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THE IRISH PLUMBER & HEATING CONTRACTOR

VOLUME 1 NUMBER 11 FEBRUARY, 1962

REVIEW OF TAPS, FITTINGS AND CONTROLS

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FEBRUARY, 1962.

THE IRISH PLUMBER & HEATING CONTRACTOR

IN THIS ISSUE

D. C. Coyle, author of our current series, Plastics and the Plumber, is at present on the Continent. He will resume his series on his return.—Ed.

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GAS WELDING: ITS USE BY SMALLER FIRMS

the author

John G. Bolton

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

THE use of welding and brazing as a means of jointing pipelines is commonplace with the larger contractors in the plumbing and heating industry, but the smaller firms, generally speaking, do not use this technique to any great extent.

There are various reasons put forward for this—lack of knowledge, cost of plant, staff unable to weld, doubts about efficiency, etc. It is the intention, therefore, in this article, to discuss some of these points, with particular reference to the problems to be faced by the smaller contractor.

First we will take "lack of knowledge," or, in other words, "what sort of plant is required?" To answer this we must understand that welding systems are split into two distinct divisions—Gas and Electric Arc. Although both techniques are used in the industry, the gas welding plant is by far the most popular at the moment, although there are signs that this position may alter to some extent in the future.

There are, of course, various types of gas welding plants.—Oxy-Acetylene, Oxy-hydrogen, Oxy-Coal Gas, etc., but for practical use on the job, the most versatile plant is found to be the high pressure oxy-acetylene system. This consists of two cylinders, one—the taller of the two—holding compressed oxygen, and the other compressed acetylene **(Fig. 1).**

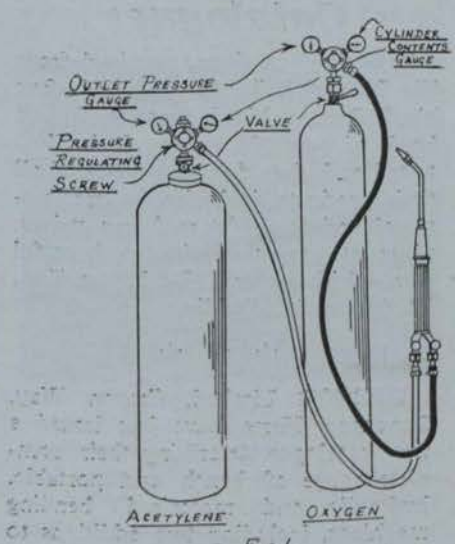


FIG 1.

Oxygen cylinder

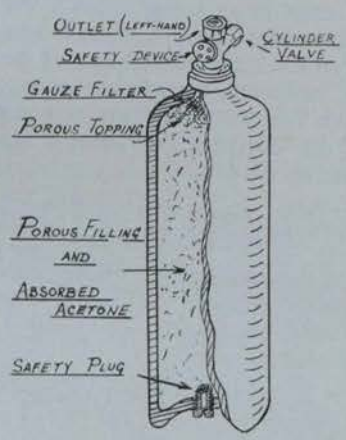
THE oxygen cylinder is generally round bottomed, painted black, and has right-hand threads on the valve outlet (all non-combustible gases, such as oxygen, are stored in cylinders with right-hand threads).

When the cylinder is full, the gas in it is at a pressure of approximately 1,980 lbs. per square inch.

The acetylene cylinder is painted maroon and has a concave base. The outlet valve threads are left-hand, a feature common to all combustible gas cylinders, so as to prevent interchange of regulators and fittings between cylinders of different gases. When the cylinder is full the acetylene gas is compresed to 225 lbs. per square inch.

Acetylene is a highly inflammable gas and is difficult to compress. To avoid danger, therefore, the cylinder contains a porous substance such as kapok, or a special form of carbon, and a solvent to absorb the gas called acetone. This method divides the gas into millions of what could be loosely called cells, the solvent absorbing the gas and so allowing a larger quantity of it to be stored in the cylinder, while at the same time minimising the danger of an explosion through sudden decomposition or chain-reaction of the gas from, for instance, accidental localised overheating **(Fig. 2).**

As the cylinder contains a liquid, it must not be left lying on its side while gas is being drawn from it, otherwise some of the liquid might flow into the tube and so cause back-fire or erratic working of the blow-pipe. Note that the oxygen cylinder does not contain any porous mass or liquid, and so may be left flat when being used.



ACETYLENE CYLINDER

FIG 2.

Cylinders are graded by their capacity in cubic feet, the standard size having a nominal capacity of 200 C.F. This size is very suitable for general use, but the smaller contractor may prefer to have 100 C.F. "bottles" which are, however, sometimes in rather short supply.

Regulators

ON each cylinder is placed a regulator for the purpose of reducing the cylinder pressure to a suitable lower working level. Most regulators are designed to carry out this reduction in two stages, hence the term "two-stage regulator." The threads and colour of each regulator corresponds to those of the gas cyclinder on which they are to be fitted.

There are two gauges on each regulator, one to indicate the cylinder pressure and the other the outlet pressure. The dial of the first gauge reads up to 3,000 lbs. per sq. in. on the oxygen regulator and up to 600 lbs. per sq. in. on the acetylene.

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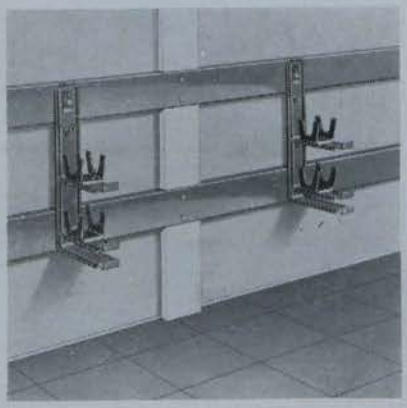
TRADE TOPICS

Trane introduce two new features

TWO new features which make installation easier, plus a curved outlet cabinet, have been added to the "Wall-Fin" Convector line of finned tube radiation manufactured by The Trane Company, who are represented here by Quadrant Engineers, 6 Mount Crescent, Dublin.



The two new features (illustrated) include:—

- A supply and return pipe hanger which can be mounted to conceal piping at different levels within the Wall-Fin cabinet. It will accommodate 1-inch copper, 1¼-inch copper, and 1¼-inch IPS pipe.
- Mullion channels which permit easier installation of Wall-Fin on panel or curtain walls. The installer notches the channel to fit the required mullion spacing. Channels are then bolted to the mullions, using two channels for each run of Wall-Fin with enclosures. The channels can be used wherever construction interferes with attachment of Wall-Fin brackets directly to the wall.

POTEZ GALWAY FACTORY ALMOST COMPLETED

THE name of Potez shot back into the news headlines again last month with the disclosure that this French concern are to establish an aircraft factory in Co. Dublin.

Potez has been established in Ireland, as Potez Industries of Ireland, since 1960. Their heating equipment manufacturing plant, which has been built at Galway, is now expected to go into production during April.

The Galway factory, with an eventual capacity of 110,000 units a year, will attain its maximum production within two years.

'62 HEVAC NOW TWO-THIRDS SOLD

MORE than two-thirds of the exhibitors' space at the second International Heating, Ventilating and Air Conditioning Exhibition, to be held at Olympia in September (September 26—October 5) has already been booked.

This is announced by Industrial Exhibitions Limited, who are organising the show on behalf of the industry. The first bookings have come in while most of the firms are still dealing with the £7 million worth of orders and inquiries which resulted from the first HEVAC Exhibition last October.

HARFORD PUMPS PROTECTION OFFER

A SENSATIONAL protection offer has been announced by Harford Pumps Limited, to installers of Opio pumps in this country. In addition to the two-year free replacement guarantee, the Company may now at its discretion reimburse reinstallation costs where these are incurred during the guarantee period.

Harford Pumps Limited have extended their highly successful Service Protection Scheme in this way to further the Company's established policy of providing all installers and users of Opio pumps with the ultimate in performance and service. Full details of the Scheme can be had from Harford Pumps Limited, Harford House, 7/9 Charlotte Street, London, W.1.

CHANGE OF NAME ANNOUNCED

OIL Burner Components Ltd. has changed its name to **O.B.C. Limited.** The change does not affect the company's trading policy or management. All future business will be carried out under the name of O.B.C. Ltd.

A view of the Richard-Ginori display.

"Preview" of Arklow products

WITH the announcement that construction work on the proposed £250,000 Arklow sanitary ware factory is to begin within months the trade took particular interest in the Richard-Ginori display at the Building Centre's exhibition of Italian building materials last month. The Milan concern of Richard-Ginori are to be associated with the Arklow venture which is being undertaken by Arklow Pottery Limited.

The Building Centre display provided the opportunity of seeing at first hand the diverse range of products marketed by the Italian cerarmic organisation.

In all twenty-four Italian concerns took part in the Dublin exhibition, which was opened by the Italian Ambassador, Baron Vittorio Winspeare Guicciardi.

Also on display were heating systems, sanitary systems, plastic pipes and a wide range of ceramics.

Catalogues

THE 1961 catalogue received from The Beeston Boiler Co. Ltd., P.O. Box No. 2, Beeston, Nottingham, is a bound book of over 300 pages. It is illustrated and gives full particulars of all their products, including boilers (sectional and domestic) radiators, valves, pipes, etc., together with much useful data. Irish agent: I. F. Glasgon, Esq., 38 Pearse St., Dublin.

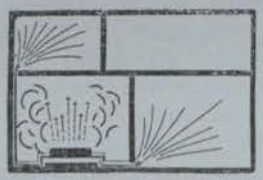
★ ★ ★

HILMOR Limited, Caxton Way, Stevenage, Herts, have just issued a new catalogue describing their complete range of bench and portable, hydraulic and motorised bending machines, including two additions to their range.

TRADE TOPICS

THIS HEATER HAS THREE FUNCTIONS

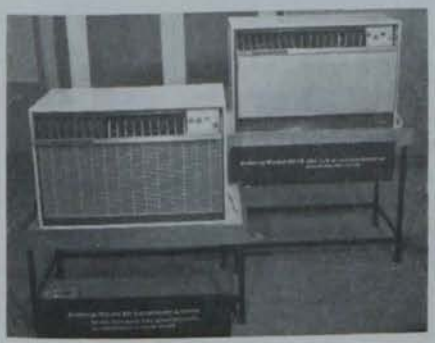
THE Viking Belair oil heater is designed to provide three distinct heating functions. It can (1) operate with one ventilator blowing left or right of the heater, or two ventilators to either side; or (2) operate with one ventilator blowing to the right while the second conveys hot air via a duct to adjoining rooms; or (3) operate with both ventilators connected to a ducting system conveying hot air to different rooms. (See illustration).



Irish agents are Calumet Trading Co. Ltd., 41 Upper Mount Street, Dublin.

CHRYSLER AIRTEMP AT OLYMPIA

CHRYSLER Airtemp room air conditioning units, compact in design, and suitable for installation in hotels, as well as in offices, were among the wide range of equipment featured on the stand of Chrysler Airtemp Limited



at the International Hotel and Catering Exhibition at Olympia last month. Irish agents: Republic of Ireland, H. A. O'Neill, Ltd., Lower Rathmines Road, Dublin; Northern Ireland, Everton Street Metal Works Ltd., Whitehouse, Newtonabbey.

MALLOW FIRM EXPORT 1,000 BURNER UNITS

THE Mallow firm of W. J. Thompson Limited report that export figures of Kresky burners to Britain are now in the region of a thousand units annually. The Kresky units were introduced to this country in '49 from the United States.

In the light of experience and experimentation modifications have been introduced to the burner design and these have increased their efficiency to the extent that CO_2 readings from 11 to 15 are obtained over a wide heat range of 30,000 to 120,000 B.t.u.'s.

This high CO_2 allows the burner to be set at a very low smoke number (Bacharach No. 0 to 1), thereby reducing the necessity for burner cleaning to a few times per annum. In addition these high CO_2 readings permit, by the use of simple stainless steel baffles, efficiencies in the order of 75 per cent. to be obtained in boiler conversions, at the same time keeping flue temperatures to the desired 600° F to avoid troubles in old flues.

However, where flues are of modern design, further baffling can be effected by introducing spreader tubes in the flue passages, with the object of reducing flue temperatures to 400° F with resultant efficiency increase to 80 to 85 per cent. Tests carried out in England indicated that the variation of CO_2 was not greater than plus or minus one per cent. over some 50 burners. Heavier duty blower motors and a leak-proof oil feed clean out device is now incorporated in all models.

The burners are offered on the home market at prices from £22 10s. for the Model OKR (30,000 to 60,000 B.t.u. output) to the 3 US. gallons per hour model 3R, at £36.

They are also available with special valves for use in marine installations with high/low fire attachment and with electric ignition.

GOOD ATTENDANCES AT E.S.B. MODEL HOUSE

SINCE its opening by the Lord Mayor of Dublin, Councillor Robert Briscoe, T.D., last month, the attendances at the E.S.B. model home in Foster Dale, Stillorgan, have been "more than satisfactory," the E.S.B. report states.

The Board's "Warm Home Plan" provides the central heating in the exhibition house. Used in the installation are storage heaters in the living rooms, kitchen and study and wall-mounted convector heaters, thermostatically controlled, in the bedrooms. In the bathroom Infra-red heaters are used.

Built by Messrs. Wates, the "Dormy" home features two bathrooms which are decorated in black and white. Another feature of the model house is a shower room on the ground floor.

