not ducted as with rewirable systems. These embedded systems are cheaper to instal and function just as the other systems do. Certain doubts and fears have been expressed in the past as to what happens if a cable "goes down." Experience now shows that, given proper supervision when the concrete is placed, faults are unlikely. In any case, test equipment is now in use capable of detecting the location of a cable fault to within an inch or so of the actual cable defect. Unlikely cable faults can thus be quickly detected and quickly repaired with little bother and a minimum of

from previous page

MORE AND MORE KNOW USES OF THIS SERVICE

disruption of laid floor surface. "Calidec," "Ashatherm," and "Simplex" are but a few of the embedded systems now in use.

The importance of supervision in concrete floor laying over embedded systems has been mentioned. The need for informed, careful concrete placing cannot be over-emphasised. Concrete screeds should be laid direct on "green" structural floor slab to ensure bond and to prevent screed "lift" due to differential expansion. Concrete must not be too wet, otherwise drying shrinkage cracking will occur. This will impose undue physical strains on the cables. Concrete must be carefully compacted around the cables. This is to ensure not only good conductivity of heat from cable to slab, but, equally important, to avoid air spaces where "hot-spots" would develop and cause local overheat of cable which could lead to cable breakdown at that point.

The "overall" warmth of an electrically warmed floor has to be experienced to be fully appreciated.

"Inflexibility of control" has been levelled as a criticism of thermal storage in structure systems of electric floor warming.

Refutable

Space does not permit development of this point save to opine that in continuous heating of houses, etc., this argument is refutable.

Where intermittent heating by warmed floor surfaces is required, then the internal storage in floor slab principle does fall short. But even this does not stop the forward looking manufacturers and electric heating developers. One can now floor warm with electric cables entwined in grooves in floor boards. This ar-

angement offers a responsive to control floor heating system.

Heating Investments, Ltd., of 284 Regents Park Road, London, N.3, offer two types of installation of this kind. They will either provide a system design and the cables for individual contractor installation, or they will undertake to design and instal with their own specialised labour. In the latter case they guarantee the installation for 25 years! They also undertake design and installation of embedded systems—again with a 25-year guarantee.

Radiant heating with electrically heated ceilings offers another form of "overall" warmth which is responsive to control according to demand for heat or to prevailing external climatic conditions. Like the floor warming in boards systems, the electrically warmed ceilings do not heat a mass of material. They comprise lengths of resistance cable suspended on prepared sub-ceilings, usually of aluminium panels. The heating effect is therefore virtually immediate, i.e., as soon as the system is switched on. And the heat is "off" as soon as the current is switched off by manual or thermostat control.

Not being internal storage systems, these do not take advantage of cheaper "Off-Peak" tariffs but are connected to and employ ordinary domestic tariff current flows. For this reason they may seem more expensive to operate but economy comes of being able to switch off the current as occasion demands. Thus an unoccupied room need not consume current unnecessarily and a direct saving in operating cost is made.

A typical installation of a Burgess electrically heated ceiling by Burgess Products Co. Ltd., P.O. Box 11,

Continued page thirteen

'SAFEHEAT'

ELECTRIC PANEL HEATERS

provide the solution to your room heating problems

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

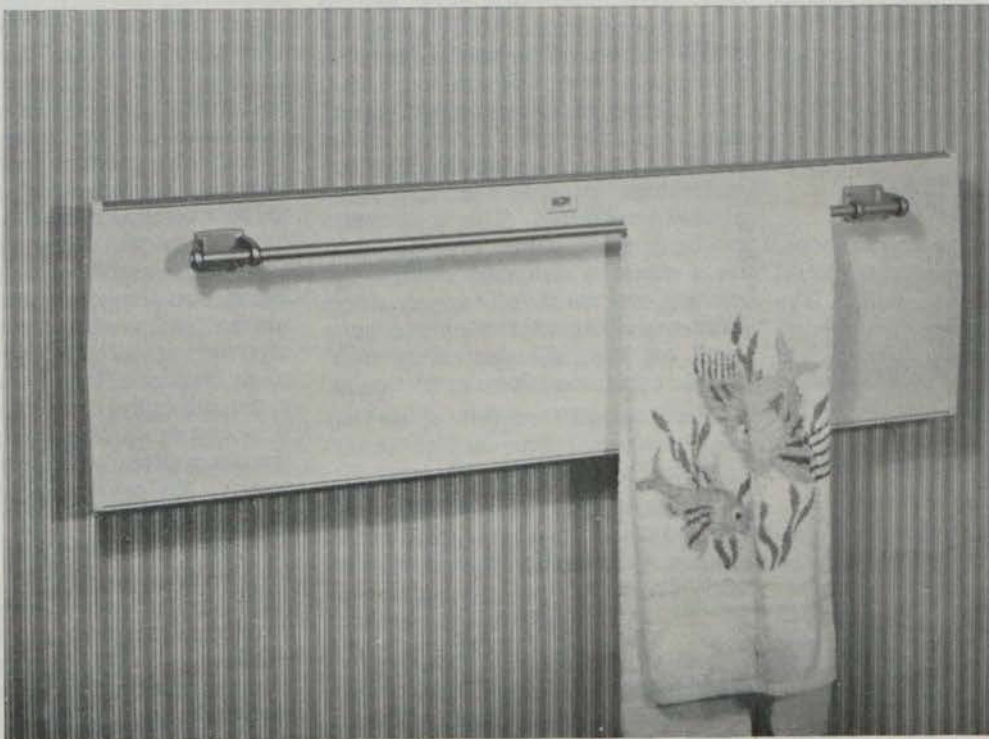
'SAFEHEAT' Panel Heaters are available in six dimensionally different sizes with maximum loading capacities of 500/800/1000/1200 and 1500 watt.

STOVE ENAMEL STANDARD FINISHES:
OFF - WHITE, OYSTER, PEARL GREY or
CREAM.

Other colour finishes available at an extra charge
of 5% on list price:—

CAPRI BLUE, WEDGWOOD BLUE and
LICHEN GREEN.

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



The illustration shows a Type P3-5 TR Model, complete with chromium-plated towel rail, for use in bathrooms.

WRIGHT ELECTRIC MOTORS (HALIFAX) LTD.

MANUFACTURING ELECTRICAL AND MECHANICAL ENGINEERS

ESTABLISHED 1900.

CENTURY WORKS
PELLON LANE
HALIFAX, ENGLAND
Phone: 60201/2
Cables: "Motor, Halifax"
Telex No.: 51101.

Hinckley, Leics., shows that room temperature can be raised from 50°F. to 75°F. in 1½ hours. Normally a 68°F. temperature is found adequate, and at this temperature running costs were as follows for the room, 26' 0" long x 11' 0" wide, of traditional construction. Aug.-Oct., 8½d. per day; Nov.-Jan., 1/6 per day; Feb.-April, 11d. per day. An electric fire gave a "focal point" to the room

incorporates **selective** control down to 6 Kws. or 3 Kws. according to amount of heat required or number of occupied rooms to be warmed. Herein lies a remarkable measure of economy. Power is consumed **selectively as required**.

A feature of this system, in one form, is its ability to utilise a measure of "Off-Peak" electricity at cheaper rate. A 3 Kw. heater working on

bound to have considerable impact on the domestic home heating market, for they do offer advantages attractive to the discerning public, and it represents a strong challenge to others in this field.

The Climatic 103 new overhead fan has a 10 Kw. rating. For workshops, churches, halls, etc., this appliance offers an efficient, economic answer to immediate warmth on the

SPECIAL SURVEY

from page eleven

ELECTRIC HEATING SYSTEMS

and provided occasional 'topping up' heat on really severe cold days.

Convective Heating has its devotees and the electrical developments in heating really have left no stone unturned to cater for these.

"**De-Centralised**" central heating by Heatrae "Sleekline" electric heating panel radiators is one move in this direction.

Free-standing portable "radiators" or wall mounted "radiators" can be used in manner as adopted for L.P.H.W. radiators. The striking difference being no pipes, no boilers, no flues, no fuel store. With this system a client can build up a useful heating system starting with just a few appliances in essential places, and add to these as need—and budget—allows.

Whole House Heating by electrically warmed air is a really up to the minute trend which bids to be a real competitor in the domestic heating market.

"Domesticair," by Tryad Electric Ltd. of 452 Fulham Road, London, S.W.6, offers complete installation on hire purchase, as do most suppliers of heating equipment these days.

Selective Control

The heating unit measures only 36" high x 21" square on plan, i.e., working top height for ease of fixing, linable with kitchen equipment if required. It could, of course, be fitted under a staircase—no flue is required. The unit has a total heat output of 9 Kws., i.e., 30,500 B.t.u.'s/hr. It

normal domestic tariff provides sufficient heat for most of the day, but at 7 p.m. a time switch cuts in the "Off-Peak" current to the 6 Kw. heater when the family is home.

Air is drawn into the heater unit at its base. It is then filtered, warmed and discharged through small ducts to the various rooms to be warmed. Warm air outlet grilles fitted in the rooms have damper controls for closure if heat is not required in the room. A thermostat safeguards the heater elements from overheat and will maintain air flows at pre-selected temperatures as required.

The system may be installed in new or existing houses. Installation costs vary between £190-£250 and running costs between £50 for restricted selective heating and £80 for whole house heating for most of the time. In summer the fan, which impels warm air in winter, can be used to move cooling air currents in the summer.

The Climatrix Warm Air Units, by Lucas Industrial Equipment Ltd., of Burnley, Lancs., are made in various sizes to suit differing home sizes or heat requirements. They offer electrically warmed, ducted air flows to rooms in the whole house or selective arrangements. These units operate on black heat elements and are most versatile in application.

A two bedroomed semi-bungalow can be equipped at a capital cost of about £100, and running cost would be about £50 per annum. Larger units for three-bedroomed houses would cost about £145 installed and would cost £60 per annum to give full house warmth. Such equipment is

selective principle, i.e., current usage only when heat is wanted.

Electrically heated, high and low level fan-assisted convectors by some makers for industrial, commercial or domestic use, are now obtainable in attractive styles at low price, and form a valuable addition to modern house warming equipment.

Although involving little or no installation work, they are a force to be contended with in space heating design.

Improvements

Block Thermal Storage Heaters have proved their worth in shops, offices, schools, etc. Recent improvements in styling and emission ratings have made these appliances more versatile. Now made in ratings of 1 Kw. to 3 Kw. in increments of 0.5 Kw., it is possible to select an appliance suited to the duty it will have to support.

Extensive national publicity campaigns are in being to extend public interest in this "Off-Peak" thermal storage equipment.

A rough estimate of block storage heater rating required is to allow 1.5 Kw./1,000 ft. of room space to be heated. Thus a room of about 14ft. x 12ft. x 8ft. high might need a 2 Kw. appliance. This might cost about £30 initially and about 8/- per week to operate.

The heaters must of necessity contain sufficient mass of refractory material to absorb and store heat input during the night "Off-Peak"

Continued page fifteen

LET THE ...

“Augustine”

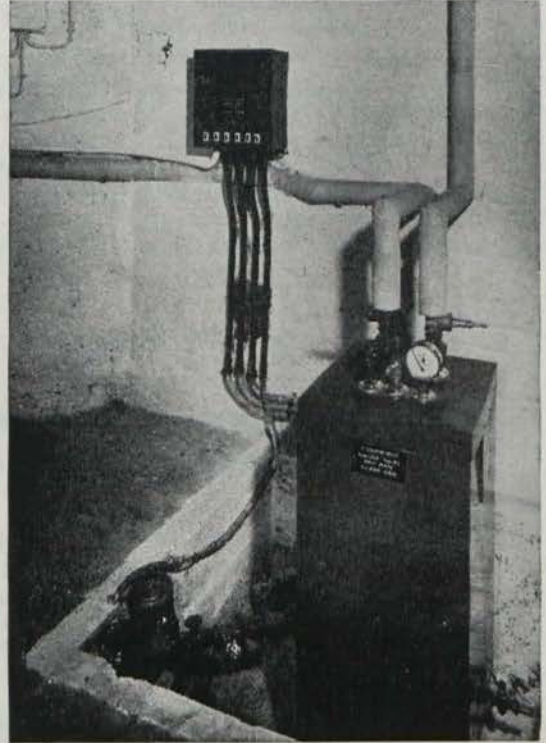
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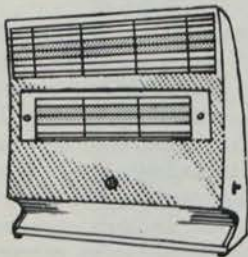
EDMOND D. RYDER

46, LOWER DRUMCONDRA ROAD,
DUBLIN. Telephone 45992.



BRITISH PATENT No. 875, 707, 17th AUG., 1959

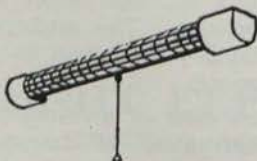
EKCO TOP-SELLING HEAT RANGE



RADIANT 'K' HEATER

Portable convection heater incorporating infra-red radiant fire. Independently-controlled silica-sheated element gives attractive orange glow. Copper coloured reflector beams warmth evenly. Automatic heat control. Finished in light hammer-tone bronze. 1kW radiant plus 1kW convection.

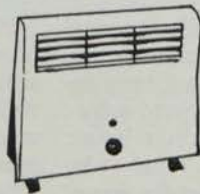
RKC25 £11 12 6
Ivory or Ivory and Gold finish £12 0 0



'FIRESTREAK'

Best way to heat kitchen, bathroom, nursery or bedroom. Easily replaceable end caps, in a range of colours.

switch, £4 8 7
127 (1200 w. tch), £3 16 8



CONVECTOR HEATER Type FRC

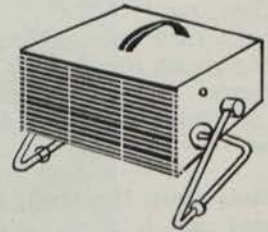
De-luxe portable heater with front panel in polished black or walnut finish with metal grille finished in 'old-gold' enamel. 'Fireglow' lamp indicates when the heater is switched on and gives pleasant glowing effect.