TRADE TOPICS

FROM THE NORTH OF IRELAND BY OUR CORRESPONDENT WILLIAM A. McMASTER

Association presents annual report

THE Heating and Plumbing Employers' Association of Northern Ireland held their annual meeting in Belfast on January 30. There was a full attendance of representatives of Member Firms. They were welcomed by the chairman, Mr. John Cumming, who took the opportunity to wish them all the compliments of the season. He also expressed a special welcome to Mr. M. H. Joyce, who has joined the Belfast staff of Messrs. G. N. Haden & Sons and who accompanied Mr. Cyril Drysdale, of that company, to the meeting.

The annual report for 1961 presented a picture of a healthy Association taking a lively interest in its members. During the year two new Firms —Modern Heating (North West) Ltd. and Wm. Brennan & Sons Ltd.—had been admitted to membership.

The report also noted that heating fitters in Northern Ireland are now enjoying the same basic rate (6/1d. per hour) as heating fitters in the central London area. This new rate became applicable from September 25 last, on which date a five-day working week of 42 hours was also introduced. The report also noted that as from October 2 last the basic rate for plumbers in Northern Ireland had been struck at 5/8d. per hour (also for a 42-hour week) and thus this difference in wage rates had given rise to certain difficulties. It was thought, however, that these difficulties would be short-lived and the Association was confident that the friendly relations existing between the two crafts would be maintained.

Chairman

Mr. A. J. Vaughan was unanimously elected chairman for the year 1962 and was installed in the chair by Mr. Cumming, who wished him every success in office. Mr. Vaughan, having accepted the office, thanked the Association for their confidence in him and also thanked Mr. Cumming for the manner in which he had conducted the affairs of the Association during the past year. Mr. Vaughan is managing director of Vaughan Heating Co. Ltd.

The vice-chairmanship was filled by the election of Mr. Jack Willis (Willis Plumbing and Heating). Mr. Willis and Mr. Frank Haddow (Johnson Bros. & Wilson) were re-elected

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honorary auditors.

The other members of committee elected were: Mr. Herbert Bingham (Musgrave & Co.), Mr. W. H. Tanner (Shillington Heating & Plumbing), Mr. W. Jefferson (Wm. Coates & Sons), and Mr. J. Scoffield (Ashwell & Nesbitt).

Difficulties

Under the "any other business" item a member raised the matter of a letter which has been issued to its members by the Federation of Building Trade Employers of Northern Ireland. The letter read:—

"In view of the many difficulties experienced due to the default of certain Nominated Sub-Contractors, which have involved members of the Federation in considerable expense, the Council makes the following recommendation:—

"No member of the Federation shall accept a Nominated Sub-Contractor unless his tender has been accompanied by a letter from an Insurance Company or Bank, intimating that they are prepared to enter into a Bond with the Main Contractor for an amount up to 25 per cent. of the value of the Sub-Contract for the due completion of the work, and a copy of this letter is forwarded to the Main Contractor when he is requested to accept the tender."

In the discussion, the views were made that it was understandable that the main contractors should adopt this attitude. At the same time, it was equally desirable that sub-contractors should have some form of protection It was decided to watch developments against default by main contractors. and, if necessary, consider any further action to be taken.

The Association also considered Jobbing Rates in relation to the substantial increases in costs since the last rates were issued. It was agreed that the new rate should be as recommended at national level and interests concerned are now being advised to this effect. The new rates are:—

	Per hour.
Foremen	12s. 0d.
Chargehands	10s. 10d.
Fitters	10s. 5d.
Adult Mates—	
18-20 years of age ..	8s. 7d.
Over 20 years of age ..	9s. 0d.
Apprentices—	
Up to 16 years of age ..	3s. 3d.
16-17 years of age ..	3s. 8d.
17-18 years of age ..	5s. 1d.
18-19 years of age ..	6s. 3d.
19-20 years of age ..	7s. 5d.
20-21 years of age ..	8s. 8d.

(1) The above rates include use and repair of ordinary hand tools, Workmen's Compensation, Third Party Insurance, National Insur-

Continued overleaf

● **Mr. D. R. S. Turner, B.A., A.M.I.Mech. E.,** Director and General Manager of Davidson & Co. Ltd., Sirocco Engineering Works, Belfast, 5, has been appointed Managing Director of the Company as from January 1st, 1962.

Mr. W. B. Kelly, M.I.Mech. E., Vice-Chairman, has retired after 53 years' service with the company.

TRADE TOPICS

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ance, Holidays With Pay and general establishment charges.

(2) Outworking allowances (town and country), dirty money and out of pocket expenses, plus 20%.

(3) Overtime to be calculated according to the basis of the Working Rule Agreement.

(4) Materials, carriage and cartage, sub-contracts, plus 20%.

(5) For indirect contracts containing provision for 2½% cash discount for the main contractor this should be provided by the addition of one thirty-ninth to the total value.

Meantime, in plumbing circles, interest is being taken in the negotiations (which affect the whole of the building industry) for "a substantial increase" in rates of basic pay. This claim was submitted in London in January but has not yet been settled.

Meantime, in accordance with the agreement in force, journeymen plumbers in Ulster will receive an increase of one penny per hour granted under the Cost of Living Index and dated from 5th February. This brings the basic rate for a journeyman plumber in Northern Ireland to 5s. 9d. per hour.

Consider

Next month, too, the Joint Council for the Plumbing Industry in Northern Ireland will again consider the introduction of a five-day working week throughout the trade. Some effort to this end was made when the latest Working Rule Agreement was drawn up last October, but several provincial master plumbers drew attention to difficulties.

In brief, these centred around practice in the building industry. Where work on a site was being conducted on a five-day basis, then clearly the plumbers on that site could not always be expected to be in a position to continue to function on Saturday mornings, when the site might be closed down. Conversely, during the short winter days, it might not always be possible to perform the number of hours daily necessary to total a 42-hour week because of failing light, so that Saturday morning was becoming necessary.

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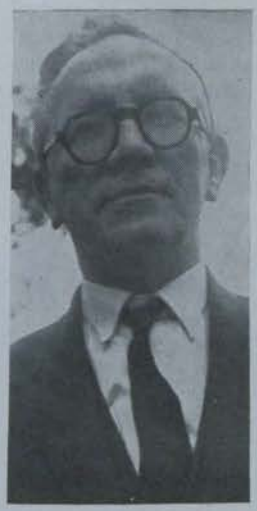

In this the first of a two-part series we look at

TURF FUELLED HEATING SYSTEMS

● *Frank Lunney, Assistant Technical Development Supervisor with Bord na Mona, author of this article.*

IN dealing with solid fuel heating systems fuelled by turf, our first concern must be the choice of boilers. We will deal initially with the general consideration.

Though all reputable boiler firms adopt a standard heat transfer coefficient for each type of boiler, it is well, when selecting a boiler, to compare alternatives from the point of view of heating surface.

Cast-iron sectional boilers are rated normally at 4,400 B.t.u.'s per hour per square foot of heating surface, so that for instance a boiler rated at 880,000 B.t.u.'s per hour should have a surface of 200 sq. ft. Supereconomic steam boilers are designed on the basis of 5 lb. steam evaporation per square foot of heating surface per hour. Cheaper boilers are based on a higher figure and will therefore not be so efficient.

Compared

It should be remembered, however, that only boilers of similar design should be compared on the basis of heating surface. Gas velocity has a marked influence on heat transfer and modern high velocity boilers in which the hot gas travels at up to 60 m.p.h. can give high outputs and efficiencies with restricted heat transfer surfaces.

Low pressure hot-water boilers.—Low pressure hot-water boilers, which are generally used in conjunction with conventional heating by ground-level radiators, are used to heat water to a temperature of 150°-180°F. with a temperature difference between flow and return of 20°F. In certain circumstances (especially on starting up) the return temperature can fall considerably below the design value and in these circumstances certain parts of the heating surface may be below the dew-point of the combustion gases so that condensation takes place.

If the boiler is of fabricated steel corrosion will be inevitable and the boiler may last for only four or five years. Cast-iron sectional boilers are therefore recommended for this application. Ideal, Beeston, White Rose, Crane and other reputable makes are well established in this field and are quite suitable for turf firing.

High-pressure hot-water and Low-pressure steam boilers.—These boilers are operated well above the boiling point of water, which in turn is above the dew point of flue gases, so that mild steel or boiler plate is perfectly safe. The multitubular design can therefore be used in this case and will give high efficiency when operated on turf. Hartley and Sugden and Dansk are but two well-known makes of these types of boilers.

Steam Boilers.—The supereconomic all-welded boiler is deservedly the most popular boiler for capacities of 2,000-25,000 lb. steam per hour. The wet-back type, and not the type with brick-lined rear combustion chamber, should be chosen in each case. This type of boiler is now made by practically every large manufacturer and there is little to choose between them as far as efficiency is concerned.

A boiler should always be selected in conjunction with a mechanical stoker, or if for hand-firing, with a view to eventual conversion to mechanised firing. This consideration will determine the furnace diameter and the position of the smoke-box, which should be readily openable for cleaning of smoke tubes.

The strength of the shell and the standard of welding are laid down by British Standards and must be passed by Insurance Companies, and there is no need to specify details in connection with this aspect. A boiler should be chosen for the highest pressure which is likely to be needed, but should be operated at the lowest feasible pressure. Two makes which have proved particularly satisfactory for turf firing are the Ruston Thermax and the John Thompson Super-Economic and Demi-Pak.

Firing of turf

Small and medium sized central heating boilers (up to 800,000 B.t.u./hr.).—These important considerations must apply in selecting units to fire these small boilers:—

- Low capital cost.
- Efficient combustion.
- Capacity to work for long periods without attention.

The turf-fired hopper unit has been developed by Bord na Mona to answer these requirements. It consists merely of a hopper which is tailored to suit each boiler. The hopper is hung on the front of the boiler and provided with a short grate, together with primary and secondary air.

Several of these units have already been installed and their outstanding characteristics have been found to be economy in fuel consumption and complete absence of maintenance costs. Attention is required only for a few minutes twice a day and is well within the scope of a caretaker or porter. Bord na Mona invites enquiries for these units and will provide design free of charge. The Board also will quote manufacturers for these units as required. Thermostat control can be fitted if required.

Large central heating boilers (over 800,000 B.t.u./hr.).—In large central heating plants using low-pressure hot-

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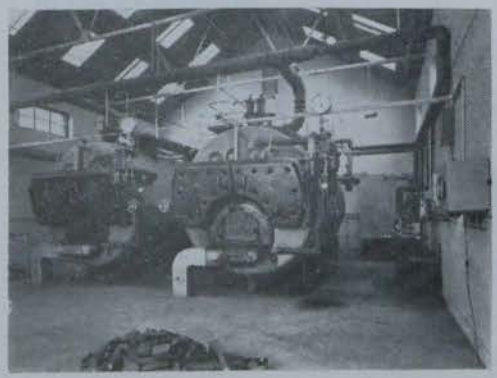

Our picture shows two Ruston and Hornsby Horizontal Thermax boilers burning turf fuel, which have been installed in Mountjoy Prison. The Thermax boiler is made in a range to cover evaporative steam outputs of 1,000 lbs. and 20,000 lbs. per hour at pressures up to 200 lbs. per square inch.

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Boiler can be left unattended

water the boiler can still be left unattended and the firing equipment is therefore designed so as to operate automatically between refuelling and de-ashing.

The water-cooled Mona-Jet burner is recommended for this application. It is considerably dearer than the hopper unit but has the advantage that thermostatic control is inherent in the design, and that the water-cooled jacket of the burner adds to the capacity of the boiler. The two established manufacturers of these burners are Engineering Products Ltd., 126 Francis Street, Dublin, and Messrs. Joshua Bigwood & Co. Ltd., Wolverhampton.

Steam Boilers.—By far the best stoking equipment for the steam boiler is the Low-Ram Coking Stoker, a turf-burning model of which has been specially developed by Messrs. James Hodgkinson & Co. Ltd., in conjunction with Bord na Mona. Many of these plants have already been installed in public institutions and factories, and the results in every case have shown both a decrease in steam costs and an increased boiler capacity. The possibility of increasing boiler capacity is extremely important from two points of view.

In new installations it has been the traditional point of view that a turf-fired boiler to give the same output as a coal fired unit should be several sizes larger. This is no longer necessary and it has actually been established that overloads of 30% on turf-fired boilers using this equipment are easily achievable.

In existing installations, where the steam load is going beyond the capacity of the boiler plant, and new boilers are contemplated, this step may not be necessary if Low-Ram Stoker firing is adopted.

Next month the second part of this series will deal with Domestic Heating Installations.

in brief . . .

Selling—with a difference

CENTRAL heating in America is not a question of Will We, or Won't We, as it now is in Ireland. The problem is deciding which system will give best service.

In the increasingly fierce competition among rival companies, a privately-owned power company in Pennsylvania, the West Penn Power Company, has played a high trump. It is offering a three year guarantee to people installing electric central heating in its area. ing electric central heating in the area.

If the householder's heating bill comes to less than what he paid with an oil or gas furnace, that is fine. But if his bills are larger over the three-year period he will receive the difference in cash.

Plumbing trade reps. meet

IN accordance with a resolution passed by the General Council of the Registered Plumbers Association in London, in June last, a special committee, comprising representatives of various organisations within the plumbing trade, has held its first meeting.

The proceedings were of an exploratory nature dealing mainly with the terms of reference. It was decided to assume the title Plumbing Trade Co-ordinating Council.

Mr. R. W. Gleed, T.D., M.A., F.R.I.C.S., Master of the Worshipful Company of Plumbers, was elected chairman, and Mr. J. M. Haig, A.M.I.W., A.M.I.P., R.P., elected secretary.