FRC1 (1kW) .. £10 12 6
FRC2 (2kW) .. £12 19 9
Post Office Red or Ivory finish:
1kW 11/10, 2kW 17/9 extra.



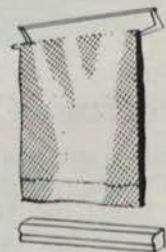
'MALVERN' 3kW HEARTH FIRE

Combines cheerful and realistic effect of flaming coal or logs, with warmth of three radiant elements. Designed to fit standard 18" grate. Flue restrictor supplied. Light hammer-tone bronze finish. Coal type HFC3 or Log type HFL3 .. £12 9 9
Interchangeable/spare coal or log, 40/-.



'FANDAIR II'

Provides flow of warm air in winter, cool air in summer. Easily carried. Seven position switch gives a range of fan speeds and degrees of warmth. 2kW FB2 .. £10 15 6



TOWEL DRIER & RAIL

Safety cut-out. Eight hours per unit. Drier TH120 for airing cupboards or with existing towel rails, £3 9 8
TRH120 drier complete with double towel rail, £4 17 5

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Dublin Showrooms: 48 Fleet Street. 'Phone 371621.

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SPECIAL SURVEY

from page thirteen

period to meet the daytime heat demand in the room or space they are to heat. Consequently they will be bulky and some 12ins. deep, back to front. Length and height varies according to rating. A 2 Kw. appliance would be about 32" long x 28" high".

Weight

The mass of refractory material must, of course, be dense. Its weight, therefore, has to be considered, especially in timber floor convectors. A 2 Kw. appliance will weigh approaching 2 cwts. Where space and structural conditions are suited, these convector appliances form a useful and economic space heat equipment. They function by natural convection of air in just the same way as L.P.H.W. radiators do. The General Electric Co. were among the pioneers of this type of equipment.

The ConStor controlled output block heater, by Bastian & Allen Ltd., of Harrow, Middlesex, is the latest and quite exciting development in block thermal storage heaters.

The difference between the ConStor and non-controlled block heaters is that it has a fan assisted warm air output instead of natural warm air convection.

By thermostatic control of fan speeds the heat emission from the ConStor can be regulated. Efficiency and comfort conditions are thus improved.

Fanned warm air dispersal is quicker, more all pervading, and the air movement is conducive to more invigorating conditions of physical comfort.

Space heating

What is there in Electric Space Heating for the plumber and heating contractor?

Some might incline to dismiss its challenge as requiring specialised techniques, electric wiring skills, etc., not common to our trade.

None can deny the strength of the electric heating challenge. The elec-

tric concerns really have "come up from behind." But now they are neck and neck with other space heat forms.

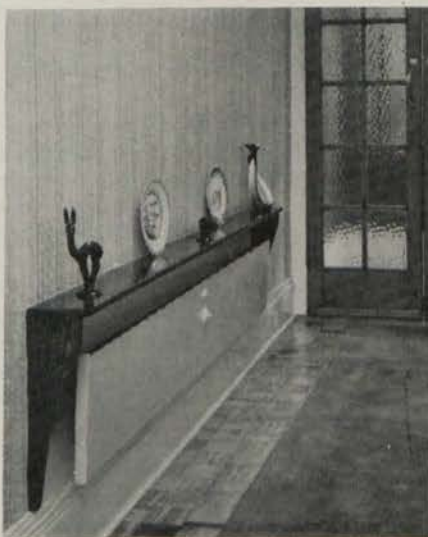
The advantages of electric heating are clear and attractive to the consumer public. The potential electric heating market is just developing. What will be its impact and effect on other established heating forms? How will it affect your trade?

It is not easy to answer these questions but it is prudent to get to know all about what the "Electric Boys" have to offer—if only to appreciate the strength of the competition.

Or should it be competition? "If you can't beat 'em—join 'em." Why shouldn't a heating contractor of to-day employ a competent electrical staff and thus corner a part of the new and growing market for himself?

In conjunction with this special Survey we review here products from the leading manufacturers' ranges.

WRIGHT ELECTRIC Motors (HX) Ltd., of Halifax, Yorkshire, in producing "Safeheat" electric panel heaters, have had in mind utmost efficiency, simplest control, easy installation in any desired position and complete safety from fire risk. A unit which would, of course, blend with the surroundings was a most important factor to be taken into consideration.



These heaters are what their name implies—Panels. They are of the totally-enclosed type of elements which are out of sight and touch, and are therefore fireproof. Their loading is controlled by a four-heat switch, which also has an "off" position. A pilot light is fitted above the control switch, thus indicating when the heater is switched on. Wiring entry is from the rear and each panel is provided with six feet of P.V.C. insulated and sheathed cord of matching colour.

The "Safeheat" Panel Heaters are available in six dimensionally different sizes, with maximum loading capacities of 500/800/1000/12000 and 15000 watt. Standard colours are lichen green, cream, off-white and pearl grey. For slight extra cost there are also available capri blue, wedgewood blue, and oyster. All shades are in an egg shell finish, stove enamelled.

★ ★ ★

THE SATCHWELL Ratiomatic Control for domestic off-peak electric floor heating is the result of extensive development work carried out on the automatic control of underfloor storage heating systems. By a proportioning action from a combination of inside and outside temperatures and taking into account windage losses, the Ratiomatic automatically gives an ideal charging period.

The Ratiomatic consists simply of two thermal units, one mounted outside the house and the other inside. These units in combination, according to the temperatures they measure, provide a switching cycle, the ratio of "On" to "Off" periods of which governs the charge given to the floor.

An important feature of the system is that the outside unit is sensitive to wind and due allowance is therefore automatically made for this factor in determining the charge. The characteristics of the two units are so designed that the room thermostat is particularly sensitive to a reduced room temperature at the beginning of a charging period as a result of a cold day, but its influence is restricted to ensure that incidental heat gains do not unduly reduce the charge.

Irish agent: R. E. Ayers, Graystoke, Nashville Road, Howth.

★ ★ ★

FOUR NEW heaters are announced by Ekco Heating & Electrical Ltd., for the coming heating season—an illuminated wall fire, a towel

Continued overleaf

drier, a high-level infra-red heater, and a wall mounting convector/radiant model.

From these we look at the new Ekco "Albany" illuminated wall fire, specially designed for fitting on walls or partitions without the need for structural alterations or special heat insulation. The wall fire has been designed to provide an attractive focal point even when the elements are not switched on. This effect is produced by a concealed 60 watt double ended Ekco strip-light which illuminates the background of the fire. A double-pole rotary switch provides independent control of the illumination and of the two 1 kw. silica-sheated elements.

Dimensions: 24½in. wide x 15½in. high x 3½in. deep.

A polished wood styling panel, available as an optional extra, provides an elegant surround for the heater. Styling panel: 42in. wide x 27in. high x 1½in. deep.

Irish agents: Kelly & Shiel Ltd., United Works, Distillery Road, Dublin.

★ ★ ★

UNIDARE LTD., of Finglas, manufacturers of cables and electrical equipment, ferrous and non-ferrous wire and wire products, announce that in the heating division the most recent additions to their range are the 500 Watt portable infra red heaters and the D 25-2½ Kw. Thermodare storage heaters.

A Thermodare Warmwave infra red heater pours out natural healthy Infra-red warmth seconds after it is switched on. It is extremely easy to instal, is completely safe, and is most economical. It also blends with any decor.

★ ★ ★

THE AUGUSTINE electric boiler can be accommodated in a space 4ft. x 4ft., thus eliminating boiler house, chimney and fuel storage facilities. The automatic electric control equipment, together with a super silent circulating pump, is incorporated as part of every boiler.

The electric control equipment is very sensitive and increases or decreases loading as required, quickly and in an efficient manner, thereby effecting an efficiency approaching 100 per cent. and eliminating an over-spill which increases running costs. For business premises a double tariff heating rate averaging 1.4d. per unit is obtainable, while for private residences the usual domestic rate of 1.5d. per unit reducing would apply.

PRODUCT REVIEW

from previous page

Boilers are produced in the following sizes:—

Boiler Rating.	Supply Cost.	Running Cost per 10-hr. day.
9 K.W.	£175	4s. 6d.
12 K.W.	£195	6s. 0d.
15 K.W.	£230	7s. 6d.
18 K.W.	£275	9s. 0d.
24 K.W.	£330	12s. 0d.
30 K.W.	£385	15s. 0d.
60 K.W.	£492	30s. 0d.
100 K.W.	£597	50s. 0d.

Enquiries to: Edmund D. Ryder, 46 Lower Drumcondra Road, Dublin.

★ ★ ★

NEWGATE HOUSE—one of several new multi-storey buildings in Newcastle to employ the BICC "Panelec" solid-embedded electric floor warming system—contains the largest installation of this type yet supplied by British Insulated Callender's Cables Limited for office heating purposes. It was built at a cost of £1,000,000.

For the floor warming installation in the offices and restaurant, which have a combined floor area of 151,000 square feet, BICC have supplied large quantities of butyl rubber insulated, nitrile butadiene rubber (NBR) compound sheathed heating cable units. On completion of the contract more than 55 miles of these units had been provided in addition to some 11 miles of cold tails for connecting the heating units to the electric supply.

A major advantage with this form of heating is that by utilizing the thermal characteristics of the floor the system can operate during off-peak hours and thereby qualify for a special low tariff.

Irish office: 53 South William St., Dublin.

★ ★ ★

WITH ALL wiring leads concealed, the 20 amp. Vennerette has been designed to provide an elegant wall mounting automatic electric heating control.

Combinations of one large and two small, or even up to four single kilowatt heaters controlled by the Vennerette, will provide convenient and economical automatic electric space heating.

Irish agents: Roper Brothers Ltd., 5 South Anne St., Dublin.

★ ★ ★

COMPLETELY new from Dimplex Ltd. this season will be a range of

coal and log effect infra-red fires. Of new and strikingly modern design, the range includes a portable coal effect fire and coal and log effect insert fires for mounting into a standard 16-inch grate.

All models incorporate three silica-sleeved elements with a total loading of 2 kw. The switching is so arranged that the user has a choice of one, two or three bars. The reflectors are heavily chromed on brass and the chrome guards are hinged at the top to allow for easy cleaning. The coal and log effect are made of glass-fibre and are illuminated by two 60 watt lamps which, combined with two fans, give a realistic flicker.

★ ★ ★

ONE of the busiest departments in the E.S.B. is that of the Warm Home Plan Division. The Electric Warm Home Plan has many advantages—for instance installation is simple, quick and easy. No boiler, no flue, no tank and no pipes are required. There are fully automatic time and temperature controls and there is no noise, no dirt, no fumes and no storage. What is really very important, too, is that these modern heating units are beautifully styled.

It is stated that the Electric Warm Home Plan costs £200 less to instal than other heating systems. It is available on low terms over a five-year period and a special budget billing system is available which enables one to spread running costs over the whole year rather than concentrating them in the winter season.

★ ★ ★

THERMALAY, electrically-heated carpet underlay, is new to the market and is already attracting considerable attention. It is a most novel, safe and economical form of electrical heating.

It provides all over warmth for only about a pennyworth of current per hour. An important point is that there are no installation costs. Irish agents: Messrs. Hughes & Coyle, Ltd., 12 Blackhall Parade, Dublin.

★ ★ ★

THE STERLING Axiatherm De Luxe Heaters, made by Sterling Domestic Appliances Ltd., Sterling Works, Dagenham, Essex, are available in either 3 Kw. or 2 Kw. models. They can be switched to half heat and slower impeller speed if desired.

The Axiatherm is a system of heating and circulating the air—the best way of ensuring an even temperature throughout the room.



You are wondering what to give your apprentice, your foreman or your friend as a Christmas present?

Then why not a year's subscription to "The Irish Plumber and Heating Contractor"?

It's so simple; all you need to do is to complete the form below and post it at once together with your remittance, and we will notify the recipient before Christmas telling him of your gift.



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PIPESIZING FOR HOT AND COLD WATER SUPPLIES

By A. L. TOWNSEND, M.R.S.H., M.I.P.

THE AIM in pipesizing is to determine the smallest, and therefore the most economic, diameter of pipe that will deliver a required quantity of water, through a pipe of given length, under a given "Head," in a given time.

There are various methods whereby pipes may be sized. Some are easier to use than others. Some use graphs, others employ tables. Alternatively, one might use well known and well tried formulae and thus obtain a required pipe size by mathematical processes. This, of course, entails the use of logarithmic tables or a slide rule.

Good deal

As to the method eventually used, a good deal will depend upon the user's preference for one method or the other. The important thing is that everyone should be happily conversant with one method at least so that guesswork can be eliminated from all pipesizing problems.

Perhaps the simple method here described will appeal to you?

First of all it is worthwhile remembering that water experiences frictional resistance as it "rubs" along the walls of the pipe through which it flows. This resistance will tend to slow up the rate of flow and so affect the rate of discharge out of the end of the pipe.

As will be seen, frictional resistance to fluid flows is affected by several factors, all of which add up to a total resistance to flow force.

Acting against these frictional resistance forces is the one force capable of promoting water flow. This force is derived from the "Head" of water in the system of pipework under

consideration. This and the various other factors mentioned above, are outlined below.

FACTORS AFFECTING FLOW OF WATER THROUGH PIPES ARE

AS FOLLOWS:

1. HEAD: This is the only factor which promotes flow. It is the vertical distance from the water level in a feed cistern to any point of consideration below; e.g., the tap to which we are pipe sizing for a given outflow of so many gallons of water per minute.

2. FRICTION: This in total retards or tends to resist water flowing in pipes. It is compounded from various other factors as follows:

(a) **Length of pipe.** Clearly if a pipe length is doubled then its frictional resistance due to length will be twice as great. Frictional resistance is directly proportionate to pipe lengths.

(b) **Diameter of pipe.** It is equally clear that a given quantity of water could more easily flow through a large diameter pipe than a small diameter pipe. Conversely, small diameters offer greater resistance because the given quantity of water must flow at higher velocity.

(c) **Velocity of flow.** This is related to (b). The frictional resistance increases as the square on the velocity. If a given quantity of water which will pass satisfactorily through a large diameter pipe and is then made to double its speed to pass through a small pipe, the frictional resistance will increase 2 to the power of 2, or 4 times what it was in a larger pipe.

(d) **Roughness Coefficient of the Tube Bore.** This is discounted in normal domestic service pipe work practice.

Accuracy

It will be later seen that such accuracy of working is of little practical worth, since manufactured tube sizes must be adopted. A final compromise must be made between calculated required diameters and available manufactured diameters. The following example will show clearly how this applies.

The Pipe from Formula of Thomas Box contains all the factors mentioned, as you will see.

$$d = \sqrt[5]{\frac{G^2 \times L}{H}} \div 3$$

from previous page

Where: d=dia. of pipe in inches
 G=Galls. of flow per minute
 L=Length of pipe in yards
 H=Head of water in feet

The quantity of water required to flow along any pipe in a minute is determined by the type and number of appliances it has to serve.

British Standard Codes of Practice 310 and 342 give tables which will be helpful here.

A simplified abridged table of this kind is given below.

Quantity of Water required in G.P.M.:

Draw off taps to Bath	5
L.B.	2
Sink	4
Flush Cistern	1

Now let us take a simple example. Suppose we have to pipe size for an extension of a cold distribution service to a newly built annex which contains one sink. The bottom of the storage cistern which is to supply it is 10ft. above the proposed sink tap position and horizontally 50ft. away from it. From the table of water quantities required we see that a sink tap should discharge 4 G.P.M.

This information is best set down in diagrammatic form like this:—

(See Fig. One below).

Here we have visual interpretation of all the factors concerned. Head, length, G.P.M. required—all are known and shown. Our job is to determine the only unknown—the diameter of the pipeline.

We could use logs, and work this out directly from Box's formula.

Box's formula

$$d = \left[\sqrt[5]{\frac{G^2 \times L}{H}} \right] \div 3$$

so that d = $\left[\sqrt[5]{\frac{4^2 \text{ galls.} \times 24 \text{ yards}}{10 \text{ feet}}} \right] \div 3$

solved by Logs:-

N ^o	Log
4	0.6021
+ for 2nd power 4	0.6021
+ to multiply 24	1.3802
	<hr/> 2.5844
- to divide 10	1.0000
• by 5 for $\sqrt[5]{}$	1.5844 = 0.3169
- to divide 3	0.4771
	<hr/> Antilog $\bar{1}.8398$

Ans: 0.6915 ins dia.

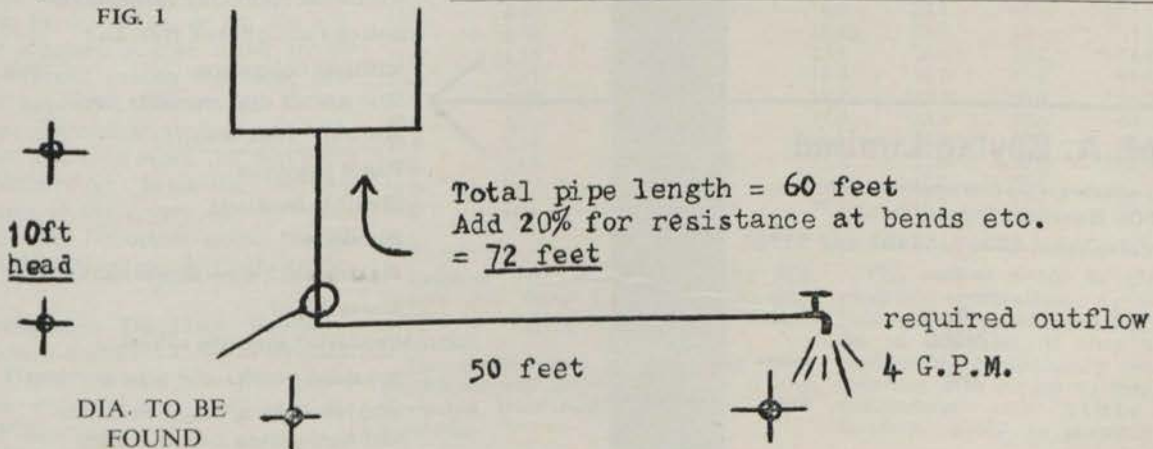
say 0.7 ins,

Nearest manufactured pipe size

$\frac{3}{4}$ "

Continued on page twenty-one

FIG. 1



in brief . . .

HEVAC FIGURES

Thirty-five thousand people visited HEVAC this year despite the rail strike. Of these, 1,034 were from overseas countries. Comparative figures for last year are 45,476 visitors, 1,345 from 60 overseas countries.

★ ★ ★

● NO FEWER than 17,000 people visited the Domestic Heating and Insulation-in-the-Home Exhibition at the Free Trade Hall, Manchester. Morning sessions were for the trade only, the public being admitted after 12.30.

For next year's exhibition two halls have been booked: Central Hall, Westminster, and Free Trade Hall, Manchester.

★ ★ ★

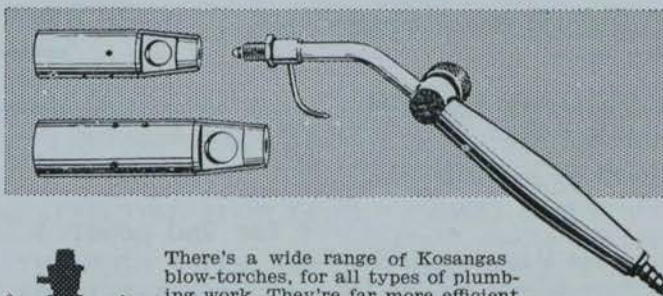
Attention was drawn to the contrasts in domestic provision between Great Britain, Switzerland and Sweden as against the lower standards of some other countries, at the conference of the Federation of European Sanitary Pottery Manufacturers held in Brussels.

In the Common Market countries alone it is calculated that between 20 and 30 million dwelling units lack

water-borne drainage. The Federation state of household sanitation and has undertaken to collect statistics hygiene in the various member countries. which will reveal more accurately the

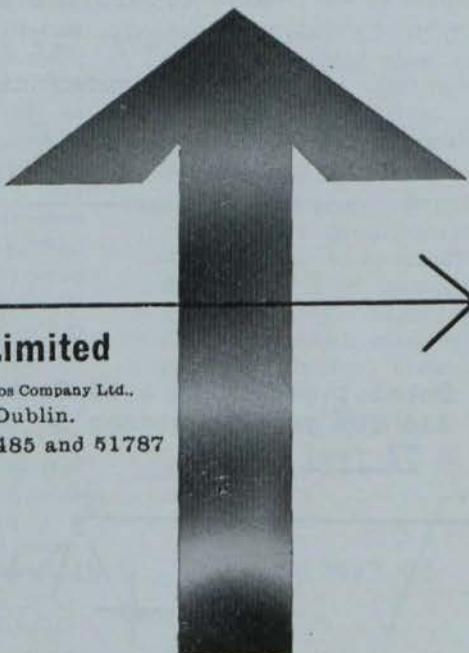
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for every plumbing job!



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A subsidiary of The Cape Asbestos Company Ltd.,
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- Mattresses (wire-mesh-backed)
- Loose Wool

‘Caposite’ amosite asbestos
moulded blocks and pipe sections
*Also full range of plastic materials
and hard-setting compositions.*

PIPESIZING—from page nineteen

PIPESIZING BY TABLES

It is easier and quicker to use the tables as reproduced below (Table I). This is all we have to do:—

1. Set down the ratio of **Length**, thus $\frac{72}{10} = 7$

Note length in feet when using the tables. Not yards as when using the Box formula.

- The required G.P.M. we know to be 4.
- Cast down the extreme left hand column of the table (the Col. is headed "Values of length over head") until you meet the ratio figure, which in this example is 7.
- Now cast horizontally across the table to the right until the figure nearest to the required G.P.M. is met. In this example it is 4 and the nearest figure to this is 5 (in Col. 3).
- Finally, cast vertically upward from this last found figure—i.e., move up the column to the very top—here you will find the required pipe diameter for the pipeline in our example. $\frac{1}{4}$ inch diameter.

With practice this does not take so long to do as to read about it, and, most important, it removes guesswork. Satisfactory water flow consistent with economic pipe usage will result.

If the example given is solved by Logarithms and the Box formula, a pipe diameter of 0.7 inches is the calculated required size.

Pipes of this bore are not standard manufactured items. A $\frac{1}{2}$ " pipe would be too small. A $\frac{3}{4}$ " pipe, whilst a little too large to be really accurately sized, is selected.

Here you see the compromise I mentioned earlier and an example which shows extreme accuracy such as bothering too much about roughness of bore, is not really justified since the deviations between modern pipe bores in this respect is not all that great.

This simple example shows how valuable this method of pipe sizing can be, in the office, or on the job. Larger schemes of pipe sizing are no more difficult, exactly the same procedure applies. Remember to size the pipe furthest away from the supply first and then work out diameters for furthestmost branches, working backward to the cistern all the time.

One other important point, though space does not permit detailed description.

Simultaneous Discharge Factors— [See British Standard Code of Practice 342]—These will apply in pipe sizing practice where two or more taps are fed off one pipe.

It will be clear that if a pipe feeds

two taps the probability that **both** taps will be in use at the one time is less than if only one tap was on the pipe line. Equally three taps are less likely to be in use at one time than two—and so on.

Hence, as a system becomes more complicated by the number of taps supplied, one determines the **maximum probable** required rate of discharge and pipe sizes on that figure. Not the possible discharge rate if all taps were in use at once.

The exception here would be in a case where it was known that several taps would be used at one time, for example in a nurses' home where a group of nurses off duty at the same time might all decide to draw baths at that time.

In all cases, known local requirements must be determined beforehand.

TABLE I.
DIAMETER OF PIPE IN INCHES.

Values of length Over-head	Gallons/min. flow								
	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	
.2	10.68	29.4	60.5	105.7	166.2	341.4	596.7	938.8	
.4	7.54	20.8	42.8	74.8	117.6	241.4	422.0	664.0	
.6	6.1	16.8	34.9	60.9	95.9	197.0	344.2	591.6	
.8	5.32	14.7	30.25	52.8	83.1	170.8	298.3	470.0	
1.0	4.77	13.1	27.0	47.0	74.0	152.7	268.0	420.0	
1.2	4.35	12.0	24.6	43.2	68.0	139.4	243.0	384.0	
1.4	4.03	11.1	22.8	40.0	63.0	129.0	225.0	355.0	
1.6	3.77	10.4	21.38	37.4	58.8	120.7	211.0	332.0	
1.8	3.55	9.8	20.16	35.2	55.5	113.9	198.0	313.0	
2.0	3.37	9.3	19.1	33.4	52.6	108.0	188.6	296.0	
2.5	3.02	8.3	17.1	29.8	47.0	96.6	168.6	256.0	
3.0	2.75	7.6	15.6	27.2	43.0	88.1	154.0	243.0	
4.0	2.38	6.6	13.5	23.6	37.0	76.3	134.0	210.0	
5.0	2.14	5.9	12.0	21.2	33.0	68.3	118.0	188.0	
6.0	1.95	5.4	11.0	19.3	31.0	62.3	108.0	173.0	
7.0	1.8	5.0	10.2	17.8	28.0	57.7	101.0	159.0	
8.0	1.69	4.6	9.5	16.7	26.4	54.0	94.0	148.0	
9.0	1.59	4.4	9.0	15.7	25.0	51.0	89.0	140.0	
10.0	1.51	4.16	8.5	15.0	23.5	48.0	84.0	133.0	
11.0	1.43	4.0	8.15	14.2	22.4	46.0	81.0	126.0	
12.0	1.38	3.96	8.0	13.62	21.5	44.1	77.0	122.0	
13.0	1.34	3.65	7.5	13.1	20.6	42.0	74.0	116.0	
14.0	1.27	3.5	7.2	12.6	20.0	40.6	71.0	113.0	
15.0	1.23	3.4	7.0	12.2	19.2	39.4	69.0	109.0	
16.0	1.2	3.3	6.7	11.8	18.6	38.0	66.0	105.0	
17.0	1.16	3.18	6.6	11.4	18.0	37.0	64.6	102.0	
18.0	1.12	3.1	6.37	11.0	17.6	36.0	63.0	99.0	
19.0	1.1	3.05	6.2	10.75	17.1	35.0	61.2	96.0	
20.0	1.07	2.95	6.05	10.5	16.7	34.1	59.7	94.0	

Readers will understand that this article has been prepared with simplicity of explanation and application intended.