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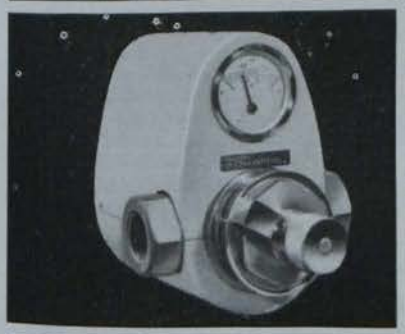
Harford units

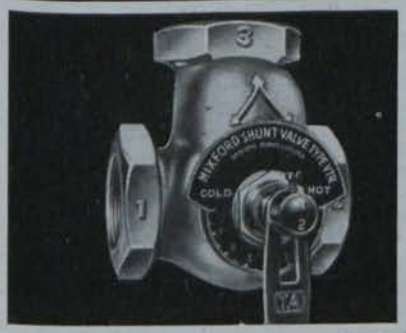
for efficient Domestic Heating Systems . . .

THE OPIO—THE STRONG AND SILENT CIRCULATING PUMP
An Opio pump gives a higher performance at a much lower cost than any other pump for domestic heating installations. It ensures maximum flow of hot water to the furthermost radiator.
It is silent in operation, self-cleaning and needs no maintenance.
Plug-and-socket ensures ease of installation even in difficult positions.
Each Opio pump is rigorously tested at the factory, supplied with its individual performance test certificate and is fully guaranteed.



THE AQUAMIX—PERMITS HOT WATER AT *TWO* TEMPERATURES
The Harford Aquamix permits *two* supplies of hot water at different temperatures — from the same boiler . . . one, at maximum temperature, for household use and the other at a predetermined temperature for the radiators. The Aquamix mixes the hot water with sufficient cold water to maintain the radiators at the temperature pre-set on the control dial. That temperature is indicated by the built-in thermometer. Wasteful heating can be detected and fuel saved.

THE TWIN-ACTION RADIATOR VALVE—
FOR ACCURATE CENTRAL HEATING REGULATION
The Harford T.A. Valve — the only valve which adjusts the heat output of the radiator in direct relation to the setting of the knob — gives more accurate control of central heating systems. A quarter-turn of the knob — and the heat output of the radiator is adjusted by a quarter, too. No separate balancing valve is needed. It gives complete shut-off, and the special O-ring gland can even be changed without removal or draining down the system.



THE MIXFORD VTR VALVE—FOR MIXING OR DISTRIBUTION
The Mixford can be used as a mixing or distribution valve, with low flow resistance. The Mixford is of cast iron, with red bronze regulating plate, working shaft and gland. Screwed connections are available on the standard range, which is from 3/4 in. to 2 in. Larger valves, with flanged coupling, supplied to order. The valve is pressure-tested at 150 p.s.i. cold water pressure before delivery.

It pays—in so many ways—to install HARFORD units!

OUR IRISH REPRESENTATIVE: Mr. G. A. Reid, 16, Fade Street, Dublin, 2. Telephone 76009.

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TENDERS

Galway sewerage scheme

GALWAY County Council—Woodford Sewerage Scheme. The Galway County Council invites tenders for the construction of a complete sewerage scheme for Woodford, County Galway, in accordance with the drawings, specification and Bill of Quantities prepared by Chevalier Patrick J. Sheahan, K.S.S., F.R.I.A.I., M.I.C.E.I., Consulting Engineer, 47 O'Connell Street, Limerick, from whom contract documents may be obtained on payment of a deposit of £10 10 0.

The works include generally the followng:

1. Provision and laying of sewers consisting of 1,450 lin. yds. of 6" dia., 495 lin yds. of 9" dia., 117 lin. yds. of 12" dia., 50 lin. yds. of 15" dia. and 95 lin. yds. of 18" dia.
2. Provision and laying of 272 lin. yds. of 4" dia. rising main.
3. Laying of house connections, erection of ventilating shafts, and the construction of 44 No. manholes.
4. Construction of ejector.
5. Construction of a treatment works consisting of settlement tank, sludge beds and tool house.
6. Fencing and development of ejector station and treatment works sites.
7. Temporary and permanent restoration of trench surfaces.

Sealed tenders on the form provided, endorsed "Tenders for Woodford Sewerage Scheme" and accompanied by the Bill of Quantities priced and extended in ink, and marked on the envelope "Bill of Quantities for Woodford Sewerage Scheme," should be delivered to the Secretary Galway County Council, County Buildings, Galway, not later than February 26, 1962. Each envelope should bear on the outside the name and address of the Contractor.

★ ★ ★

GALWAY County Council—Woodford Sewerage Scheme: The Galway County Council invites tenders for the provision and installation of a sewage ejector plant in the Council's Ejector Station at Woodford, County Galway, in accordance with the plans and specification prepared by Chevalier Patrick J. Sheahan, K.S.S., F.R.I.A.I., M.I.C.H.I., Consulting Engineer, 47 O'Connell Street, Limerick, from whom contract documents may be obtained on payment of a deposit cheque of £10 10 0.

The Ejector Plant required shall have a capacity of 65 g.p.m. and include an electrically-driven compressor and all piping within the Ejector Station.

Sealed tenders, endorsed "Ejector Plant for Woodford Sewerage Scheme," shall be posted to the Secretary, Galway, County Council, County Buildings, Galway, so as to arrive not later than February 26, '62.

★ ★ ★

ATHLONE Urban District Council—Athlone Main Drainage Garrycastle, Bonavalley and Retreat Sewerage Scheme: Tenders are invited for carrying out the above scheme in accordance with the plans and specifications prepared by Messrs .P. H. McCarthy & Son, Consulting Engineers, 26 Lower Leeson Street, Dublin, 2.

The works to be executed comprise the laying of the following approximate lengths of pipe:—

420 yds. lin. 4 " S.I. Rising Main.
250 yds. lin. 6" stoneware pipe.
504 yds. lin. 6" concrete pipe.
3,553 yds. lin. 9" concrete pipe.
567 yds. lin. 12" concrete pipe.
737 yds. lin. 18" concrete pipe.
224 yds. lin. 21" concrete pipe.

Together with the construction of a pumping station and other ancillary works.

Contract documents may be obtained during the normal office hours at the office of the Consulting Engineers on payment of a deposit of £10 10 0.

Tenders in sealed envelopes, marked "Garrycastle, Retreat and Bonavalley Sewerage Scheme should reach the Town Clerk, Town Hall, Athlone, not later than 5 p.m., on February 26, 1962.

★ ★ ★

LONGFORD County Council—Mostrim and Ballinalee Water Supply: Tenders are invited from manufacturers and suppliers of pumping equipment for the supply and installation of electrically operated pumping units.

2. No. Submersible Pumping Units having a capacity of 7,200 galls/h against an approximate head of 26 feet.

or

2 No. Horizontally mounted pumping units having a capacity of 7,200 gall/h against an approximate head of 26 feet.

2 No. Horizontally mounted pumping units having a capacity of 7,200 galls/h against an approximate head of 300 feet.

Documents setting out requirements and Form of Tender may be obtained at the Office of the Consulting Engineers, Messrs. P. H. McCarthy & Son, Consulting Engineers, 26 Lower Leeson St., Dublin 2, during the normal office hours on payment of a deposit of five guineas.

Tenders in sealed envelope marked "Mostrim Pumping Plant" should be lodged with the Secretary, Longford County Council, Secretary's Office, Longford, not later than 5 o'clock p.m. on March 15, '62.

★ ★ ★

KERRY County Council — Ardfert Sewerage Scheme: Tenders are invited for the construction of a complete Sewerage Scheme at Ardfert, Co. Kerry, in accordance with the Drawings, Specification, Bill of Quantities and General Conditions of Contract prepared by Mr. Ed. Ralph Ryan, M.E., B.Sc., M.I.C.E.I., Consulting Engineer, 1 Montpelier Terrace, Galway, from whom Contract Documents may be obtained on payment of a deposit of £10 10 0.

The Works include the laying of approximately:—

1569 L. yds. of 6" sewer with concrete pipes;
1028 L. yds. of 9" sewer with concrete pipes;
886 L. yds. of 12" sewer with concrete pipes.

together with all manholes, Storm overflows, Ventilating Columns and other ancillary works.

The Contractor shall also include the construction of a Purification Works.

The General Conditions of Contract include the provision of Memorandum No. L. 3/52 issued by the Department of Local Government on the 5th day of February, 1953, and the recruitment of labour shall be in strict accordance therewith.

Sealed tenders on the form endorsed 'Ardfert Sewerage Scheme' and accompanied by the Bill of Quantities priced and extended in ink should be delivered to the Secretary, Kerry County Council, not later than 12 o'clock noon on Monday, February 26, 1962.

★ ★ ★

LIMERICK County Council — Watermain Extensions to Mungret and Rosbrien, Limerick City Suburbs: The Limerick County Council invites tenders for the provision and laying of 2,937 lin. yds. of 5" dia., 1,778 lin. yds. of 4" dia. and 810 lin. yds. of 3" dia. Class B watermains at Mungret and Rosbrien as extensions to the water supply system of Limerick City in accordance with the drawings, specification and Bills of Quantities prepared by Chevalier Patrick J. Sheahan, K.S.S., F.R.I.A.I., M.I.C.E.I., Consulting Engineer, 47 O'Connell Street, Limerick, from whom contract documents may be obtained on payment of a deposit of £5 5 0.

The Contractor whose tender is accepted will be required to complete a Contract Agreement to be prepared by the Council's Solicitor at the Contractor's expense, and he will also be required to provide a Contract Guarantee Bond with an approved Irish Assurance Company for the full amount of the contract sum, and the cost of the Bond is to be included in the tender.

Sealed tenders on the form provided, endorsed "Tender for Mungret and Rosbrien Watermain Extensions," and accompanied by the Bill of Quantities priced and extended in ink and marked on the envelope, "Bill of Quantities for Mungret and Rosbrien Watermain Extensions" should be delivered to the Secretary, Limerick County Council, 82/83 O'Connell Street, Limerick, not later than 4 p.m. on Friday, February 23, '62. Each envelope should bear on the outside the name and address of the Contractor.

Questions Answered

We have recently fitted some spray taps to lavatory basins but have had complaints that users cannot get hot water or that it takes a long time to get hot water. Can you offer suggestions as to probable cause and how the troubles complained of might be overcome?

WE assume that the querest has installed spray taps of the Walker Crossweller "Unatap" pattern. Such fittings are manually operated mixer taps. Each has one ½in. hot and cold supply inlet. As the tap is opened cold water flows from the spray. Progressive opening results in restriction of the cold water flow and a commencement of the hot water flow to achieve a blended temperature to the requirement of the user. When the tap is opened to full travel of the spindle the cold flow ceases altogether and only hot water can pass to the spray outlet nozzle. It follows, therefore, that given a hot water supply of suitable temperature, say somewhere between 110 F and 140 F, there is bound to be some operating position where user temperature requirement is obtained.

With regard to complaints of time to receive hot water at the spray, it must be borne in mind that taps of this kind are specifically designed to discharge but about 4 pints of water per minute. Indeed, this is one of their many **advantages**—economy of water usage, both hot and cold.

At this designed slow rate of outflow, some time must elapse before cooled water is drawn off from hot supply "dead-legs" so as to allow the hot water to pass at the tap. The cause of delay in getting hot water to the spray tap will usually be traceable to this. As for the cure—we recommend that querist considers the installation of a secondary circulation to supply these spray taps and ensures that the hot supply pipe of this runs as close to the tap connections as possible. In this way, not only will the conventional "dead-leg" be avoided but the inevitable "dead-leg" risers to the taps will be reduced in length as well.

If it is not possible, or convenient to raise the secondary circulatory pipework as suggested, then it might be run at skirting level but with ¼in. tube from hot pipe to the tap. In this smaller diameter riser to tap there will be less water, which may have cooled, to draw before the hot flow proper reaches the tap.

We assume that querist has connected the taps correctly. Remember it is the hot tail marked RED and the cold tailed marked BLUE. He will also no doubt be aware that whilst some slight pressure differences between hot and cold supplies can be accommodated, the taps are intended for equal pressure operation. Furthermore, orifice plates or jets of four different sizes are supplied with "Unataps."

Instructions which accompany the tap explain how one of the jets should be selected to give the designed spray outflow under known site head pressure conditions under which the tap operates. If too small a jet is fitted then the flow rate will be restricted and aggravate the troubles complained of. On the other hand one should not try to rectify this complaint by fitting an oversized jet otherwise the water and fuel economy function of these popular, hygienic hand washing fittings will be lessened.

* * *

Is there any easy and clean way of descaling a back boiler to a living-room grate?

BOILER descaling is unproductive work at all times. It is a messy business and it can be a bore. The need for periodic boiler cleaning is well known to be for the purpose of removing "furr" precipitation. Failure to do so gives rise to serious boiler inefficiencies and to possibly quite dangerous operating conditions.

"Furr" precipitation and accumulation depends upon such factors as how much "temporary" hardness the water has, how much water is drawn through the system and at what temperature.

Scale deposit is more easily prevented than removed. We suggest that querist considers the possibility of installing a mains model water softener. Not only would such an installation eliminate once and for all the messy, irksome business of boiler cleaning, but the entire household will derive everlasting benefit from the pleasure and economy of soft water usage.

If this idea seems a costly one—yet over but a few years' usage it can be shown to be a sound economic proposition, why not install an indirect cylinder? This will effectively prevent "furr" deposits in the boiler and primary circulation pipework.

The "Primatic" hot store vessel achieves the same end—separation of primary and secondary or "draw off" waters by an effective air-locking arrangement which is the function of the internal design of the heat exchanger to these vessels. No separate feed-expansion cistern is required with these.