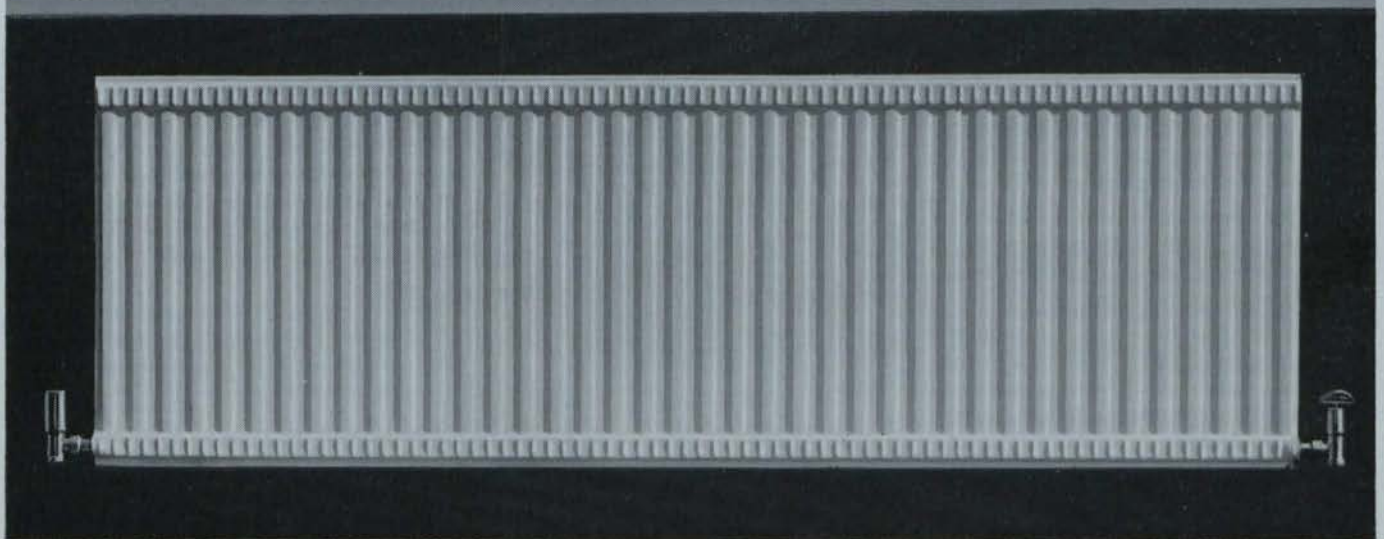
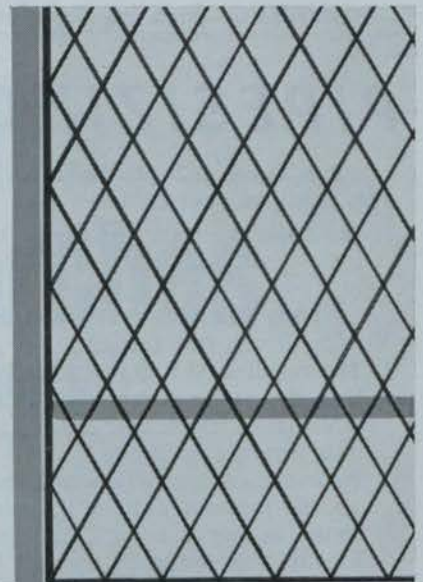
The method may be used with every confidence and it will show little if any deviation from results given by other methods.

The author would be glad to have readers' observations as to whether this method as outlined has been helpful to them, or, if they are already well-versed in pipe-sizing practice, their opinions with regard to this method in comparison with other practiced methods, would be gratefully received.

Belkon

(formerly Bekon)

quality steel radiators



—prompt and dependable delivery

Elegant, strong, efficient, easy to install . . . it is not surprising that Belkon radiators are equally popular with engineers and the public—Belkon radiators can be produced in any lengths without cross welding and at no extra cost. We can supply any size or shape of Belkon small bore system radiator and our delivery service is prompt and dependable. Ask for leaflet No. 38.

Material: Cold rolled steel

Construction: Seam welded to a design which gives increased rigidity, increased heating surface and reduced expansion distortion.

Fixing: Patent welded on bracket for neat installation.

Testing: Standard radiators to 80 p.s.i. High pressure radiators to 140 p.s.i.

BELL'S

ASBESTOS AND ENGINEERING

<https://arrow.tudublin.ie/bsn/vol2/iss9/1>
 DOI: 10.2427/1051

Belkon radiators are manufactured in England by:
 Bekon-Bell Radiators Limited, and marketed by:
BELL'S ASBESTOS AND ENGINEERING LIMITED
 Bestobell Works, Slough, Bucks Telephone: Slough 23921 Telex: 84-107
 Belfast Branch: 17-21 Ormeau Road, Belfast, Eire.
 Trade enquiries invited.



AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

RADIATORS AND CONVECTORS

MODERN RADIATORS ARE PLEASING, EFFICIENT AND SPACE SAVING

THE well-known so called "Radiator," common to many L.P.H.W. heating systems, is truly a convector in simple form. 85% of the heat emission from these appliances is by natural convection currents due to differing densities of air at differing temperatures. Air contacting the heated radiator surfaces is warmed, becomes less dense, and is convected up and around the room by the falling cooler air within.

By virtue of the minute density differences the convection currents so set up are very slow in motion. It follows, therefore, that warm air dissemination throughout the room or space is very slow and that considerable time lag results before general warmth is generated from a cold start. This is of no grave consequence in continuously operated systems since once the initial "heat up" has occurred, then the system simply operates to maintain the desired room or space temperature.

Application

Modern "Radiator" designs are aesthetically pleasing, efficient, and space saving. Straight, curved, high or low patterns are available to meet all circumstances, tastes and pocket. Simple natural convectors of this kind will continue to find useful application in continuously heated homes and office buildings.

Gilled tube natural convectors, designed for low-level fixing at skirt-

ing level, find increasing application in larger buildings and in many domestic dwellings. Low-level fixing results in lower ambient air temperatures with consequent increase in emission. Hence, gilled tube appliances may be very much more compact and space saving than the conventional "radiator."

Used as "perimeter" heating, i.e., along the external wall of a building at skirting level, gilled tube natural convectors are neat and efficient. The "Copperad wall-strip" is one example of their application, whilst the "Sill-Line" equipment by the same company, and others, is basically similar except that the mild steel enclosures are taller to fit the vertical height floor to window cill. This affects uniformity of appearance, and the extra height in casing increases the "flue effect" within and so the natural convection currents of air are expelled from the upper outlet grilles with greater velocity and therefore more quickly distribute warm air throughout the room.

But here again, even on force circulated systems, which are essential to gilled tube appliances anyway, there is a time lag from a cold start, e.g., in intermittently heated buildings.

Fan Assisted Convectors overcome this time lag problem. This type of appliance, and there are numerous styles on the market, comprise a battery of water heated gilled tube elements mounted above a fan, or fans, within a metal cabinet. The cabinet forms a kind of air duct.

Cool air at floor level is fan-drawn into the low inlet grilles of the cabinet and fan propelled through the heater battery and expelled from the upper outlet grilles into the room or space being warmed. The fan characteristics are such that, without creating unpleasant draught they do move air with sufficient velocity to cause it to move quickly across the room. In this way, time lag is reduced to a minimum.

Feature

Quick "heat up" is the dominant feature of the fan assisted convector. Because of the high heat exchange efficiency of the gilled heater battery to low specific heat air, large volumes of air can be warmed and pushed into a room in a very short time.

For intermittent heating this feature is of great value. School heating offers a typical example, illustrating the functional efficiency and economic operation of these appliances.

It is wasteful to heat unoccupied spaces such as classrooms. Thus a heating system which can be easily controlled during occupancy and shut off entirely when no further heat is required, say, at night or as soon as school closes, is a decided economic advantage.

But students will need a warm classroom to enter first thing in the

Continued overleaf

SPECIAL SURVEY—*from previous page*

morning. Fan Assisted Convectors, time switch controlled, will commence to operate and move warmed air throughout the classroom for about one hour before students arrive. The classroom will then be fully warmed and subsequently a room stat will switch the fan off or on according to the heat requirements of the room. Hot water is continuously circulated in the gilled heater

battery, but with the fan off only a much reduced heat transfer by natural convection takes place.

In buildings heated by natural convection appliances in administrative rooms, corridors, etc., and it is considered desirable to keep these heated continuously, then the above time switch control of fans night and morning would suffice to

effect economy of heating in classroom space.

In buildings wholly heated by fan assisted appliances, the boiler installation alone might be clock controlled to morning and night sequence, thus entailing further economy.

Fan Assisted Convectors are well established heat emission appliances. Their application increases as the economic operation potential becomes more widely known and recognised.

Present developments are chiefly in refinement of existing patterns.

Acoustic control is one important trend in development which the aim is to produce a fan noise level which is quiet enough for any installation circumstance.

Fan noise in all convectors is never great but some circumstances do call for really silent operation. Messrs. F. H. Biddle have developed a range of fan assisted convectors with variable output at variable sound levels. With such equipment heat output and noise level can be co-ordinated to meet the most exacting demands which a client or circumstances might make.

Domestic applications for fan assisted convectors increase as manufacturers turn to development of smaller units to meet this need. Householders are quick to realise the advantage of one emission appliance which will **move** air as well as warm it. They are also quick to appreciate the less uncluttered appearance that a compact, perhaps recessed, fan assisted convector offers over one or more conventional radiators and their attendant circulatory pipes. They are also appreciative of the quick response of fan assisted convectors—fan on, heating up; fan off, no heat—the comfort conditions in the room are quickly and economically suited according to prevailing conditions.

The Allied Iron Founders, London, have produced a fine range of "Agavectors." The smallest of these is capable of emitting 4,000 B.t.u./hr., the larger about 15,000 B.t.u./hr., and this, recessed in livingroom wall, will meet the heat need of the living-room and the hall and staircase, thus providing comfort conditions in circulation spaces and a measure of "background" heat to upstairs rooms.

Fan assisted convectors are here to stay. A glance at the advertisements in this issue will show how neat and attractive they are. Literature, free on request, from the manufacturers will verify the outstanding performance and economic advantages of these.

Trim New Forceflos

so quiet you can hardly hear them



Only Biddle Forceflos are independently tested* to guarantee factual sound level noise criteria. Compact design coupled with extreme quietness; that's the trim new Forceflo range. And the quietness of these low-cost forced convection units is guaranteed. For the first time, you can select a heating unit to conform to a specific noise criteria curve — increasingly recognised as the only accurate means of establishing noise levels prior to unit installation.

*By Acoustical Investigation & Research Organisation Ltd., the leading acoustical engineers in the U.K.

- * Fully adjustable over 25 to 43 noise criteria range
- * Centrifugal Fan Types yet only 9" deep by 28" high
- * Outputs from 29,500—62,000 BTU/hr (based on 60°F E.A. and 180/160°F water)
- * Complete range of sizes and designs
- * Vari-speed rotary control
- * For hot water or steam

For technical literature write:

F. H. Biddle Limited

British Trane Co. Ltd. (Manufacturing Division)

16 UPPER GROSVENOR STREET, LONDON, W.1. TEL: HYDe Park 0532



TECHNICAL REPRESENTATIVES

D. H. BUTLER, ESQ.,
7, Blackwood Crescent,
Helen's Bay, Belfast, N. Ireland.
Tel: Helen's Bay 2119

QUADRANT ENGINEERS,
6, Mount Street Crescent, Dublin, Eire.
Tel: Dublin 61492

International Pressed Steel Radiators

FOR HOT WATER CENTRAL HEATING

Available in Single, Double and Treble Panels

Modern Design and Competitive Prices – EX STOCK

Also ***Sigmund Thermopak
Accelerators*** – *The most silent
guaranteed pump on the market
for modern central heating*

- **FULL DETAILS AND FREE ILLUSTRATED LITERATURE AVAILABLE**

Obtainable from Sole Agents:—

MONSELL, MITCHELL & CO. LTD.

67-73 Townsend Street, Dublin, 2. Phone 76282

The Irish Plumber and Heating Contractor.

"IDEAL-STANDARD" (Kingston-upon-Hull) have introduced a new wall radiator of modern design. Called the "Trimline," it is an elegant looking radiator with slim vertical flutes between the top and bottom waterways. The neat appearance makes it ideally suitable for installation in houses and many other types of buildings.

The new radiator is lighter and better looking than the "Neoline" which it replaces; but dimensions, heating surface and prices are the same.

The "Trimline" is made of cast-iron for strength, long life and high heat transmission. It is available in three heights and, with a section width of 16", can be made up to any length required.

Irish agent: E. J. Cocker, Esq., Stonegate Granville Road, Blackrock, Dublin.

★ ★ ★

THE PAULOMATIC pressed steel panel radiators manufactured by W. H. Paul Ltd., Breaston, Derby, are pressed from high quality steel. These radiators are jig-welded to prevent lateral distortion and are specially suitable for the small-bore

In conjunction with this special Survey we review here products from the leading manufacturers' ranges.

Special Survey

Continued

system of heating—on closed-circuit installations.

Standard heights are 15", 18", 24" and 30" and lengths are from 15" to 90". Longer lengths can be ordered. Curved or angled sections and double or triple banked formations can be supplied to order.

Each radiator is finished with a coat of non-metallic primer which serves as a rust-free base for painting to suit individual decorative schemes or stove-enamelling can be done at slight extra cost.

Irish agents: G. F. Morley Ltd., 45 Quinn's Lane, rere 45 Fitzwilliam Square, Dublin 2.

★ ★ ★

O.B.C. LTD. (Dublin), stockists and

distributors of domestic central heating suppliers, have been appointed the sole distributors here of Ankarad pressed steel radiators, manufactured by Aktiebologet Ankarsrum Bruck, Sweden.

Single and double panel radiators are stocked in 12", 18", 23" and 29" heights and in a wide range of lengths. Tappings are $\frac{3}{4}$ " B.S.P.T. and can be either B.O.E. or T.B.O.E. The radiators will sell at an attractive price, inclusive of wall fixing brackets and other accessories.

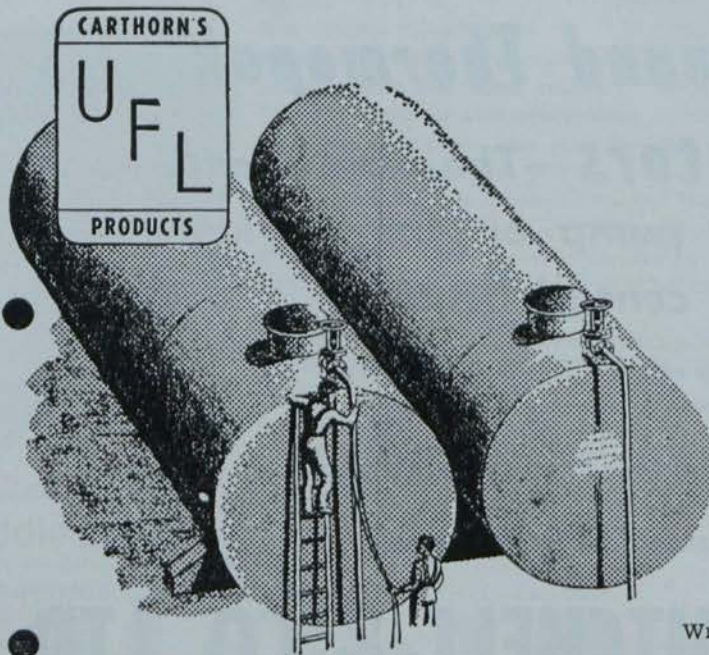
★ ★ ★

A MOST serviceable unit is the "C.P." Factory Radiator, produced by William Sugg & Co., Limited, 67-73 Regency Street, London, S.W.1. It has proved ideal for heating workshops and factories and has single and double outlets for side or central installation.

Gas consumption is 35 cu. ft. per hour (17,500 B./Th. Us. 500 c.v.).

Irish agent: W. Cole, Esq., "Dunblane," 7 Whitebeam Avenue, Clonskeagh, Dublin.

Continued opposite



WELDED STEEL TANKS

FOR FUEL OIL STORAGE AT DOMESTIC AND INDUSTRIAL INSTALLATIONS.

ALL CAPACITIES
B.S.S. & A.P.I. SPECIFICATIONS

Write for our illustrated "Standard Tanks" Folder.

Sales Company for

**UNIVERSAL
FABRICATORS
(Dublin) Ltd.**

CARTHORN

(1949)
LTD.

Commercial Buildings
Dame Street, Dublin
Tel. 71475

Northern Ireland: W. D. Craig & Co., 32 Arthur Street, Belfast.

SPECIAL SURVEY

from previous page

UFL PANEL Radiators, manufactured complete in Ireland, by Universal Fabricators (Dublin) Ltd., Finglas, Dublin, and marketed by Carthorn (1949) Ltd., 6 Commercial Buildings, Dublin, 2, are all steel of welded construction and are easily installed in single, double or triple banks for maximum heat radiation.

There is a wide range of sizes to suit all requirements. They are safe in use and all radiators are tested to 70lb. p.s.i. pressure.

★ ★ ★

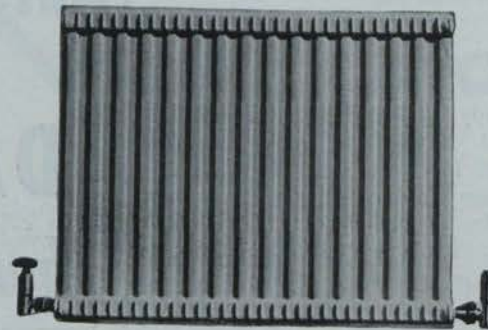
VEHA LTD. (formerly J. B. Van Heijst & Sons Ltd.), of Jamestown Road, Finglas, Dublin, offer a wide range of column radiators.

This company also manufactures a comprehensive range of panel radiators for central heating.

★ ★ ★

BELKON pressed steel radiators feature traditional connection, are super slim and are designed for small

● A "Belkon" radiator.



bore indirect or closed circuit systems.

Each radiator is subjected to a compulsory test pressure of a minimum of 80 p.s.i. High pressure radiators, however, are tested to 140 p.s.i.

All radiators are electrically seam welded which provides a neater finish. The length of each waterway section (i.e., corrugation) is approx. 1½", which provides more welding points over each lineal foot of radiator surface than will be found on similar types of radiator, say the manufacturers—Bells Asbestos and Engineering

Ltd., Bestobell Works, Slough, Bucks.

★ ★ ★

EARLIER this year the Directors of Bekon Supplies Limited and Bell's Asbestos and Engineering Limited, announce a joint venture for the manufacture, sale and distribution of steel panel radiators.

The steel radiators hitherto marketed by Bekon Supplies Limited under the trade name Bekon, have been re-named Belkon and are being marketed now by Bell's Asbestos and Engineering Limited. Bekon Supplies Limited has changed its name to Bekon-Bell Radiators Limited.

★ ★ ★

THE POWERGLO is the permanently sealed oil filled electric radiator introduced by International Boilers and Radiators Ltd. during the last year.

The Powerglo range of ¼" slim panel radiators are available with ratings of ¼, 1 and 1.4 Kw. and in

Continued overleaf



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

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

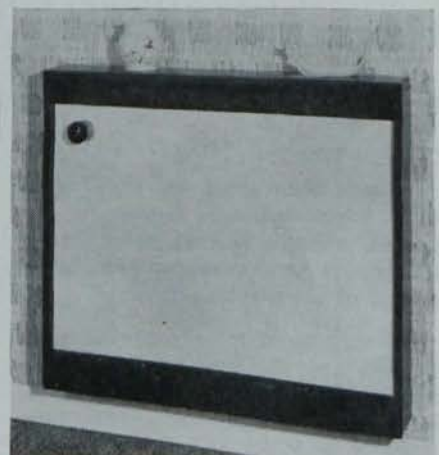
N.B.—Unsuitable for domestic or draw off systems. Retail Price £1 per tin C.O.D., money refunded if not satisfied.

Full details from:

H. PICKUP LIMITED

(SOLE MANUFACTURERS)

DEPT. IP.2, ROSCOE WORKS, SCARBOROUGH, YORKS.



● Pictured here is the Rayrad from Ideal Standard. It is fitted with a timber surround.

The Irish Plumber and Heating Contractor.

SPECIAL SURVEY

from previous page

two attractive shades—bronze hammer finish and silver birch.

Already well known are the International single and double panel radiators for central heating. Seventeen sizes in both types are now available.

Other International products are the Silentflo, Multiflo, and Thermoflo pumps for small bore central heating. International agents here are Monsell, Mitchell & Co. Ltd.

★ ★ ★

HATTERSLEY central heating regulators combine new style with long-life efficiency. These regulators for low pressure heating systems up to 150 ft. head and 200° F., are now available in $\frac{1}{2}$ ", $\frac{3}{4}$ ", and 1" sizes.

Automatic Temperature Control with— DANFOSS Type RA Thermostatic Radiator Valves

SET YOUR TEMPERATURE—
THE VALVE WILL DO THE REST!

Agents and Stockists: **J. J. SAMPSON & SON LTD.**

12a Wexford Street, Dublin. Telephone 51856.

TRADE

TOPICS



New value design

THE Worcester Valve Company have announced an addition of their latest design. Known as the Econ-O-Mite, this ball valve is intended for service where low initial cost is of primary importance.

Manufactured in a range of sizes from $\frac{1}{4}$ " to 2" bore and currently available in $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" sizes, the Econ-O-Mite is obtainable with either Buna N or PTFE seats in a standard bronze body—a new high temperature stem seal enables the valve to be used on temperatures up to 400°F. and pressures up to 500 p.s.i.

TUBE GILLING MACHINES

THE Rasmussen tube gilling machine has been developed for the manufacture of gilled tubes used in the refrigeration, heating and ventilating industries. Three styles of gilling can be produced, namely, crimped, straight and "L" or collar shaped and there is a machine available for each type. Machines are similar in appearance, with an open end at the left hand for feeding the tube to be gilled, the right hand end carrying the gilling tools. A reel stand carrying the strip material is positioned at the side of the machine. On each machine the tube to be gilled is inserted into the machine and clamped between three feed rollers. The rollers are adjustable for angle relative to the centre line of the tube infeed, thereby giving an infinite variation as required, to the pitch of gilling.

The machines are manufactured by Gustav Rasmussen of Hamburg, Germany. Irish agent: Hugh C. Maguire, Esq.

TENDERS

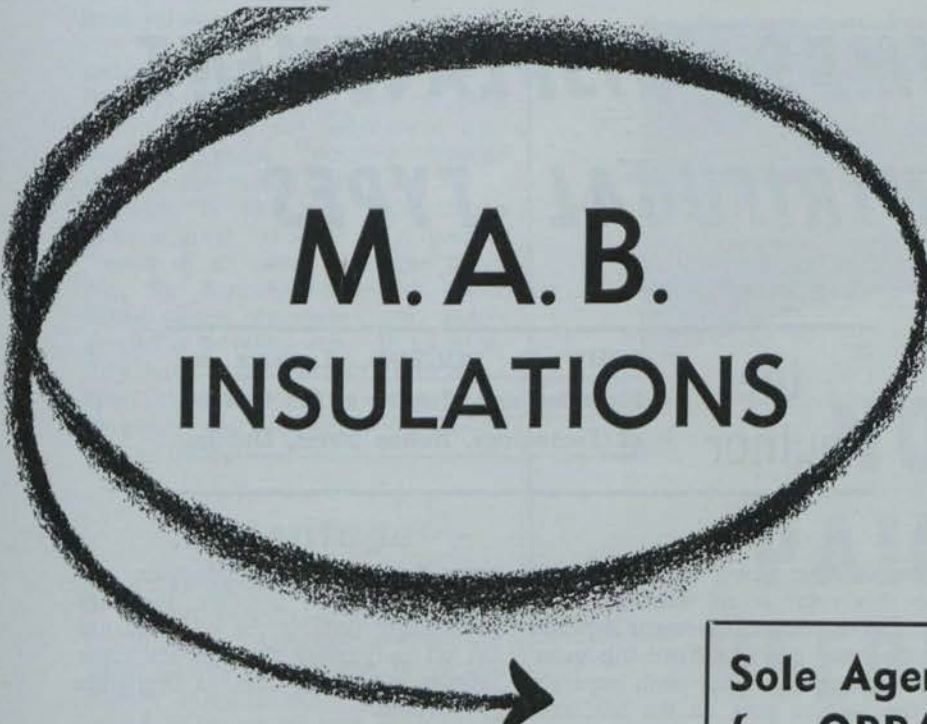
COMHAIRLE Chontae Atha Cliath.—Tenders are invited for the supply and delivery of a Centrifugal Pump (50 g.p.m.) in accordance with details obtainable at Room 13, 6 Parnell Square. Sealed tenders in official envelope provided will be received up to 12 noon on December 21, 1962.

COMHAIRLE Chontae Loch Garman.—Bunclody Water Supply.—Tenders are invited for the construction of the above named scheme in accordance with contract documents prepared by Messrs. P. H. McCarthy & Son, Consulting Engineers, 26 Lower Leeson St., Dublin 2.

Contract documents may be obtained at the Office of the Consulting Engineer during normal office hours, on payment of a deposit of £10 10s. 0d., returnable on receipt of a bona fide tender not subsequently withdrawn.

Tenders, in sealed envelopes marked "Bunclody Water Supply" on top left hand corner, will be received by the Secretary, Arus an Chontae, Loch Garman, up to noon on January 19 next.

ROSCOMMON County Council.—Tenders are invited for the supply and erection of a new water pumping unit at Castlerea Water Works. Specification and full particulars may be obtained from the County Engineer, Courthouse, Roscommon. Sealed tenders to reach the County Secretary, Courthouse, Roscommon, on or before 5 p.m. on Thursday, January 3 next.



M. A. B. INSULATIONS

Insulation Contractors & Sheet Metal Specialists

Estimates and Specifications Free on request.
45, WATERLOO ROAD, BALLSBRIDGE,
DUBLIN. Telephone: 684017.

**Sole Agents in Irish Republic
for OPPANOL Waterproofing
for Insulated Pipe Lines**



This is our latest shower valve, the Leonard 72, available for both exposed and concealed pipework. Larger Leonard valves are, of course, available for multi-point uses such as batteries of showers, ranges of basins and troughs, washbasins, etc. Manufacturers—Walker Crossweller & Company Limited, Cheltenham.

**MODERN PLANT LTD.
CRUMLIN RD., DUBLIN
Dublin 51049 & 51040**

ROTARY PUMPS: DISPLACEMENT AND CENTRIFUGAL TYPES

HAVING, so far, in this series, considered the advantages and disadvantages of the various piston pump units available for water supply systems, it is now opportune to take a look at some other designs, such as the rotary, semi-rotary, and centrifugal pumps.

Rotary Pumps.—Pumps of this type are occasionally taken to be, from their external appearance, of the centrifugal pattern. In fact, however, they are purely of the displacement type based on the reciprocating principle outlined in our previous article.

The liquid passing into the pump is displaced or pushed onwards by a revolving drum or gears (Fig. 1), and so flows from the outlet in a steady stream.

Wear

ROTARY pumps are, however, not usually considered as efficient in the mechanical sense as a piston pump for water supply purposes, because the clearance allowance in the gears tend to increase as the pump wears, and so leakage and slip gradually develops. It has, however, certain advantages in other directions which we will see in a moment.

The action of the pump is as follows: In the casing we have an internal rotar gear worked from a central shaft driven by an electric

motor or other power unit. Meshed into this rotar is an idle gear (so named because its movement depends on the outer gear). When this outer gear rotates, the idler teeth separate at the suction port on the left, and mesh again when approaching the discharge port at the top.

It will be seen from Fig. 1 that at positions A, the rotar and idler mesh to form a barrier between the ports, but at position B the idler teeth withdraw from the rotar, thereby creating a suction opening to be filled with liquid. At position C the spaces between the rotar and idler are completely filled, so that at D, when the rotar and idler come together, liquid is forced through the discharge opening.

While rotary pumps have been used very successfully on ordinary water supply systems, including suction lifts up to 25ft., they are, in general, more suitable for pumping viscous liquids, such as oils, etc., and in recent years have tended to oust the piston pump for this purpose in the chemical,

paper, food, and other industries. As mentioned above, however, they are particularly suitable for oils, because the oil in passing through the rotar reduces wear and tear to negligible proportions.