If both these suggestions are frowned upon on cost but not on principle, why not consider the Sigmund "Thermo-change"? This simple device is easily attached to an existing hot store cylinder and quickly converts it to an indirect cylinder of the air-lock water separation kind. Your local stockist will supply details.

There is no simple or easy and clean way of "charming" furr out of a boiler. If querist is thinking in terms of chemical descalents we can but point out that the use of these—and care is needed—does not remove the whole messy business from the client's living room.

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

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LEAD ROOFWORK

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.

BUILDING Bye-Laws include the metals lead, copper, aluminium and zinc as materials considered suitable for the weathering of roofs. The order in which they appear is not intended to suggest any order of suitability, but with the help of a knowledge of the properties of these metals one can use it to best practical advantage.

The basic requirements of a metal roofing or weathering material are durability, and easy workability, so that details and joints may be worked in position on the roof. The appearance of a metal, particularly in relation to the other materials used in buildings nearby, and the resistance of a metal to the spread of fire, are other factors which must be considered. Finally, the matter of cost just cannot be ignored to-day.

The Manufacture of Milled Sheet Lead.—Milled sheet lead for roof work is made first by casting a slab of lead some five feet square by six inches thick. When the slab has solidified and is cool enough to handle, it is hoisted by overhead cranes on to the roller bed of a milling machine. The milling machine, with its adjustable rolls, looks like a wringer used to squeeze water out of clothes. The slab of lead is moved backwards and forwards between the rolls, and at each passage the top roll is brought nearer the bottom one. Thus the slab of lead is reduced in thickness and becomes longer in length.

Trimmed

When the desired thickness has been reached the milling stops, the lead is trimmed to the required width, and parcelled into rolls for despatch to the warehouse or site.

The milling process is one way of "working" the milled sheet lead.

The lead is "compressed" by the process, and its molecules are pressed closer together in a more compact mass. Hence, milled lead is more dense, that is it weighs more per unit volume, than cast lead.

Another effect of milling is to make the metal slightly harder to work, though this is scarcely noticeable. Also, milled lead has a greater tensile strength than cast lead, and so it can be used in thinner sheets.

The thickness of sheet lead for roofwork is specified in pounds per foot super. For example, 5 lbs. milled sheet lead indicates that one square foot of that lead would be of such thickness that it would weigh 5 lbs.

One cubic foot of cast lead weighs 707 lbs.

One cubic foot of milled lead weighs 709 lbs.

Knowing this, we can easily determine the thickness of any given "poundage" of lead by the following reasoning:—

A cubic foot has a base area of one square foot, and is 12 inches thick, so that a cubic foot of milled lead could be referred to as 709 lbs. lead.

If 709 lb. of milled sheet lead is 12" thick, then one lb. of lead will be 1/709th of 12", and it would require 709 pieces of lead at one pound per foot super to give a total thickness of 12".

1/709th of 12" is nearly 1/64th of an inch. So, if one pound lead is 1/64th of an inch thick, then 5 lbs. lead will be 5/64th of an inch thick, and so on.

The recommended weights of milled sheet lead vary according to the purpose to which it is to be put.

The following table gives suggested weights for the leadwork we have dealt with so far, or are about to deal with.

Chimney and Abutment Flashings:

Chimney back gutters	5 or 6 lbs.
Chimney aprons	4 or 5 lbs.
Ridge pieces	5 or 6 lbs.
Cover flashings	4 or 5 lbs.
Soakers	3 or 4 lbs.

Commercial milled sheet lead is 99.99% pure lead. Its commercial sizes range in length from 15' 0" to 40' 0", and from 7' 00' to 9' 0" in width.

The "Standard" size of sheet seems to be the 8' 0" wide x 15' 0" long roll, and is so called largely because it has been most frequently used in the past. Such a roll of 5 lbs. lead would weigh over 5 cwts., and is not easily or quickly manhandled on the site.

Cut to size rolls are available on payment of a small charge at the mill. The convenience with which smaller rolls can be handled makes for an economy of time and labour which often more than repays the cost of cutting charges. Moreover, forethought in the ordering of roofing material can eliminate the waste which results with an oversized sheet.

Strip Lead is available for flashings. It is made in rolls 6", 8", 10", and 12" wide, and in 3 lb., 4 lb., and other lead "poundages" or thickness. For ease of handling, the roll weights are kept to about 1 cwt. and so the length of the strip will depend upon its width and poundage.

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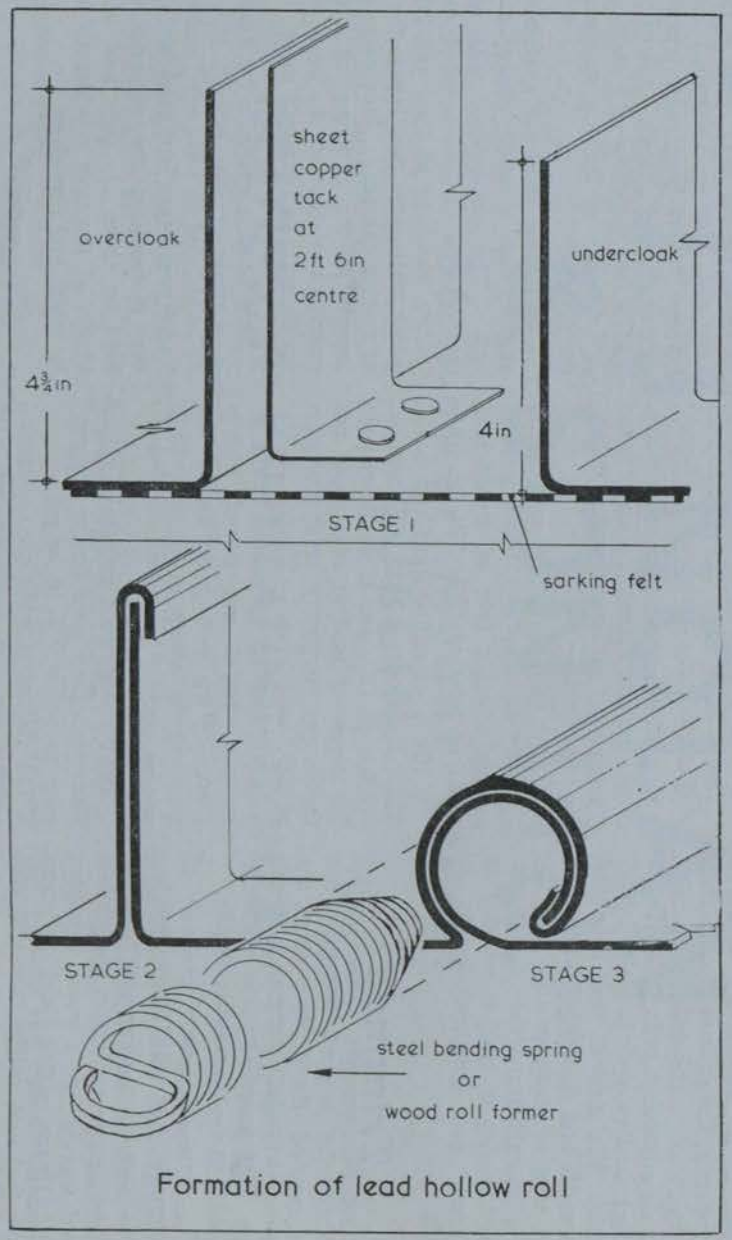
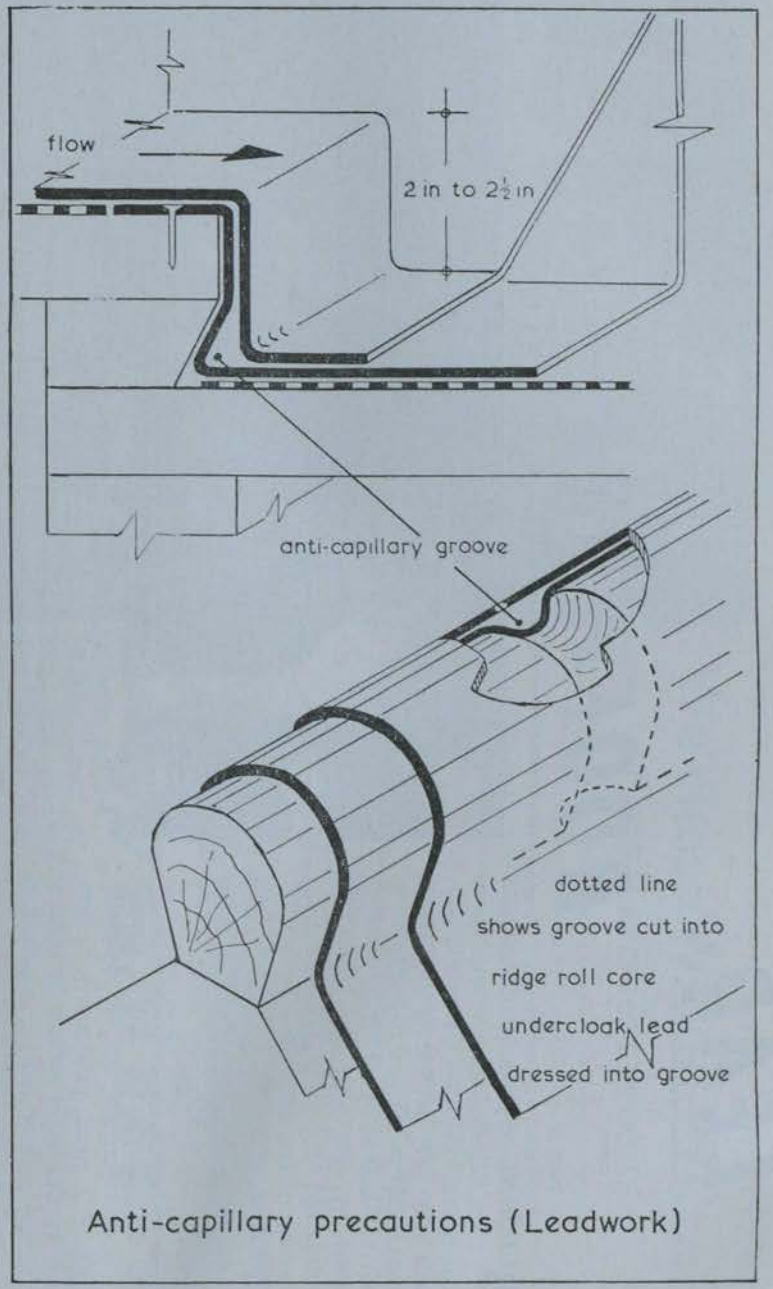


Formation of lead hollow roll

from previous page

● *See text on opposite page.*



Anti-capillary precautions (Leadwork)

https://arrow.tudublin.ie/bsn/vol1/iss11/1
DOI: 10.21427/D7J99P

● *See illustrations on opposite page.*

The material conforms to B.S. 1178 and offers considerable saving in time and material by reducing cutting time and wastage of lead.

Joints and fixings for sheet lead

It is well known that lead is very durable when properly fixed, and that it is extremely malleable and easily worked to shape both on and off the roof.

Joints in sheet leadwork must, of course, be waterproof. They must also help to secure the lead in position on the roof and at the same time allow some movement to accommodate thermal expansion. Good leadwork design and practice employs joints which meet these requirements. It is convenient to consider the various joint forms in two main groups; those which run in the direction of the roof fall or water flow, and those which run across the flow.

Joints with the flow

Wood cored or solid rolls are used to join bays of lead along their length. They are also used where the ridge or hips of a roof are weathered in lead.

Splash laps are arranged on that side of the roll which will get least wind; that is, the side away from the prevailing wind.

The splash lap stiffens the free edge of the bay roll, and helps to secure it to the roof. Though this extra stiffness is an advantage in fixing, it can in dusty neighbourhoods collect dust and dirt. This will absorb rainwater and encourage leakage into the roof, for water will rise between the undercloak and overcloak by capillarity and siphon wick action. If the splash lap is left off and the overcloak finished about ¼" above the roof surface, this will be avoided.

There is no hard and fast rule about splash laps; each job must be judged according to known local conditions.

Hollow rolls are also used to join bays along their length, but only when there is no likelihood of people walking on the rolls and treading them flat. For this reason hollow rolls are, as a rule, used only on steeply pitched roofs, lead covered domes, door canopies, and so on, where the easily bent hollow roll is safe from traffic, and can be made to follow the curve of the roof.

Straight hollow rolls are formed over a round wooden roll of convenient length which can be withdrawn afterwards.

Curved hollow rolls are made by first forming the roll over the steel bending spring used for bending lead pipes. A portion of the roll is made with the spring straight, and then while it is still in place, the roll is bent to the required curve of the roof. The spring is then withdrawn a little to form another portion of the roll, which is then bent. In this way the roll formation proceeds down the roof curve.

Note: Ridge rolls must be wood cored or solid so that the lead weathering is supported along the line of the ridge.

Joints across the flow

Drips are used to joint the bottom edge of an upper bay to the top edge of a lower one. They take the place of laps, which cannot be used on roofs with a pitch of less than 15 degrees. Drips should never be less than 1½" high, and it is generally agreed that 2" is a good standard vertical height.

As has already been said, splash laps are optional, and whether or not they are used will depend upon local conditions and requirements.