Valveless

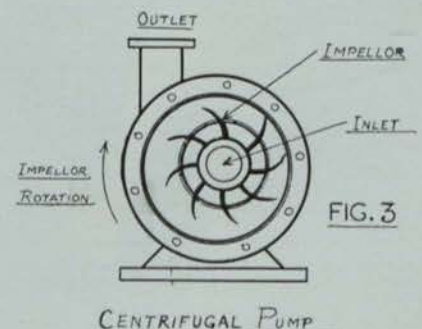
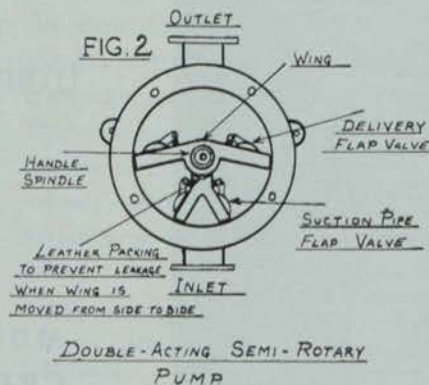
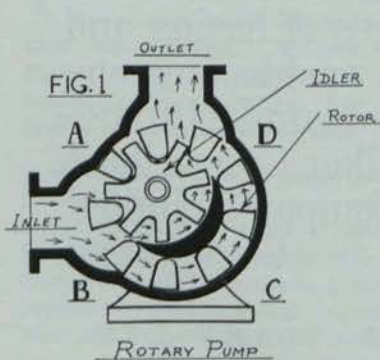
ROTARY pumps are usually valveless and self priming. Due to their design, the need for air vessels or similar shock absorbers on the rising main is eliminated, because the steady movement of the liquid through the rotors prevents concussion and thereby gives a free flow to the discharge point.

Semi-Rotary Pumps.—This type of pumping appliance, sometimes called a wing pump, is a true example of the displacement pump in the sense that it has inlet and outlet valves (Fig. 2). The reciprocating to-and-fro movement of the handle provides a steady flow of water, and makes the pump very suitable for use where the total delivery head is not more than about 60ft.

While the pump is designed to work

the author

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



from previous page

with a suction lift of 20ft. or so, it is very important to have a good quality foot or tail valve as a precaution against possible leakage through the pump inlet valve.

Pumps of this type have always been a great favourite as a general "maid of all work" in the trade, e.g., for draining basements, boiler house sumps, drawing from underground store tanks, etc. In addition, they have many uses in rural areas apart altogether from water supply purposes—for instance, crop spraying and so forth.

Advantage

IF IT is necessary to deliver water some distance from the pump, it will be an advantage to fit an air-vessel on the pump outlet flange and thereby eliminate the "stop and go" action of the water with each stroke of the pump handle.

The air vessel will ensure a steady, continuous flow. Similarly, where a long horizontal suction exists, an air vessel fitted on the inlet to the pump will help to give smooth running. On the face-plate of this type of pump will usually be found an emptying plug for draining purposes in frosty weather.

Centrifugal Pumps.—The working principle of this pump is completely different from the reciprocating movement of the piston pump. It depends on the fact that when water is rotated quickly it will flow outwards to the edge of the vessel in which it is contained. (Fig. 3).

This principle of centrifugal force can be illustrated very simply by swinging a ball around the edge of a cord. It will be seen that the ball has a tendency to fly off at a tangent should the cord be released.

Incoming

IN THE same way, the centrifugal pump depends on the incoming water flowing into the centre or eye of a rapidly rotating wheel or impeller which may be revolving at speeds from 100 to 10,000 r.p.m. This impeller is surrounded by a closed housing or circular casing, at the

Continued page forty



Marley rainwater goods, made of smooth glossy vinyl, need no maintenance—not even an initial painting! They're light in weight, easy to handle and fix, and they cannot deteriorate or wear out even in industrial or coastal atmospheres. Available from leading Builders' Providers.

MARLEY

VINYL GUTTERS AND DOWN PIPES

CONCRETE PRODUCTS OF IRELAND LTD., LUCAN. TEL. 381.

The Irish Plumber and Heating Contractor.

SUB-CONTRACTORS, NOMINATED SUPPLIERS AGM

HOPE CERTAIN ANOMALIES WILL BE "THING OF THE PAST"

THE COMMITTEE had made certain recommendations to the Minister for Justice, in regard to the preparation of the new Companies Act, said Mr. William Davidson, outgoing President of the Association for Sub Contractors and Nominated Suppliers at the fifth annual general meeting of the Association in Dublin.

"The Act has yet to be finally passed," he said, "but it is our hope that certain anomalies and mal-practices which have been commonplace will then become a thing of the past."

Mr. Davidson, of Keenan & Co. (1934) Ltd., reported that during the year the Committee had two meetings with representatives of the Federation of Builders. The first of these concerned the question of standardising tendering procedure. This matter had yet to be finalised and would be dealt with by the new committee. The ground, however, had been prepared, and he did not foresee any undue difficulty in obtaining a wide measure of agreement upon all points. The second meeting was to discuss certain

points which had arisen with regard to the working of the main contract form.

Mr. Davidson said that the schedule of day work rates was dealt with by the Committee and had now secured the agreement of both the Federation and the Royal Institute of Architects of Ireland. It was proposed to implement these rates as from January 1st next, but many of their members were already operating them.

Five new member firms had joined the Association during the year, he added, and the membership now stood at 47 firms. At the same time he appealed for new members.

Mr. J.J. Burke (Roofing Contractors, Ltd.) was elected President. The following committee was also elected: Messrs. W. Davidson (outgoing President), Peter McGloughlin (J. & C. McGloughlin, Ltd.), Thomas Finlay (F.K.M. Ltd.), E. M. Booth (Thomas Pearson & Sons, Ltd.), R. J. Chillingworth (Sound Systems Ltd.), (D. D. O'Brien & Sons, Ltd.), and J. Murphy (Baxendale & Co., Ltd.).

Zone-A-Trol announce design variation

A variation in design is announced for the Zone-A-Trol motorised valve, produced by Thermocontrol Installation Co. Ltd. (London). The basic model, round in shape, is still available, but the new model, illustrated here, has special advantages.

Firstly, it is well designed and streamlined. Hence its name, Zone-A-Trol Trimstyle. Secondly, it has been designed to fit behind the new type skirting heating, and particularly in this type of heating overcomes the disadvantage of



having to adjust continually hand valves on radiators.

The Zone-A-Trol motorised valve operates on 24 volts, with wide safety factor and operates in conjunction with the Zone-A-Trol room thermostat, which is unaltered in design and appearance. The agents here are The Accurate Recording Instrument Co. Ltd., 6 Montague St., Dublin.

TRADE

TOPICS

Anne is



all on

her own!

Twenty-one-year-old Miss Anne Kendall, a third year apprentice to G. N. Haden & Sons, Ltd., 7-12 Tavistock Square, London, W.C.1, has started a year's full time work on the Diploma Course at the National College for Heating, Ventilating Refrigeration and Fan Engineering, where she will be the only girl among 190 student engineers.

SPEEDY CHANGE

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

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

EXHIBITION

FIVE HUNDRED delegates from all over the world will attend the 1963 Effluent and Water Treatment Exhibition and Convention in the Seymour Hall, London, W.1, from March 26 to 29.

Continuous development of industrial processes and urbanisation of rural districts have resulted in an ever-growing demand for pure industrial water as well as new reclamation and conservation techniques. British, American and Continental manufacturers will be represented at the exhibition.

Reporting

A NEW IDEA IN CENTRAL HEATING

AN experimental scheme being undertaken in Rotorua, in the thermal region of the north island of New Zealand, may lead eventually to cheap geothermal central heating for the greater part of that city.

The experiment is being carried out by the Rotorua City Council on a new housing estate where a 500 ft. bore is already delivering sufficient steam and hot water to supply all the central heating and domestic hot water requirements of 20 households.

By . . .
A SPECIAL CORRESPONDENT

Eight of the new homes have so far been connected to the supply and a second bore has now been sunk to serve another 20 houses.

The bores yield geothermal steam at a pressure of 15 lb. to the square inch and surplus water and steam go back to the ground through a return bore.

A one-inch pipe takes the steam and hot water to heat exchangers under each house. There, the heat is transferred to town supply water which, unlike thermal water, is non-corrosive. Each house has two exchangers to enable the central heating and hot water systems to be run independently.

Householders are thoroughly satisfied with the service. It is economical, convenient and clean and provides an inexhaustible supply of hot water.

People returning from holiday have hot water within 20 minutes of switching on their geothermal heating systems.

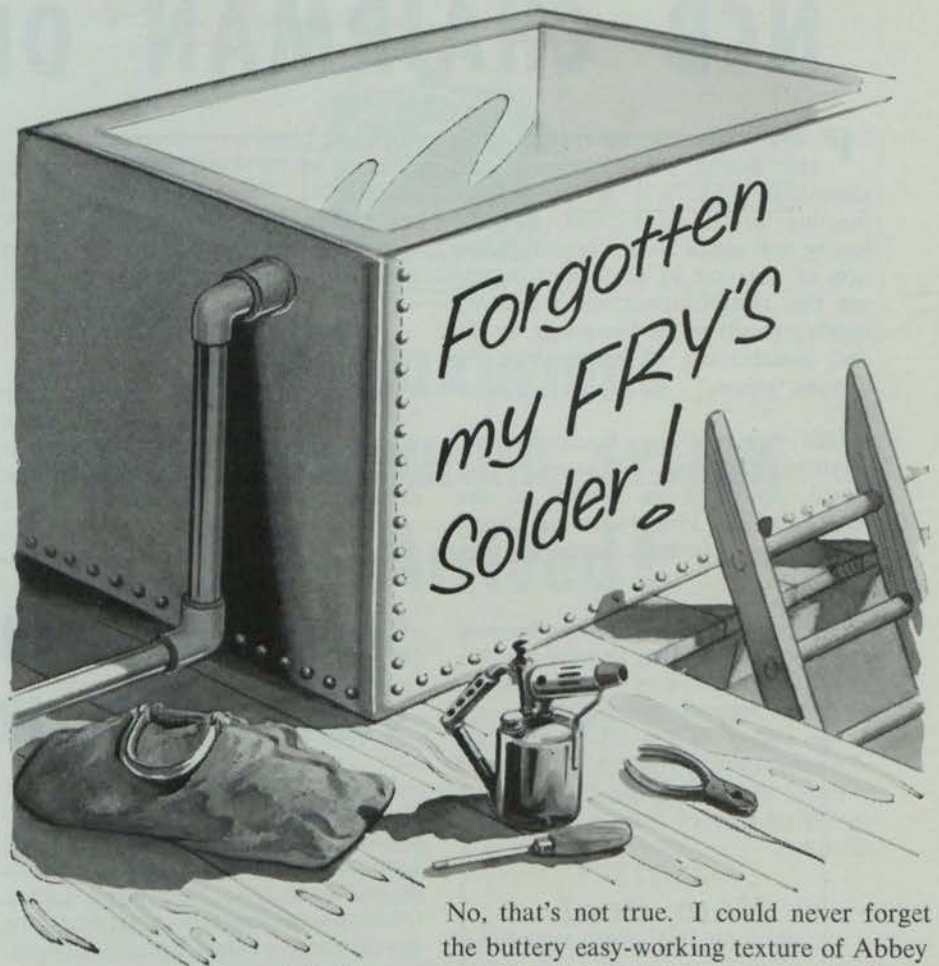
Central heating by this means has

● KOPEX FLUE LINING TUBE:

In our review of the above product in connection with the November issue special Survey feature, we should have given the address of Technical Sales Company (the Irish agents) as 79 Lower Leeson Street, Dublin 2.

been popular in Rotorua for many years, and many private homes have bores which could serve more houses. Some are shared between neighbours.

A number of public buildings, including a school, a hospital and two of the largest hotels, have taken advantage of this natural heating supply.



No, that's not true. I could never forget the buttery easy-working texture of Abbey and Belfry . . . or the way they cool, dead smooth without a crack or blemish.

No, I've not *forgotten* my Fry's plumbers metals—I've just left them behind!

Better phone up . . .

FRY'S Metal Foundries Limited

197 Pearse Street, Dublin. Telephone: DUBLIN 74243

And at: LONDON - MANCHESTER - KIDDERMINSTER - GLASGOW

TRADE

TOPICS

From The Contractor's

Northern Correspondent



**CHEAPER COAL IN TWO YEARS — THINGS
MAY BE DIFFERENT THEN**

—LORD ROBENS.

NCB CHAIRMAN ON PRICES

"IF everyone will co-operate with the Board, then I expect that something great will come of this meeting, but I don't think that the saving will come as an actual reduction of the cost of coal per ton, but on the establishment of a service which will advise the housewife on the best possible use of her coal at the existing prices."

This was said by Lord Robens, Chairman of the National Coal Board, speaking in Belfast at the opening of the Housewarming Centre of the newly formed Coal Advisory Service.

At the opening ceremony he told engineers and heating experts that the launching of the new organisation in Northern Ireland marked a new era in the policy of the NCB, the start of a programme by which it was hoped to prove that coal could compete with any other type of fuel in service and efficiency.

New deal

However, Lord Robens promised a new deal for consumers within two years. Until then, he told the audience, there will be a continuous battle between prices and rising costs.

"Things should be different when our re-organisation programme is completed in 1964 or 1965," he said.

But a blow for the coal importers of the Province was struck by Mr. J. S. Kennedy, chairman of an importing firm, and vice-chairman of

the Coal Importers' Association.

Replying to Lord Robens, he accused the Government and local authorities of Northern Ireland of using the importers as a "whipping post" over the coal question.

Not criminals

"We have done our best to keep coal prices stable, and this is all the thanks we get. We are not criminals in the coal trade. We will do our utmost to keep in line with the trade

in Britain as far as prices go," he said, "but all that the politicians can do is launch criticism at us without giving us a chance to answer. We are just as anxious as they are to give our customers the service they want," he said.

It was a speech which got a stand-up reception from the audience.

During his two days of talks, Lord Robens met with the Northern Ireland Government, the Coal Importers' Association, and Domestic Coal Liaison Committee.

SIROCCO CHAIRMAN TO VISIT INDIA, IRAN, FRANCE

MR. E. D. MAGUIRE, Chairman of Davidson & Co. Ltd., Sirocco Engineering Works, Belfast 5, has left London by air for Calcutta, where he will have talks with senior Indian Government officials regarding the development of the Company's manufacturing facilities on the sub-Continent. He will also carry out an on-the-spot assessment of the expansion of markets in India and Pakistan, where Sirocco products have been firmly established for more half a century.

From India Mr. Maguire went on to Tehran, where the Company is at present making a strong bid to increase sales, particularly of processing equipment for the tea industry, which is now being expanded by the Iranian Government.

On his way home he visited Sirocco's associates in France—Société Ventic of Paris and Chalon-sur-Saône—with whom Davidson & Co. this year signed a manufacturing agreement as an important step towards strengthening the Belfast Company's position in the European Common Market.

The Company's Managing Director, Mr. D. R. S. Turner, is at present engaged on a 35,000 miles round-the-world sales tour.

● A NEWLY-REGISTERED business name is that of Progressive Heating Installations (Plumbing and Heating), 30 George St., Ballymena, Co. Antrim. Proprietor is Samuel Coulter, 30 George St., Ballymena.

PORTWAY'S NORTHERN IRELAND MANAGER

CHARLES PORTWAY & Son Ltd. announce that Mr. Charles McGarry will now lead the company's sales force in Northern Ireland in addition to his duties as Scottish representative.

Mr. McGarry has wide experience of oil-fired boilers for heating in both building and shipping.

NEW COMPANY FORMED

A NEW private company has been registered to carry on business as designers and manufacturers of and agents and dealers in patent stoves and heating equipment and machinery of all kinds, etc. The firm is Tedcastle, McCormick & Co. (Northern Ireland) Ltd. Registered November 12, 1962. Registered office—not stated (Northern Ireland). Nominal Capital—£1,000 divided into 1,000 shares of £1 each.

Names and descriptions of Subscribers to Memorandum and Articles of Association (Subscribers of One Share each): Henry Laird, sales assistant, and William Neill, book-keeper, both of Brands Buildings, 49 Donegal Place, Belfast.

The names of the First Directors are not stated.

NEW LEAFLET ISSUED

A NEW leaflet on their air conditioning units has just been issued by Davidson & Co. Ltd., Belfast. The leaflet deals with the company's Spray Type and Dry Type units.

The "Spray" units have been evolved to meet the demand for comprehensive air conditioning of small rooms, particularly where a number of different internal conditions are required. They can be applied as main plant for hospital operating theatres, industrial laboratories, testing departments, etc., and can also be used to build up a unit system in factories, etc.

The Dry Unit has been designed

TRADE

TOPICS

primarily for hospital operating theatre suites to meet a demand for air conditioning, without the use of water sprays and tank, which, it is suggested, are liable to bacteria contamination.

NORTHERN REPORT (Continued).

● THE following business name has been registered: Temple Plumbing & Heating Co. Ltd., 131/141 Templemore Ave., Belfast. Partners: George Buick Robinson, 16 Lestannon Ave., Whitehead; John Victor O'Neill, 48 Rosscoole Park, Belfast.



The Luxurious RYAX WARMHOME SYSTEM Has Arrived!

The "Ryax Warmhome" System is a packaged small bore central heating system consisting of the following components:—
 Warmhome Back Boiler and Flue Brush - Warmhome Firebricks - Four Warmhome Radiators - Twelve complete Warmhome Radiator Brackets
 One Ryaland Noxi Circular Pump
 One "Ryax Warmhome" neon Control Switch - Warmhome Towel Rail complete with Control Valve.
 The boiler is suitable for installation behind any normal standard 16" open fire. It has sufficient output for the four radiators and one towel rail, and in addition will give an ample supply of domestic hot water. The cost of installation is approximately £160/170 complete.

Approved
 Plumbing
 Fitters

are required for the installation of the new RYAX WARMHOME SYSTEM. Applications should be made immediately to:—

Sole Agents for the Republic of Ireland:—
P. DONNELLY and SONS, Ltd.
 20, Georges Quay, Dublin. Telephone 71101.



TRADE

TOPICS

● FROM LEFT: Mr. D. P. Pratt, Managing Director Ryax Ltd.; the Cork Lord Mayor, Ald Casey, T.D., and Mr. H. V. Lamb, Managing Director, P. Donnelly & Sons. Ltd.

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DOI: 10.21427/D7TQ55

RYAX WARMHOME SYSTEM EXHIBITED IN CORK

SINCE they began to market the system three years ago, they had revolutionised domestic heating, said Mr. D. P. Pratt, Managing Director of Messrs. Ryax Ltd. (Manchester), at the official opening of the Ryax "Warmhome" exhibition, at 74 Ard Mahon Estate, Well Road, Douglas, Cork, on last month.

Mr. Pratt was introduced by Mr. John Kelly, of Messrs. P. Donnelly & Sons, Ltd., of 20 George's Quay, Dublin, the agents here for the Ryax "Warmhome" System.

Mr. H. V. Lamb, Managing Director of Messrs. P. Donnelly & Sons Ltd., was in the Chair for the opening ceremony.

The exhibition was opened by the Lord Mayor of Cork, Alderman S. Casey, T.D., who was accompanied by the Lady Mayoress.

"I must say that I am tremendously impressed by what I have seen here to-day," said the Lord Mayor. "It strikes me that this particular scheme is ideal, and I am given to understand it is not too costly." He added that he was very pleased that in that project the open fire had been incorporated.

Considerable interest was taken in the exhibition, particularly in the fact that the new system can be easily installed. Its main boiler fits snugly behind the open fire in the living room. It actually forms the fireback of the grate and utilises the ordinary domestic fuel to heat the water that is circulated throughout the house. The water is carried to five radiators,

each of which adequately heats a room. In addition the boiler provides an abundance of piping hot water for domestic purposes.

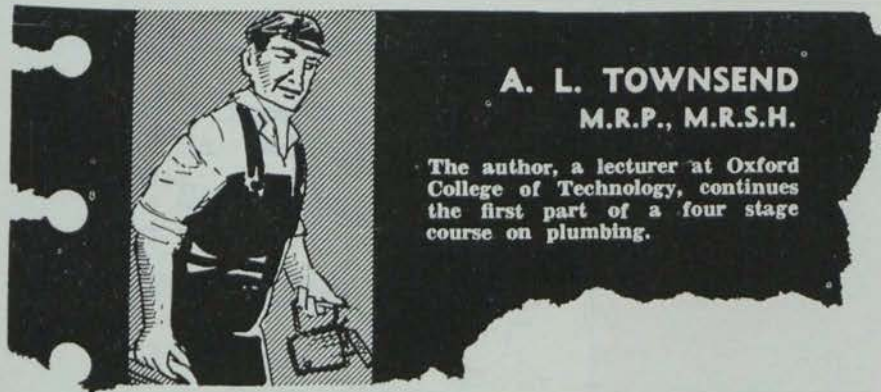
The attendance included Mr. Conlon, Cork County Manager; Mr. P. Smith, Marketing Manager of Messrs. Ryax; Mr. N. Wilkes, of Messrs. Donnelly; Mr. R. J. Barry, Heating, Ventilation and Sanitary Engineer, and Mr. D. J. Crowley, Secretary of Messrs. Sheehan & Sullivan Ltd.

SYMPOSIUM

● The advance programme of the 1963 Industrial Process Heating Symposium to be held at Alexandra Palace, London, from June 17-21, presents a comprehensive picture of the many facets of this big event.

The many varied papers to be submitted fall into five main categories—the scope of present knowledge, current trends and future developments, the latest developments in heat treatment of metals, the latest developments in instrumentation and control, high temperature processes, productivity and handling techniques.

● IN A REVIEW of the "Delmatic 55" (September issue, page eighteen) we should have stated that Irish Domestic Oil Services Ltd., 26 Lower Baggot Street, Dublin, are sole agents in the Republic for all Delmeco central heating equipment.



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

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

PART TWO

SANITARY APPLIANCES IN GENERAL

Ceramic Lavatory Basins (B.S. 1188)—“Ceramics” or “pottery” includes all objects made from clays and then hardened by heat in a specially constructed kiln—a process called “firing.” The plasticity of the clay, together with the skill of present-day pottery designers and craftsmen, has brought remarkable changes in the design of sanitary ware. Hygiene, durability and beauty are combined, and lavatory basins in particular now appear in a wide variety of new designs, although the “traditional” pattern, as illustrated here—“Ceramic Lavatory Basins”—is still available and will continue to provide good service for some time yet.

Prescribes

LAVATORY Basin Design.—B.S. 1188 prescribes the quality of material and workmanship to be used in the manufacture of wall or pedestal mounted lavatory basins. It also lays down important dimensions, such as the width, depth, height, size, and the position of the tap and waste holes. Apart from these, each manufacturer is free to develop his own designs.

The basic patterns of lavatory basin are available in two sizes—25” wide x 18” back to front, and 22” wide x 16”. The second is more suitable for the small bathroom.

The appliance will have a combined overflow and waste fitting of the slotted type shown here, but with a standard diameter of 1½ ins. instead of the sink’s diameter of 1½”.

The waste outlet fitting may be bevelled or rebated, according to the type of basin outlet provided (see illustration of enlarged diagram of outlets). The advantage of the bevelled waste fitting and outlet is that the feather edge of the fitting merges with the inside surface of the basin, giving a smooth, easy, clean line without place for dirty water to lodge.

The better overflow outlet for the basin, as for the sink, is the weir type since it is easy to keep clean. Many basins, however, have slotted overflow outlets, as illustrated, and these are clearly more difficult to get at for cleaning.

Fixings

FIXINGS.—Clause 308 of C.P.305 “Sanitary Appliances” deals with lavatory basin design, and Clause 321 of the same Code of Practice deals with fixings. These may consist of brackets to a wall, a ceramic pedestal or a combination of both. Where pedestals are used, it is a good idea to use brackets to secure the basin in place against the wall.

If a pedestal basin is to be used, then the height of the pedestal will determine the fixed height of the basin—usually about 30” to 32”. If bracket-supported are to be used, the fixing height may be varied to suit the kind of building in which they are to be installed. The following table suggests the kind of scale that might be used.

A lavatory basin will require hot and cold water services, a waste plug and chain, and a waste pipe and trap. These were dealt with earlier.

Fixing Taps to Basins.—Basin taps are known as “pillar taps.” **Toread:** are known as “pillar taps.” In these types the water service is connected to the threaded vertical shank or pillar of the tap, which passes through the basin top. A squared shoulder beneath the flange of the tap equates with the square tap hole in the basin, fixing the direction of the top nozzle, and preventing the tap from turning while the water is running.

Continued overleaf

in brief...

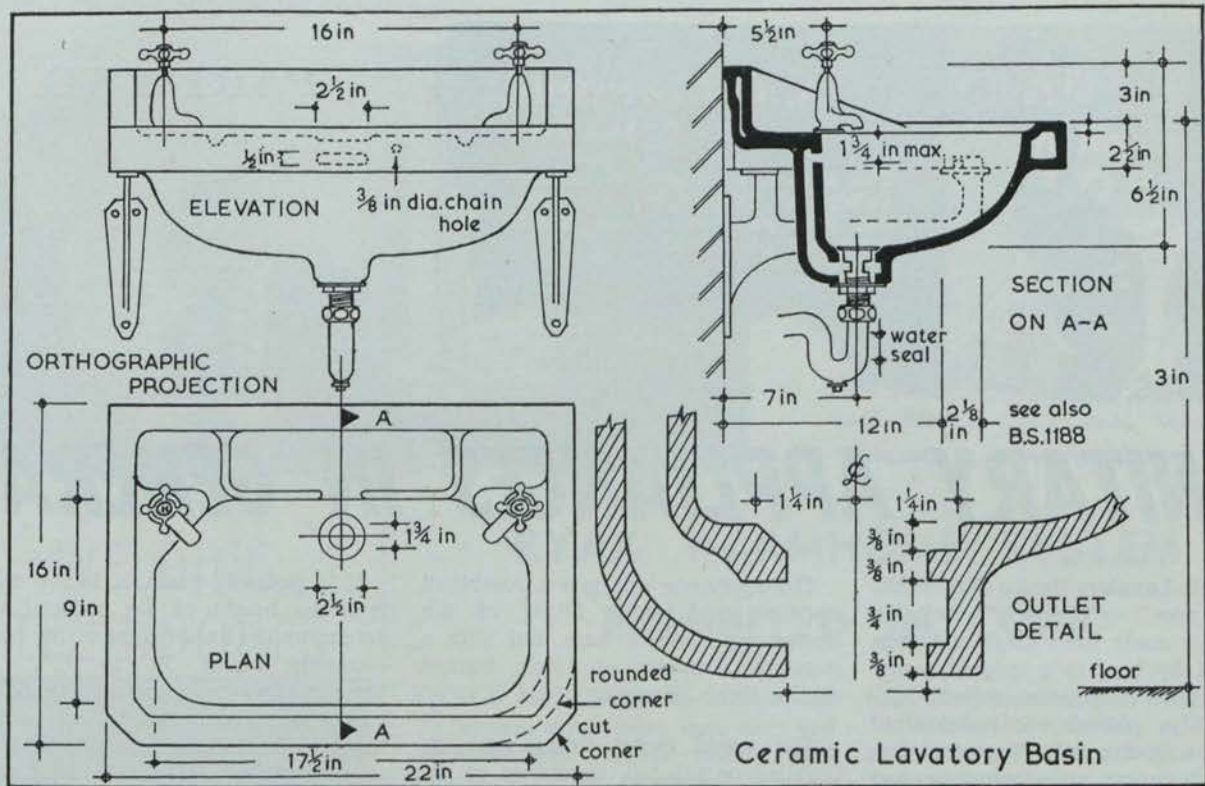
A LOAN of £300,000 is being raised by the Kerry County Council for piped water supply schemes for the Gaeltacht areas of west and south Kerry.