Capillarity is likely to occur at a

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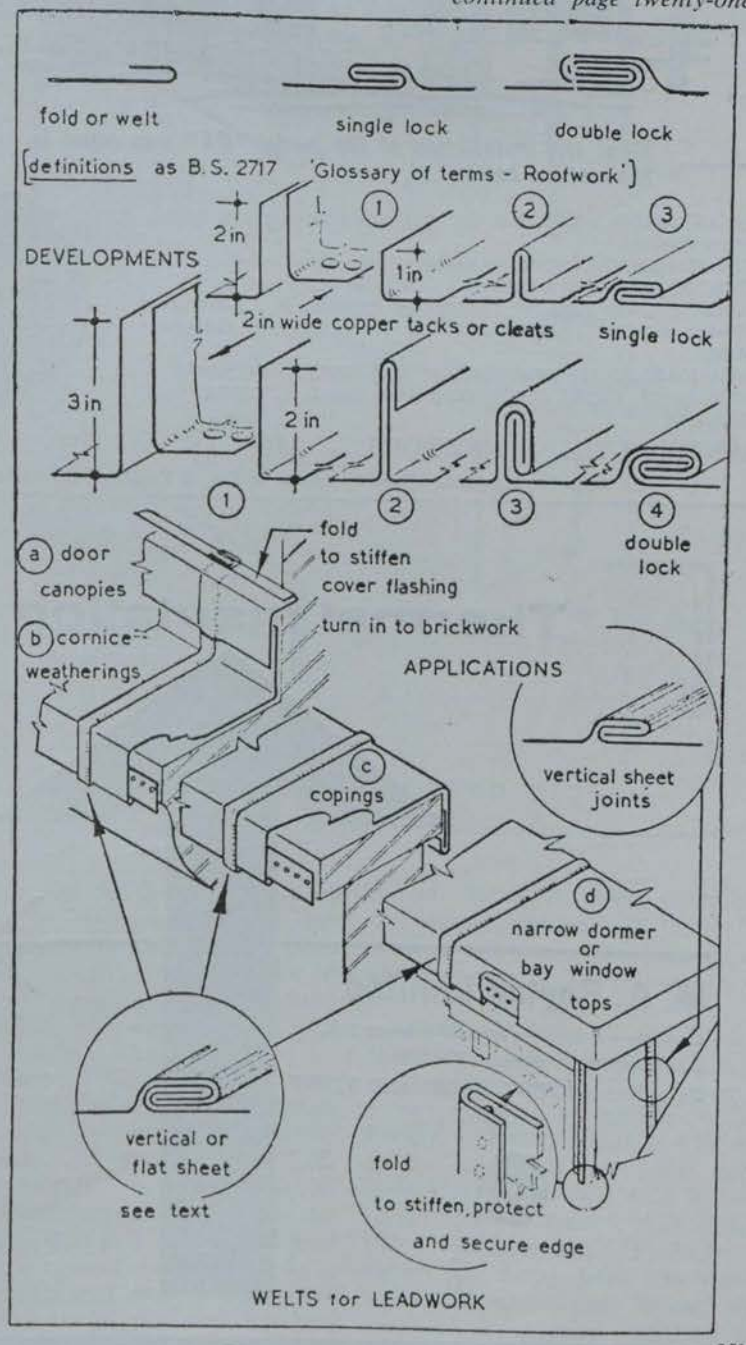


from page nineteen

drip which is really a lap between the vertical undercloak and the vertical, close fitting overcloak. Anti-capillary grooves or gaps are desirable at all lead drips, and there are several ways of providing them. **(See illustration).**

Laps cannot be used on pitches of less than 15 degrees. At steeper pitches they may be used, provided that proper fixing is arranged and that the sheets of lead lap over one another by at least 3", measured vertically.

Welts.—Leaving out the possibility of capillarity for a moment, it will be seen that rolls or drips are joints which provide a "water barrier" equal to their vertical height. In other words, water would have to stand at least 2" deep on a roof before it could enter through these joints. This is unlikely to happen, unless perhaps the outlet of a cesspool which has no precautionary overflow pipe becomes blocked, but it draws attention to the reduced height and consequently reduced "water barrier" of the welted joint.

Welts are useful in many jobs but these points must always be borne in mind.

Welts would not be used on flat roofs. They could be used for jointing vertically fixed sheets when they may run with or across the flow of water.

Welts are also used for end jointing long lengths of weatherings; for example, in lead D.P.C.'s, in cap flashings for copings, or in cornice weatherings.

In the horizontal, or near horizontal position, when dealing for example with copings and cornices, a double lock welt used with a knowledge of its limitations, may be effective with or across the flow.

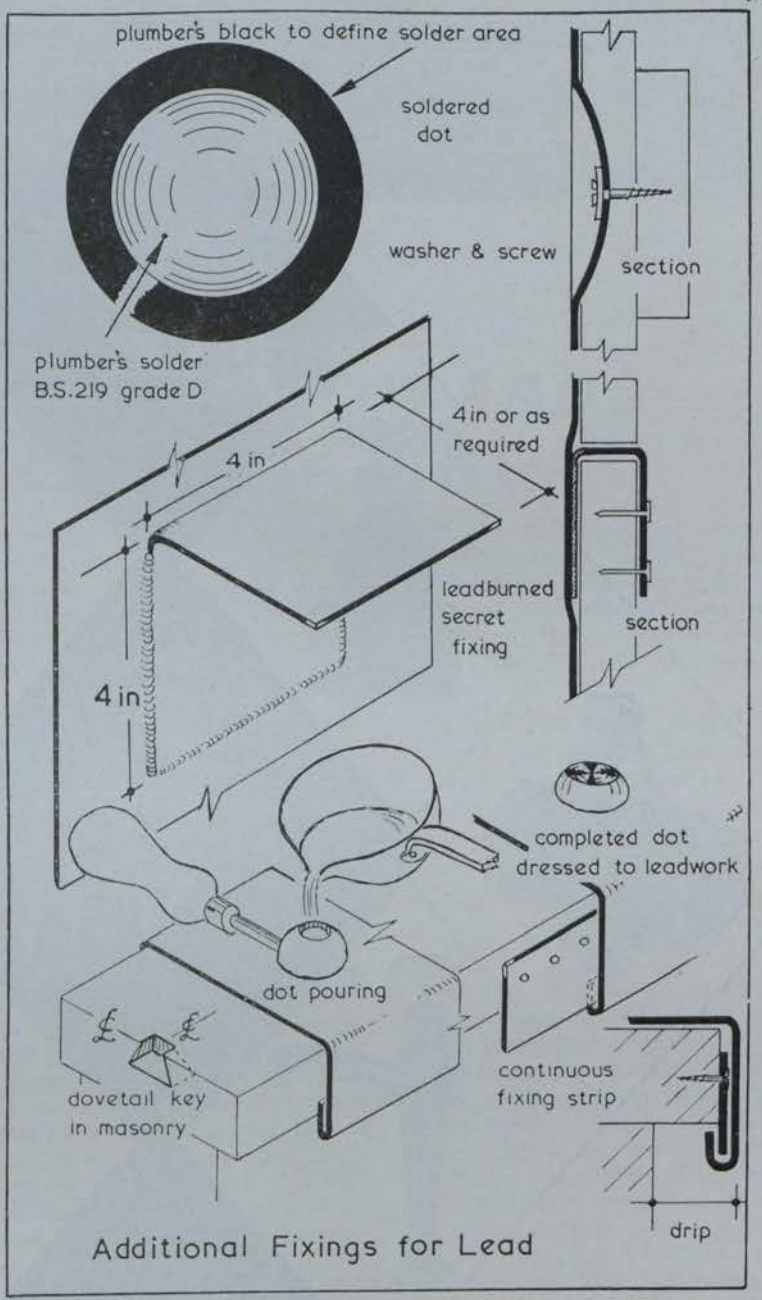
Our illustration shows the formation of welted joints. Notice the similarity between the early stages of forming a double lock welt and forming a hollow roll.

Additional fixings for sheet leadwork

The design and placing of some lead weathering details require special fixing arrangements.

Soldered dots.—These are used to secure vertical sheets of lead and also provide some support for its weight, thus reducing any tendency to sag.

Secret tacks.—Another way of providing vertical fixing and support is to solder or leadburn a strip of lead to the back of vertical sheets. This is passed through a prepared slot in the timber cheeks and securely fixed on the inside with copper nails.



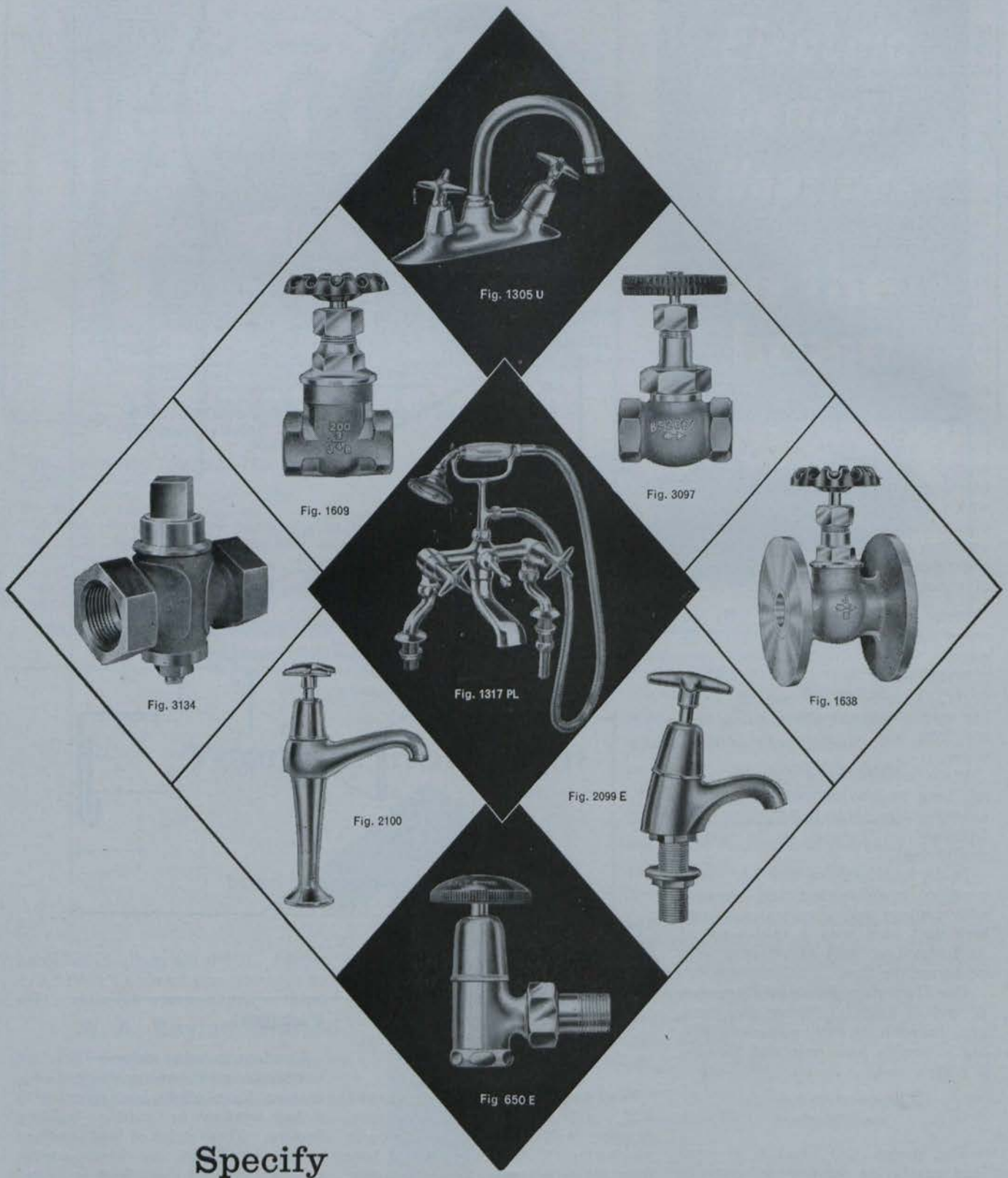
Additional Fixings for Lead

Lead dots.—These are used to secure lead cap flashings to stone or concrete parapet wall copings and cornice weatherings. A square, mitred hole is cut in the masonry, or a removable, shaped wood form is inserted into the concrete as it is cast. The sheet lead covering is opened up at this hole, a dot mould placed over it and, after carefully making sure that the hole is dry, molten lead is poured into the mould. It fills the cavity in the stone or concrete, and leaves a "rivet" like head or dot to secure the sheet. **(See illustration).**

Continuous fixing strips.—These are sometimes used to secure the free edge or turn down of the lead covering to a bay window or similar building feature. These strips of lead are fixed to the woodwork by close copper nailing; and the sheet lead is folded round them to form a neat, invisible fixing arrangement. Properly designed, this fixing detail also provides a "drip," which will throw water clear of the vertical building faces below. **(See illustration).**

Building Services Engineering, Vol. 1 [1961], Iss. 11, Art. 1

For Variety - with Individuality



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AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

REVIEW OF TAPS, FITTINGS AND CONTROLS

THE TREND IS TOWARDS THE ELEGANT LINE

PROGRESS is a never ending process, and the notes which follow are an attempt to show how the trend is moving in the fields under review in this survey.

Let us take first the all important tap, either bib or pillar. It is still in many cases massive and unattractive. There are many elegant ones about, though at quite ordinary prices, and the best of these are quite as good as anything to be had on the continent.

In one respect some continental designs are to be coveted. Their designers operate in a climate less hampered by restrictive regulations than do, for instance, home designers.

This is by no means to suggest that everything continental is admirable, and vice versa. Quick opening for labour saving, non rising heads, everlasting washers: these are one thing. But one should look out for poor quality plating, or a rough job beneath a brilliant cover shield.

Combination

It is an easy move from taps to combination taps.

The combination tap for connection to equal pressure supplies (tank or service pipe) has integrated waterways, and is therefore simple enough. That for unequal pressures (usually tank v. main) keeps its waterways separate right through to the discharge point, at the cost of considerable and often ingenious complication.

It is usual for combination taps to have fixed centres for the inlets. This means that they will fit very few ceramic basins unless these are specially produced, and they go principally with metal basins and sink units.

Although there will continue to be a market for some time to come for the unequal pressures split flow type of the combination tap, a plumber would generally do his customer a service if he were to advise the alterations needed to accommodate the other type. This usually means that a cold feed has to be run from the tank which supplies the hot system, and gives a much more satisfactory and easily regulated output.

It is encouraging to note that one British manufacturer has now introduced a mechanical mixing tap of medium price which controls both temperature and flow rate of water; and as well as this being an historic occasion, it must be said of this device that its two functional regulators are readily recognisable for what they are. Too often the sheer ingenuity of overseas models has baffled the would be user for a time.

The mixing valve, whatever its form, has two principal points of application—the basin and the shower bath. Use at a basin is usually not critical, and calls for little comment beyond reminding the plumber that when inlet tail pipes are part of a continental fitting they are generally 10mm. copper. This size is, by home standards, unmatchable, and unless the tails are to be sweated into the supply lines, special adaptors are needed.

The shower bath is unquestionably a critical application. Every unsatisfactory shower installation is a measurable setback to the popularity of showers, which is the greatest pity, if only because showering is so cheap and so effective.

Flexible

The first of three points to make here concerns the use of the flexible shower arm, which ought to have with it two fixing points for high and low setting of the rose in addition to use in the hand. The operating head, judged against the minimum recommended by the maker of the mixing valve, must be measured at its worst, i.e., when the rose is in the highest position. Head is, of course, measured from the rose upwards to the tank, not from the mixing valve.

The second point is also concerned with the flexible shower. Makers will often state, or imply, that their mixer will work at (say) 4 feet effective head, again measured from the rose. They will add that in a good standard of

continued overleaf

This special survey—the seventh in a series on important aspects of the plumbing and heating trades—has been compiled by technical experts, W. H. Johnson and John G. Bolton.

domestic plumbing, allowing for losses in pipework, this means about 6 feet vertically measured head. Remember that this figure is based upon a fixed shower, using a fitting made of copper pipe.

Two factors in the flexible fitting operate to make such a minimum valve often unsatisfactory, one of these being the considerably greater resistance to flow of the flexible fitting—particularly the rubber lined type. The other factor is a matter of usage. Water from a fixed shower falls vertically, or nearly so, but in shampooing and similar operations with a hand shower the stream is more likely to be near to horizontal. To be satisfactory this requires greater water velocity, hence force and pressure, and the installer should seek an extra allowance above the minimum pressure head.

There is some relief from this difficulty in practice, if the head is measured from the highest position of the rose, by the fact that hand work with the rose is usually carried out at a lower level.

Complication

The third point about showers is to do with their complication by the addition of other functions. There is growing support for the bath diverter, by which some form of changeover mechanism allows water to fall into the bath instead of going up to the shower.

A mixing valve or tap usually has the output rate of a ½" bib tap, sometimes less. In a country where, due to pressure conditions, it has always been customary to fit a pair of ¾" taps to a bath, the much smaller flow can be a great disappointment about the rate of bath filling. So it is not advisable to recommend this type of fitting unless the supply pressures are a great deal better than the minimum.

The other complication is even worse. This is the needle shower or body spray, the object of which is to subject the user to attack by water from at least three sides, from about two feet to five feet from the floor.

Hydrotherapy

These are widely used in hydrotherapy, and consume relatively vast quantities of water, equivalent to the output of at least a 1" mixer under medium heads. Under low heads, of the order we have been discussing, they fail completely.

from previous page

SHOWERS: ADDITION OF OTHER FUNCTIONS

John G. Bolton

writes . . .

There is, fortunately, a remedy, which is within the scope of the better off customer, and that is to fit to the outlet of the mixer, between it and the shower cubicle, a pump. The first thing to do with this apparatus is to find, by practice if necessary, a satisfactory rate of total output. Then, both the mixing valve and the pump must be capable of passing this quantity of water, and the pump should throw somewhere about 30 feet head.

Almost all the points made above about mechanical mixing valves or taps apply with equal force to thermostatic mixing valves. The latter, just as a reminder, are mixing valves which contain a thermostatic controller. This gives automatic regulation of outlet temperature and eliminates fluctuations due to changes in the pressure or temperature of either inlet supply. It is therefore a function which adds considerably to the comfort, safety and convenience of the fitting in use.

Thermostatic

But to return to trends, it is worth noting that there is now a cross-channel made thermostatic mixing valve with inbuilt flow control. This does away with the need for either non-return valves or inlet or outlet stop-valves, which have hitherto always been needed as accessory fittings.

A review of taps cannot afford to ignore the economy spray mixing tap, that fantastic saver of water and, through hot water, of fuel.

After a mere five years of life it is still a newcomer to the field, but growing fast. Although its principal use has so far been in large installations, offices, factories and the like, it is equally good for the home.

The spray mixing tap is a mechanical mixer, needing supplies of nominally equal pressure. As well as this, it needs hot water right on the job, either in circulation or in the form of underbasin heating. The latter is a recent and almost ideal technique.

ONE of the main difficulties encountered by the contractor is to know what is available when faced with the selection of meters, valves, control gear, traps, etc., for a particular purpose. Even where a specification is supplied, its terms of reference are often very vague.

In this survey, we have grouped under various headings details to assist in making a choice.

Water Meters.—In the field of water supply, the use of a meter for recording the amount of water flowing through a pipeline is by no means new. Records show that even in Ancient Rome, water meters, of a kind, were in use.

To most people, the meter simply records quantity, but in actual practice it will serve as a leak indicator, a waste detector, and coupled to a flow recorder, as a source of information to judge peak demand.

Meters are made in a range of sizes to suit the recognised pipe-line diameters, and to the rate of flow usually associated with each size of pipe, but in exceptional cases it may be necessary to fit a smaller meter to a larger bore pipe. This would occur, for instance, where velocity of water is very low—perhaps feeding a partly opened ballcock, etc. It must be borne in mind that the larger the meter, the larger will be the minimum flow or velocity to make it record.

Accelerate

Against this is the fact that if too small a meter is installed, the resultant increase in velocity will accelerate any corrosive properties in the water, and in addition, overload the meter.

For domestic use, meters are usually divided into groups, as follows:—

● Inferential Meters, sometimes referred to as "Velocity" meters. Most readers will be familiar with this

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type as the flow revolves a Paddle Wheel, Vane, or Impellor in the body of the meter.

- Positive meters of the reciprocating piston type.
- Semi-Positive Rotary piston type meters.

The Inferential Meter has been, and still is, the great favourite for measuring domestic supplies. It is simple in design, and will measure high and medium flows with accuracy, but is not so good with low flows as they are inclined to "slip."

The Positive Reciprocating Piston type of meter is usually considered the most accurate available, and will, when in good condition, measure every drop of water passing through it, hence the name Positive. Unfortunately, owing to the number of working parts, and the high degree of accuracy involved, the cost is very high, and for this reason the meter is not generally installed.

Accurate

The Semi-Positive rotary piston (oscillating) meter is very accurate, almost up to the standard of the Reciprocating Piston Meter, but is not so expensive. It is one of the best all-round types, and is finding much favour with waterworks authorities.

There are, of course, many other types of meters, such as turbine, Venturi, high velocity, etc., and contact with the manufacturers is essential if the flow problem is anything out of the ordinary.

Waste Food Disposal Units.—These are sometimes known as "garbage grinders" and are gradually beginning to make an impact on the trade. They represent a step forward in hygiene which cannot be overlooked, and for high-class housing projects are considered a necessity.

The unit comprises a fractional H.P. electric motor which rotates at high speed a centrifugal impellor enclosed in a casing. This unit is attached to the waste of the kitchen sink and takes the place of the trap, so that all food scraps can be washed in and chopped to pieces by the shredding cutters inside the unit, finally being discharged into the drain.

Waste disposal units do not, and are not intended to, deal with all types of household garbage. They are not suitable, for instance, for dealing with uncooked bones, cloth, string, rubber, etc., but will completely disperse and wash away all normal food waste.

The unit measures approximately 8in. in diameter and 16-18in. deep, depending on the type. An 1½in. waste pipe is necessary for most units.

It is not possible for the unit to be attached to existing sinks, as the outlet from the sink must be at least 3in. in diameter. Existing stainless steel sinks can, however, have their waste outlet enlarged to allow the fitting of the unit.

Efficient

Water Softeners.—In general, people prefer a soft water as it is more pleasant and efficient for ablutionary and domestic purposes, but unfortunately in rural areas most water supplies are of a temporary hard nature due to having absorbed carbonates of calcium and magnesium from the ground.

To soften this water to an acceptable degree, the base-exchange or ion-exchange method of water softening is usually adopted.

This process consists in forcing the hard water through a container filled with a softening medium such as zeolite sand, whereupon a chemical re-action is set up in which the calcium and magnesium salts are passed into the zeolite and are replaced by sodium, which does not cause hardness and is not harmful in any way. The water then becomes soft, and if necessary "zero soft."

After a period the zeolite loses its softening properties, but only requires the addition of common salt (sodium chloride) to renew its action.

There are several well known makers of water softening plants, which use this principle, or variations of it, and they will be only too pleased to provide details. Readers may also like to refer to our July issue, where the subject was dealt with in detail.

Reduced

Ballcocks.—In the past we had all sorts and shapes of ballcocks, but gradually these reduced in number to three main types—Croyden, Portsmouth, and Equilibrium. In latter years, the Croyden type has virtually disappeared, and for general use the Portsmouth pattern reigns supreme.

The Equilibrium type, of course, still holds its own for very high pressures and large mains, etc. One problem

continued page twenty-nine

- *In conjunction with this special survey on taps, fittings and controls we review products from the leading manufacturers' ranges.*

A SMALL neat valve (only a quarter of the weight of conventional valves) for the control of air or water at inlet pressures up to 150 lb. p.s.i. and working at temperatures up to 70 degrees F., is numbered R9091 in the catalogue of Gummers Ltd., Effingham Vale Works, Rotherham, Yorks.

Details of the Company's vast range of fittings may be had on request to their Catalogue Department.

Irish Agents: McGrath & Kenny, 48 Townsend St., Dublin. Belfast Office: 10 Brunswick Street, Belfast.

THE GROHE group of Companies in Western Germany, together form one of the world's largest organisations, manufacturing plumbers' brass foundry.

Grohe products range from a small ½" bib-cock up to 1¼" thermostatically-controlled valve, capable of supplying mixed hot and cold water to 20 showers at a pressure of 90 lbs. per square inch.

The research and design engineers employed by Grohe have made many innovations in the design of their fittings. For instance, Grohe was the first manufacturer to introduce the O-ring in the place of gland packing in the upper part of a tap. This O-ring is composed of a nylon rubber

continued page twenty-nine

Grohe thremostatically controlled bath mixer valve with connection for head spray.

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INVITATION . . .

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

Compression Joint Fittings - Copper Piping - Pipe Wrap - Copper Cylinders - Open Top Tanks - Pressed Steel and Cast Iron Radiators - Oil Fired and Solid Fuel Boilers - Baths, Basins, Toilet Sets, Shower Fittings - Mixer Fittings - Stain less Steel, Enamel Steel, Fire Clay Sinks - Blow Lamps, Solder - Bathroom and Kitchen Furniture - Double Compartment Tanks. For a full comprehensive supply of plumbing materials:

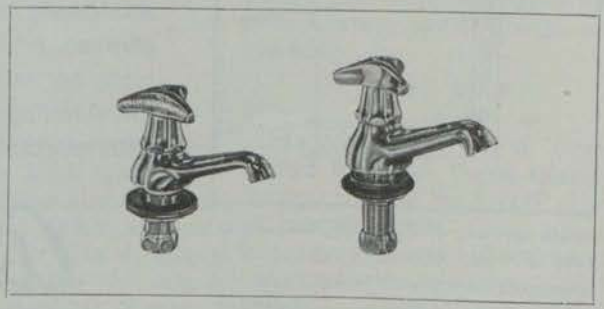
DOCKRELLS of Georges St., Dublin

TRADE ENQUIRIES INVITED.