★ ★ ★

“Simply an Introduction to Aqua-Clear” is the title of an interesting booklet, which includes photographs, of successful installations operating against scale and corrosion in the U.K. offered by Kinnis & Brown, Ltd., Capel House, 54/62 New Broad Street, London, E.C.2.

Use.	Fixing Height to top front edge.
Infant Schools (5 to 8 year olds)...	24”
Junior Schools (8 to 11 year olds)...	27”
Secondary Schools (11 to 15 plus)...	31”
Adults	32”

B.S. 1188 recommends that basins for domestic use should be fixed at 31ins.



from previous page

SANITARY APPLIANCES IN GENERAL

THERE is some difference in size between the shoulder square of the tap and the tap-hole square in the basin. This difference has to be made good in order to secure the tap and provide a waterproof joint between tap and basin. This may be done by cutting and fitting narrow strips of lead, and using them to pack the spaces, which will ensure a snug fit for the tap. This packing should not be too tight or the basin might crack as the tightening back-nut pulls the tap into the basin hole; it should not, on the other hand, be too loose or the packing will be useless.

When the packing seems just right, some bed-jointing material is applied around the flange, the packing, and the upper part of the tap pillar. The tap is then offered into the basin hole, and the back-nut screwed home against the underside of the basin top.

Red and white lead putty, white lead alone, glazier's putty, even plaster and cement, can be used for bedding material, but all have disadvantages. Plaster and glazier's putty are not particularly good waterproofers.

Cement sets rock-hard, and so do red and white, or white lead putties after a time, so that it is usually impossible to remove a defective tap from a basin without breaking the basin in the process.

Purpose made

A BETTER method of fixing taps is to use tap fixing sets made for the purpose. These are obtainable from ironmongers and builders' merchants, and contain:—

- A 1/8" thick rubber ring with a square hole to fit the tap shoulder.
- A square, tapered, rubber expansion piece about 1 1/4" long. This has a circular hole through its middle to receive the tap pillar. The top of this hole is squared to a depth of about 1/8" so that it fits the tap shoulder.
- A rubber ring 1/8" thick, with a circular hole to fit the tap pillar.
- A 1/16th" brass washer of the same size and shape as the ring (c).

FIXING INSTRUCTIONS

- Place ring (a) under the flange of the tap.

- Place the tapered piece on the pillar, and locate the squared hole on the top with the tap's shoulder square.
- Offer the tap into the basin. Mark the thickness of the basin top on the taper piece.
- Remove the tap. Add an extra 1/8" to the distance marked as the basin's thickness, and cut off the remaining piece.
- Offer the tap back into the basin. Place the circular ring (c) over the pillar and push it up to the underside of the basin. Follow this with the brass washer (e). Run on the back-nut and screw it home.

On screwing up the back-nut, the extra 1/8" allowed on the taper piece is pushed upwards and made to expand, filling up the gaps between the tap square and the larger square hole in the basin.

The result—a quicker, clean, waterproof, positive fixing which can be dismantled at any time without danger of damage to the basin.

(To be continued)

**BERT SAYS...
I SHOULD DEAL WITH OBC
AND CUT PAPERWORK...
BERT KNOWS!**



Seems that when you go to O.B.C. there's such a heck of a big stock . . . Bert says they've got the lot—everything you're ever likely to want—so, you don't have to write to half a dozen or more different firms—just buy it all at O.B.C. Makes a difference! Means only one lot of invoicing. It's something I've always wanted—to cut down the paper work. And another thing, Bert says their delivery service is right on the ball! It all adds up to something well worth finding out about. Quick, too. What about you? First thing—send for the new O.B.C. illustrated Catalogue. Do that right away.

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GLASGOW
Phone: DOUglas 5115.

CARDIFF
Phone: 28613/4/5.

Phone: Christchurch 1522/3.

*The Irish Plumber and Heating Contractor.**Continued*

ROTARY PUMPS OF TWO TYPES

centre of which is an inlet, and at the outer edge or circumference, an outlet pipe. As the water flows into the eye of the rotating impellor, it is thrown, by centrifugal force, to the outer edge, where it builds up pressure and passes out through the outlet pipe.

On the speed at which the impellor is rotated, will depend, to a great extent, the outlet pressure of the water flowing from the pump, and on the size and width of the impellor blades, the volume of water delivered. For instance, if water has to be delivered to an overhead store tank, a small pump running at high speeds can be used, or alternately, a larger pump running at a lower speed will do the job with equally good results.

On this point, pump manufacturers publish details showing the relationship between head, power absorbed, output and efficiency at different speeds, etc., so that before selecting

speed of the outer tips of the impellor is not sufficient to reduce the air pressure in the suction pipe to a point where the atmospheric pressure outside will cause the water to rise in the pipe as would be the case with a piston pump.

As mentioned above, there are on the market what are known as self-priming centrifugal pumps, but in most cases this advantage is gained by designing the housing of the impellor so that once it is primed originally, there will always be sufficient water to produce a vacuum when the pump is switched on.

Before running a pump of this design, it is important to see that it is filled with water. Running the pump dry will lead to burning out of the packing at the drive spindle.

Important

IT IS important, too, that the suction and delivery pipes be of the size specified by the pump manufacturers, and that any control valves on them be of the gate pattern and fully opened. On some jobs, when the pump output is too great, it is the practice to half-close the delivery valve to reduce it. This is a bad procedure, and leads to serious overloading and perhaps damage to the motor.

It is much better to install a speed control on the electric supply so that the motor is run at a reduced speed. An alternative method would be to fit a float switch on the store tank or container into which the water is pumped. This switch can be adjusted to allow the pump to give full output for a set period and then completely cut out until the water level falls in the tank.

Finally, if silent running is to be achieved, avoid all sharp elbows, tees, reducers, etc., on both the suction and delivery pipelines. Where silence is of supreme importance, bedding the pump on a rubber or cork foundation, and breaking the metallic continuity of the suction and delivery pipes by the insertion of short lengths of rubber re-inforced hosepipe is to be recommended.

NEXT MONTH

In next month's article it is proposed to examine the use of jet pumps and pressure water systems as installed in many rural water systems.

NEXT MONTH

any particular model, full details of its characteristics can be obtained.

Popularity

IN RECENT years the popularity of this type of pump for water supply purposes has increased to an enormous extent. This is due, in no small way, to the fact that centrifugal pumps are simple in design, have no gears, valves or other small working parts to get out of order, and their installation present little difficulty from the pipe connection angle.

The chief drawback to the use of centrifugal pumps is that—with some exceptions—they are not self priming, so that a foot valve or interceptor must be fitted to keep them charged with water. This is so because the

TENDERS

COMHAIRLE Chontae Ath Cliath.—Rush Sewerage Scheme—Channel Road Extension Pumping Plant.—Tenders are invited for the supply and installation of two direct driven electrically propelled pumps in accordance with details obtainable from Messrs. N. O'Dwyer, Son & Partners, Consulting Engineers, 6 Burlington Road, Dublin, 4, on payment of a deposit of £5 5s. 0d. (returnable). Sealed tenders, in envelopes provided, will be received up to 12 noon on Tuesday, December 18, 1962.

★ ★ ★

MACROOM Urban District Council.—Macrooom Water Supply Scheme.—Tenders are invited for the supply and installation of 2 No. Horizontal Centrifugal pumps and motors having a capacity of 402 gallons per minute against a total head of 242 feet approximately, together with all accessories, fittings and pipework, all in accordance with specification prepared by Mr. E. G. Pettit, B.E., M.I.C.E.I., M.Cons. E.I., Consulting Engineer, 7 South Mall, Cork, from whom copies of documents may be obtained on a deposit of £10 (returnable).

Tenders, in sealed envelopes endorsed "Macrooom Water Supply Scheme, Tenders for Pumping Plant," will be received by the Town Clerk, Town Hall, Macrooom, up to but not later than 12 noon on January 8, 1963.

★ ★ ★

KILKENNY Corporation.—Kilkenny Water Supply Improvement Scheme.—Tenders are invited for the supply and installation of 1 No. Pumping Set consisting of centrifugal pump and electric motor having a capacity of 910 gallons per minute against a total head of 240 feet, approximately, together with all accessories, fittings and pipework all in accordance with specification prepared by Mr. Ed. G. Pettit, B.E., M.I.C.E.I., M.Cons.E.I., Consulting Engineer, 7 South Mall, Cork, from whom copies of Documents can be obtained on payment of a deposit of £10 (returnable).

Tenders, in sealed envelopes, endorsed "Kilkenny City Water Supply Improvement Scheme—Tenders for Pumping Plant," will be received by the Town Clerk, City Hall, Kilkenny, not later than noon on Saturday, January 12, 1963.

★ ★ ★

ANTRIM County Education Committee.—Tenders are invited for Electrical, Heating and Plumbing Installations in connection with the Alterations and Additions to High School, Ballyclare, all in accordance with plans and specifications prepared by Messrs. Abbott & Partners, Consulting Engineers, 16, May Street, Belfast, 1.

Plans and specifications may be obtained from the Consulting Engineers on receipt of a deposit of £3 0s. 0d. for each project (returnable).

Tenders, in sealed envelopes clearly marked "Electrical, Heating or Plumbing Installation" as the case may be, must be lodged with the Director of Education, at the Education Office, 475/477, Antrim Road, Belfast, 15, not later than 4 p.m. on Friday, January 11, 1963.

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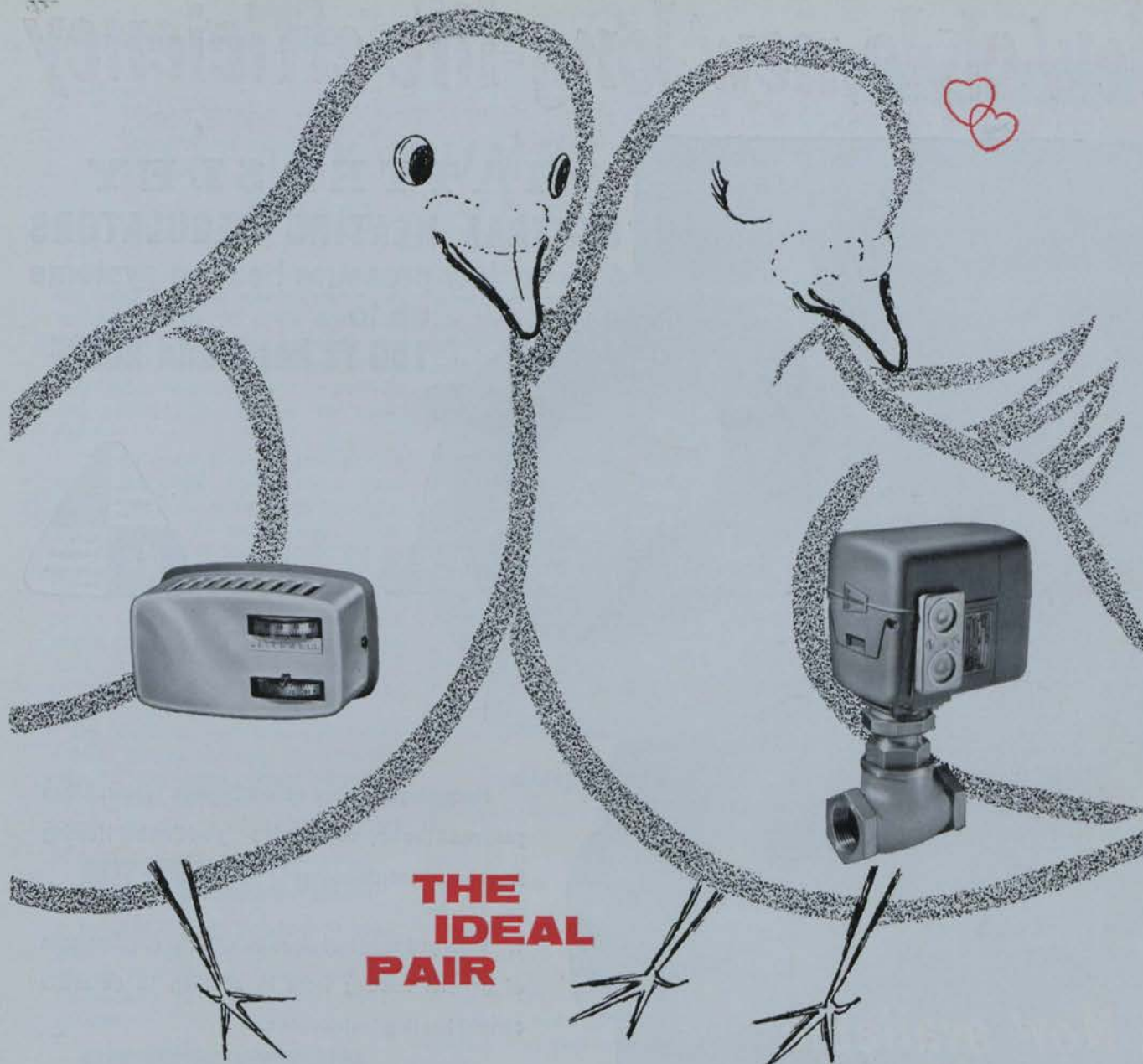
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