GROHE

SANITARY FITTINGS

Reliable - Functional - Elegant



Detailed information is available from our Irish representatives:

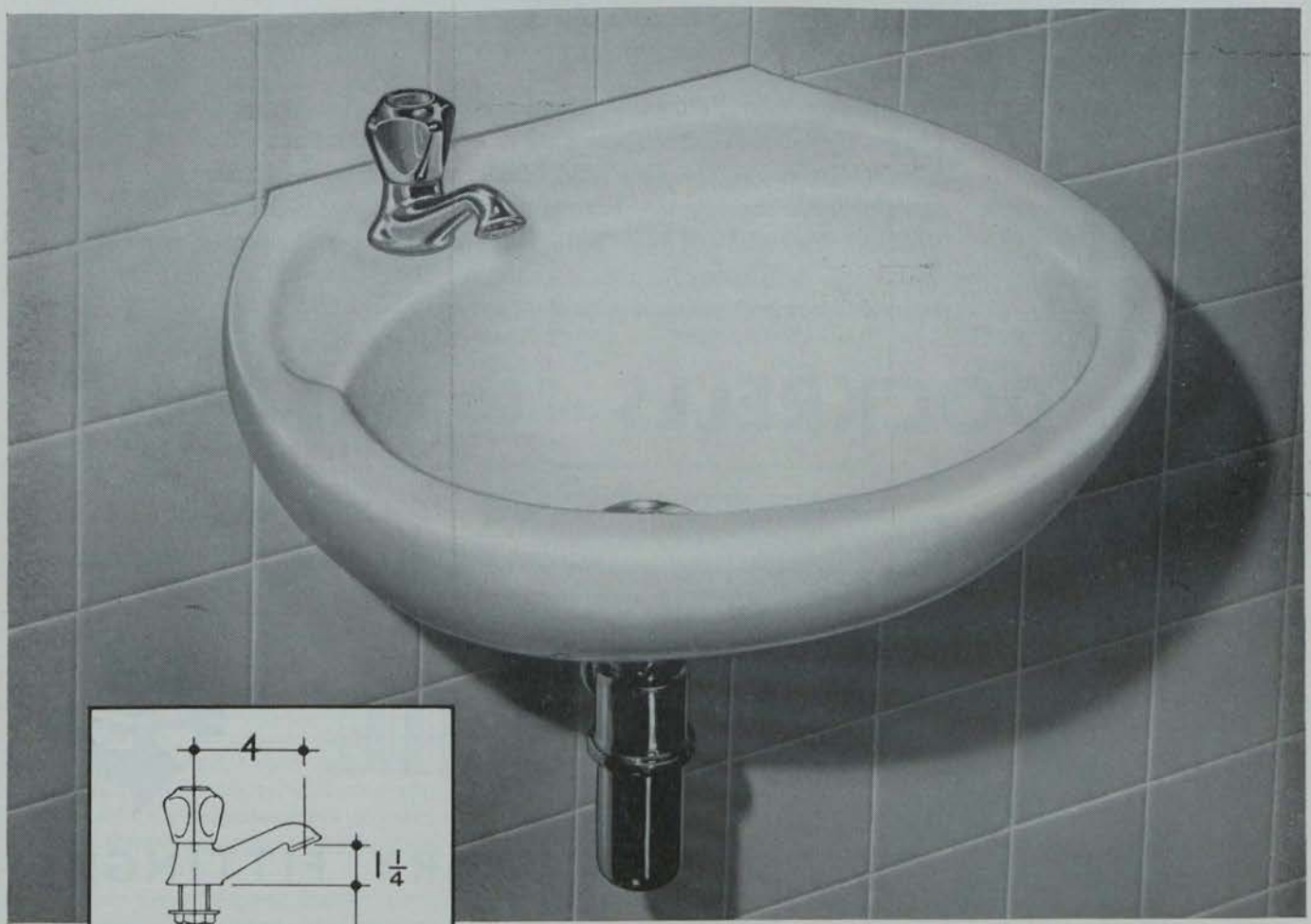
Norman Stewart Ltd.,
Central Hotel Chambers,
Dame Court, Dublin.
Telephone: Dublin 73086.

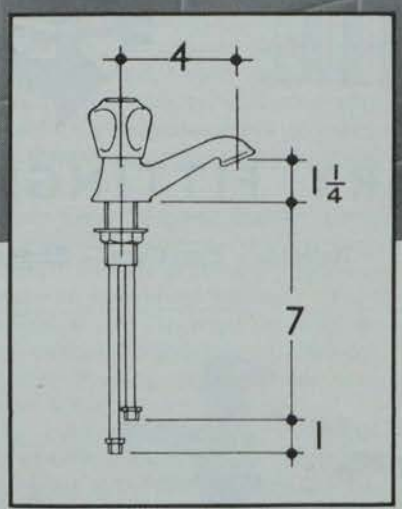
Agents in Ireland of:

FRIEDRICH GROHE ARMATURENFABRIK Hemer/Westf.
GROHE THERMOSTAT GMBH Lahr/Schwarzw.
HANS GROHE KG. Schiltach/Schwarzw.

cold! tepid! hot! from the same tap!

Nuastyle 'Spraymixa'





Inlets screwed ¼" B.S. pipe, wall union. Fits into any standard taphole. For pressures more than 25 feet head, volume regulators on inlets are recommended.

Hot, cold or tepid—all from a single tap! The 'Spraymixa' washbasin tap feeds water from both hot and cold tanks to give an economic controllable spray (consumes only four pints per minute). This highly efficient tap is illustrated with the Armitage Series 3 Meritex basin which is also available with two tapholes and overflow.

Armitage Ware

ARMITAGE WARE LTD Armitage, Rugeley, Staffordshire Phone: Armitage 253 (7 lines)

LONDON OFFICE & SHOWROOM Northumberland House, 303/306 High Holborn, W.C.1 Phone: Holborn 5486/9

Irish Representative F. N. S. AHERN, 46 Wynberg Park, Stradbrook Road, Blackrock, Dublin. Telephone 85309

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Review of manufacturers' products

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material that was only chosen after a great deal of research, and it prevents any flow of water into the upper part of a tap. Old-fashioned gland packing could absorb and hold a leak into the upper part of the tap but could not prevent it from getting there. It was possible, and according to various Medical Officers of Health, it often happened, that harmful germs could accumulate in this part of the tap and ultimately find their way back into the potable water. The design of the Grohe taps makes this impossible.

The Grohe thermostatically controlled valves have already found a useful market in Ireland, where the company offer free expert technical advice about any proposed installation.

Grohe have also pioneered the use of plastic in water fittings, such as flexible tubes, handsprays, tap handles, etc. Some years ago, they perfected a flexible plastic tube which is stainless, unbreakable and has yet no known duration.

★ ★ ★

ALL Ferrosta draining boards and sinks with the exception of models OSL-OI and OSL (20½" wide), and models OSF-OI and OSF-10 (20½" wide) can be completed with the following special tap units:—

(1) Chromium plated kitchen sink mixing tap with a swivel spout, with or without a rubber hose and hand sprayer; and (2) chromium plated single column mixing tap with 180 degree turnable swivel spout and chain holder.

Ferrosta manufacturers are Ocriet France S.A., Tonnerre (Yonne), France. Irish agents are Calumet Trading Co. Ltd., 41 Upper Mount St., Dublin.

★ ★ ★

PEGLERS LTD., of Marshalsea Road, London, S.E.1, manufacture the range of Prestex chromium plated lines for plumbers and heating engineers which include stopcocks, valves, bath overflows, basin and sink traps.

★ ★ ★

TO MEET the growing demand for best quality taps, waste fittings, traps and ballvalves for baths, wash-hand basins, sinks and store tanks, Fyffe Couplings (Ireland) Limited entered into the field of manufacture of these items and many other fittings in the plumbers' brass ware range some time ago.

Since then many thousands of these fittings have been supplied to builders through the plumbers' merchants, and the demand is increasing. The factory, at 42, James's Street, is equipped with the most modern machinery. A 200-ton vice press, for hot brass pressings, has been added recently and others are being contemplated.

Instantor Compression Couplings, one of the best known couplings in the country, are manufactured in the same factory, together with Endex Capillary Fittings for small bore forced circulating central heating systems.

★ ★ ★

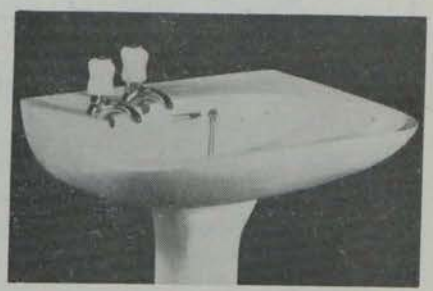
THE BARWELL deck pattern combination sink fittings has a hot rinse attachment mounted on a flexible hose taken from the body of the fitting. Gentle pressure with the thumb on the trigger of the rinse attachment instantly diverts the hot supply from the swivel spout to a spray from the rinse attachment.

Releasing the thumb pressure reverses the process. Complete shut-off spout and spray supply is controlled by the hot tap. This system has the advantage that neither the hot rinse attachment nor the flexible hose is under pressure when not in use, thereby disposing of the possibility of leaks, and dispensing with the need for an additional hot rinse control tap.

Details of the wide range of Barwell products are available from the manufacturers, James Barwell Ltd., Birmingham 18, and from their Irish agent, C. B. Sheridan, Esq., 10 Herbert Place, Dublin.

★ ★ ★

"HOLLYWOOD" tap fittings are a part of the new range of brassware introduced by George Howson & Sons Ltd., Eastwood Sanitary Works, Clifford St., Hanley, Stoke-on-Trent. They have vitreous porceline covers to match or contrast with the ware or bath.



A specially toughened porceline body is used in the manufacture of the covers which virtually eliminates chippage and breakage given normal useage. A complete range of conventional chrome plated fittings are also available.

★ ★ ★

MANOTHERM of 38 Corn Exchange Buildings, Burgh Quay, Dublin, specialise in the supply of gauges for specific needs. They are agents for the well-known Cleveland meters for measurement, control and liquid volume. These meters are suitable for use with chemicals, oils and solvents, cold and hot water, syrups, etc.

Manotherm Ltd. are also agents for Penn automatic controls for water pumps, etc.

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from page twenty-six

John G. Bolton writes . . .

which has emerged in recent years is the dezincification of the brass in many ballcocks, and this has brought forward the development of the plastics or nylon seated valves. Those which conform to British Standard 1212 have proved very satisfactory in use, and are very resistant to corrosive waters.

Traps, Valves and Cocks.—This section covers an extremely wide and bewildering group of fittings in any manufacturer's catalogue, but from the plumbing angle the main change has been the use of hot pressings instead of castings for many types.

This has more or less abolished the trouble of sand holes which occurred in many early fittings. The development of good design has also completely altered the appearance of many of our bath, basin, and sink fittings, and has produced the neat look so pleasing to the customer.

The new duo-flow mixing taps for sink units is worthy of note in this respect, and complies with the Bye-Laws of most water authorities.

from page twenty-nine

MODEL "D" Supataps incorporate a special nozzle sealing ring to prevent seepage when the taps are subjected to additionally high pressures; an enlarged and chromium plated seating area for longer washer life; and an increased waterway giving improved flow and efficiency, particularly under low pressure conditions.

A neat new Supatap hose union designed to prevent seepage under high pressure, is made to match. The 30 second washer change (without turning off the water), built-in anti-splash and finger light control, features of the Supataps have been maintained in this new model.

Supataps are from the range of F. H. Bourner & Co. (Engineers) Ltd., Manor Royal, Crawley, Sussex, who have recently appointed as their agent in Ireland Mr. G. A. Reid, 16 Fade St., Dublin.

★ ★ ★

AUTOMATIC air eliminators are among the many products listed in a comprehensive catalogue from Charles Winn & Co. Ltd., Engineers, Granville St., Birmingham. The Irish representative is J. S. Lister Ltd., Dorset Row, Dublin.

The standard type A eliminator has a ½" female inlet and ⅜" male outlet B.S.P. for maximum pressure up to 100 p.s.i. and temperature up to 200 degrees F.

★ ★ ★

WITH THE Conex Polydaptor sleeve normal gauge tubes can be joined without heating, expansion of the tube and the use of special tools. Tests have proved that the simple joint of the Polydaptor will resist even greater pressures of pull than the actual polythene tube itself.

In this fitting a two-point pressure or grip is applied to the tube and by virtue of its design the Polydaptor will compensate for quite an appreciable variation in tube sizes without detriment to the actual joint.

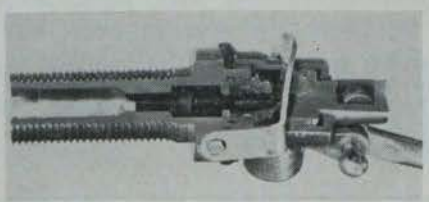
Sanbra Ner-Drip valves and washers, the manufacturers claim, last virtually as long as the tap itself. They can be operated a million times without showing signs of distortion or deterioration.

Both of these Conex and Sanbra products are available from their associate Irish Company, Sanbra-Conex (Ireland) Limited, Santry.

The Sanbra-Conex ranges also includes screwdown bibcocks and stopcocks; C.P.E.C. and high-necked pillarcocks; combination sink mixers (single flow only); waste fittings for baths; lavatory basins and sinks; cast brass traps and overflows; brass plug docks; M.T. plugs; draw-off cocks and ball valves; compression fittings; and drawn copper traps.

★ ★ ★

PICTURED here is the new Broadstone ballvalve which features combined shut off so that the water supply need not be turned off when detaching. The nylon seatings are interchangeable so that the valve can be quickly converted to high, medium or low pressure.



From the Broadstone Ballvalve Co. Ltd., Hudsons Drive, Cotteridge, Birmingham.

★ ★ ★

TYLORS of Ireland Ltd., 55 Rathgar Avenue, Dublin, have introduced the new Model TL3 in half inch size, with flow rates from 5 g.p.h., operating temperatures up to 220 degrees F., and working pressures up to 150p. s.i.g. This model is one of a range of fuel oil meters.

"Sureseal" unsyphonable traps for lavatory basins, baths and sinks are also from the Tylor range. For lavatory basins and sinks the Sureseal is made from cast brass, is self-cleansing and will retain an adequate seal against extreme syphonic action.

No anti-syphonage pipe is necessary and it can be supplied with either screwed female inlet or with inlet union as desired. Various outlet connections are available for use with lead, iron or copper waste pipes.

The 1½" "Sureseal" unsyphonable bath trap is in cast iron, glass enamelled inside and painted outside. Similar in operation to the sink trap, its design has been modified to meet the more restricted space available beneath a bath.

★ ★ ★

BRONZE Vee-Reg valves conform to B.S. 2060 and are suitable for working temperatures up to 500 degrees F. The discs and body seat rings are manufactured from EN.57 stainless steel and have a minimum difference of 50 points Brinell hardness.

Bronze Vee-Reg valves are fitted with a carefully designed malleable iron handwheel of the non-heat type giving comfort in handling during operation. All gland studs and nuts are of high tensile steel threaded UNC. Stem threads are of the acme form.

The Vee-Reg valve is a combination of a stop-valve and a regulating instrument. It incorporates a protected shut-off seating which ensures complete elimination of wire drawing. Makers are British Steam Specialities Ltd., Fleet St., Leicester. Irish offices: 33 Leeson Park, Dublin; 6 and 98 Lisburn Road, Belfast, 9.

★ ★ ★

AQUAMIX thermostatic temperature controller incorporates a built in thermometer enabling an accurate manual overriding control of temperature to be obtained. Each unit is supplied complete with dial thermometer scaled in both fahrenheit and centigrade.

The body of the unit is manufactured in cast iron with three screwed connections. These are tapped 1" B.S.P. (female) thread. The internal piston is made of gun metal, which is machined to very fine limits.

The Aquamix is designed to maintain an even temperature by mixing quantities of hot and cold water. These are varied automatically and are mixed within the valve, the temperature of the mixture being shown on the thermometer dial.

From Harford Pumps Ltd., Harford House, Charlotte Street, London. Agent in Ireland: Mr. G. A. Reid, Manufacturers Agent, 16 Fade St., Dublin.

★ ★ ★

"NEW BELCO" is a chromium plated ¾" BSS 1010 bath mixing valve with patented handshower attachment, flexible tube, and bath adaptor. The handshower is affixed to the patent bath adaptor and swivels 180 degrees in a horizontal position and also vertical, thus giving easy movement when using it as a fixed shower.

The New Belco is fitted with a Tich rose, but it can be supplied with 2½" shampoo rose as desired.

From Belco Manufacturing Co.

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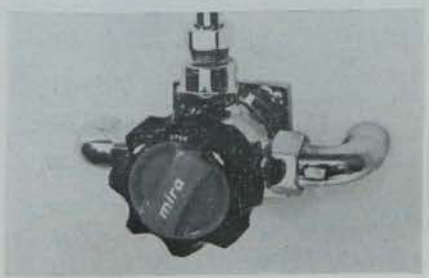
Ltd., Shortlands, London. Irish agent, E. G. Mullane, Esq., St. John's, Wynberg Park, Blackrock, Co. Dublin.

★ ★ ★

MIRA shower mixing tap is basically a mechanical mixing valve with integral flow control. Adjustment of the inner dial causes incoming hot and cold water supplies to be blended in a set proportion, while the outer control dial acts as a tap and determines the volume of water which flows.



Minimum working "head" is 3 ft., which will give an adequate wetting shower; the better the head (up to a recommended maximum of 100 pounds per square inch), the better the choice of spray. Hot and cold water pressures should be nominally equal.

For shower applications type 211 is supplied, which has an integral back plate for wall or panel mounting. It has union elbows on the inlets screwed ½" BSP female. For wash-basin use, type 222 is available, which is equipped ready for pillar mounting in any standard basin. It has an integral swivel outlet pipe and ½" compression joints on the inlets.

The "Mira" is manufactured by Walker Crosweller & Co. Ltd., Whaddon Works, Cheltenham, and distributed in Ireland by Modern Plant Ltd., Crumlin Road, Dublin.

★ ★ ★

CRANE ball-type disc valves offer a minimum back pressure to back flow which adopts a more streamline configuration past the spherical surface. The disc, which is lighter in weight than the piston type, rises freely in an accurately machined bore and is air cushioned in the open position.

In use, the ball disc is free to rotate in all directions, which results in more uniform wear and a longer disc life. The narrow contact area of the disc and seat ring assists in breaking down any deposit that may form on the surface.

Both bolted cap and union cap valves have a soft iron gasket precisely located in the male/female joint to allow an easily made leak-proof joint. From the range of Crane Ltd., Red Lion Court, Fleet Street, London.

★ ★ ★

SISSONS whirl-a-waste caterers' food waste disposal units have models available to suit every size of catering establishment. A feed pusher is supplied with most models to feed disposal materials into the grinding chamber.

The waste outlet can be right handed or left handed according to site requirements. From W. & G. Sissons Ltd., Calver Mill, Calver, via Sheffield. Irish agent: C. B. Sheridan, Esq., 10 Herbert Place, Dublin.

★ ★ ★

HARD water forms scales in pipes, boilers and heater coils. Among other things this scale chokes them, causes

continued overleaf

from previous page

dripping taps, sedimentation in water and burns out the heater coils.

Permutit water softeners from the Permutit Company Ltd., Regent St., London, counteracts these troubles, and in the course of time scale disappears altogether. Distributors for the Irish market are R. S. White Ltd., 3, The Crescent, Donnybrook, Dublin.

★ ★ ★

BROWNALL corrosion resistant service fittings are coated in a tough (epoxy resin base) acid, alkali and solvent resistant material and are specially recommended for laboratory use.

Donald Brown (Brownall) Ltd., Lower Moss Lane, Manchester, are the manufacturers.

★ ★ ★

BARKING'S "Goblet" trapped waste with captive plug are made specially for schools and institutions. The method of attaching the plug to the waste ensures that the plug cannot be removed but does not impede the efficient discharge achieved by the "Goblet" outlet.

Chromium plated on heavy nickel coating secures a standard thickness of plating, with a unique design feature that ensures a faster discharge of water and better hygiene as there is no flat surface on which dirty water can remain.

The Barking trapped waste is from Barking Brassware Co. Ltd. (River Road, Barking, Essex) range.

★ ★ ★

THE In-Sink-Erator refuse disposal unit, which can be fitted to any standard sink, with a 3½" drain aperture, for the disposal of kitchen waste is available in two models—77 and 333. These are intended for domestic use, and other models are available for use in hotels, restaurants, etc.

The unit is electrically operated and disposes of table scraps, bones, peelings, fruit stones. The steel grinding elements are of a high carbon chrome and nickel alloy called Damascan 10. All gaskets, water seals and resilient mountings are made of Hycar which resists acids in food wastes.

Manufactured by Wynbourne-Satoba Equipment Ltd., City Road, London.

TRADE TOPICS

U.C.D. lectures on heat transfer

UNIVERSITY College, Dublin, has inaugurated a new lecture course conducted by Professor John P. O'Donnell, for graduates in the Science Buildings, Upper Merrion St., Dublin. These lectures will be an introduction to heat transfer or the making of full economic use of heating power in industrial production and design.

More than 40 scientists and engineers in Irish industry have enrolled for the course, which will continue each Thursday at 8 p.m.

TENDERS

(Additional)

CARLOW-KILDARE Mental Health Board—Beeston Domestic Boiler: Tenders are invited for the supply of the following: One only Beeston Domestic Boiler, size EX closed type; height 43", width 24¾", depth 25". Diameter of smoke pipe 5". B.T.U. 125,000 per hour. Bower Barffing treated. Plain finish.

Tenders endorsed "Domestic Boiler" will be received by the Secretary, St. Dympna's Hospital, Athy Road, Carlow, up to but not later than 5 p.m. on Monlay, February 26, 1962.

★ ★ ★

OFFICE Of Public Works—Heating Contract: Sealed tenders addressed to the Secretary, Office of Public Works, 51 St. Stephen's Green, Dublin 2, and receivable up to noon on February 23, 1962, are invited for converting existing solid fuel boilers to oil-firing at Leopardstown Park Hospital, Co. Dublin, in accordance with plans, specification and conditions of contract exhibited at this office.

Plans and specification may be obtained from the Secretary on deposit of £1 (refundable).

The lowest or any tender will not necessarily be accepted.

● **Peter MacFarlane & Son Ltd.,** 23-27 Couper St., Belfast, 13, advise that they have recently been appointed agents for the range of air heaters manufactured by Afos Limited of Hull. Their territory covers the entire 32 counties.

The new Wilson Wallflame 90.

NEW 90,000 BTU BOILER FROM WILSON

THE new Wilson Wallflame 90 automatic oil-fired boiler with a heat output into water of 90,000 b.t.u.'s per hour, which was announced recently, was marketed at the end of last month (illustrated).

The WF. 90 was originally intended for production simultaneously with the 60,000 b.t.u. version but minor design modifications were carried out before full-scale production began.

The new model is slightly larger than the W.F. 60—40 ins. high, 24ins. wide, and 26ins. deep—and the flue outlet has been centred at the back of the top. In the W.F. 60 the flue is positioned at the side of the top. Oil pipe connections for the new W.F. 90 can be made through the side or the back of the casing. Controls used in the unit are the Satchwell thermostat, Honeywell, Pyrostat, Honeywell Protector relay control and the A.P. oil control valve.

Suitable for larger homes, small commercial premises, workshops and garages, the units cabinet can be finished in white enamel with facia panels of Wedgwood blue, Pewter grey and daffodil yellow.

Maximum fuel consumption is .765 gals. per hour to heat a radiator surface of 529 sq. ft. or 180 gals. indirect hot water cylinder.

Irish agent: G. A. Reid, Esq., 16 Fade Street, Dublin. The Wilson Wallflame is manufactured by Henry Wilson & Co. Ltd., of Liverpool.

The normal cylinder pressures of 1,800 lbs. and 225 lbs. respectively are indicated by a red mark at the appropriate point on each dial, so that any dangerous rise in pressure from overheating or severe backfire, etc., can be noted and immediate precautions taken to reduce same. It must be emphasised, of course, that this is most unusual, and can only happen through carelessness.

The second dial indicates the pressure of the gas flowing to the blowpipe, and is graduated in most cases up to 30 lbs. per sq. in., which provides sufficient range for all normal plumbing or pipe welding work. The average regulator pressures required for general use varies between 2 and 10 lbs. per sq. in.

From the regulators reinforced rubber hose, coloured black for oxygen and red for acetylene, are taken to the blowpipe. The hoses are connected by clips to screwed unions on each regulator, and by special hose protector unions (non-return valves) on the blowpipe inlets. These latter unions prevent blow-back to the regulator and cylinder if the blowpipe should backfire from careless handling.

It will be noted that the use of left and right-hand threads also applies to the unions so as to prevent interchange of the hoses. Hose can be obtained in any required length, but 15ft., 30ft., and 60ft. runs are standard and sold complete with unions.

Blowpipes

THERE are numerous patterns and designs in blowpipes, some for welding only, others for cutting, and those designed as a composite unit. These latter type have separate attachments to fit to the blowpipe when it is to be used as a cutter. The blowpipe (or "torch" as it is usually called in the trade) which finds much favour with craftsmen is the high pressure pattern with interchangeable nozzles and a separate cutting attachment.

The nozzles or tips are graduated in size, one manufacturer numbering a particular range from 1 to 25. It is not necessary, however, to purchase a complete set, as it will be seen that in this range, for instance, Nos. 1, 3, 5, 7, 10, 13 and 18 will cover all welding jobs which the contractor may encounter.

Cylinder Trolleys.—Although not essential, the use of a trolley for

John G. Bolton says . . .

"Welding plant is necessary equipment"

from page five

holding the cylinders and welding equipment will make the plant completely mobile and will prove a very useful investment. It can be made from angle iron by the contractor himself, or a manufactured type with rubber-tyred wheels can be obtained for about £10.

Eye Protection.—During the welding process, radiant energy is emitted from the flame and weld metal. Some portion of this energy is in the ultra-violet range, and protection must be given to the eyes. The danger is much greater with electric arc welding than with gas, so much so that a complete face mask is required in the first case, whereas goggles will give full protection in the latter.

For gas welding the goggles should be fitted with filter glasses which meet the requirements of British Standard 679 : 1947. This specifies the glasses that will absorb or reduce the glare from the welding process to within tolerable limits. Most makers supply the filters in three densities: light, intermediate, and dark, and in each case the expensive green-coloured glasses are protected by clear cover glasses. These latter will, after a time, become covered with spatter from the weld, but are easily and cheaply replaced.

Equipment Costs

WE have now covered the necessare requirements of a welding plant, and the next question that comes to mind is the cost. This, of course, will vary to some extent in various localities, but in general £30 will cover the lot. This will allow for hire of cylinders, purchase of regulators, hose, and blowpipe, and a small amount of welding rod and flux, so that we are now ready to commence work.

Training of Welders.—This brings us to the third point: "staff unable to weld." In these days, with Technical Colleges and Vocational Training Schools in all parts of Ireland, there is really no excuse for not having the "know how." In the College, with which the writer is associated, apprentices and craftsmen, many of the latter up to middle age, are clamouring for instruction, especially in the newer techniques, for instance, one group is particularly interested in the welding of stainless steel pipelines, another group investigating the field of arc welding, especially the newer inert-gas or argon-arc process, etc. As for the employer and designer who may be more interested in the theoretical aspect, lectures and displays have been arranged to meet their requirements.

It will be seen, therefore, that the progressive craftsman or his employer has every facility to keep his skill and knowledge up-to-date.

Some contractors may still feel hesitant about the economics of welding—one example will perhaps serve to show the great saving which may be made on a job. A 1½" compression tee branch coupling for light gauge copper tube will cost 21/-, not including fitting. A bronze welded tee joint on the same bore tube will only cost about 7/6, including time and material.

It is evident, therefore, that unless the business is very small, a welding plant is necessary equipment for economic working.

Next month it is hoped to deal with working methods, flame control, pipe jointing techniques, etc.

NEXT MONTH

Next month's issue of the "Irish Plumber and Heating Contractor" will contain a special survey on roof drains, water heads, gutters and outlets.

NEXT MONTH

https://arrow.tudublin.ie/bsn/vol1/iss11/1
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Directory Of Manufacturers, Agents, Representatives And Distributors

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

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

PLEASE SEND IN YOUR PARTICULARS NOW!

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- Oil Storage Tanks.
- Ventilators & Fan Equipment.
- Sanitary Ware.
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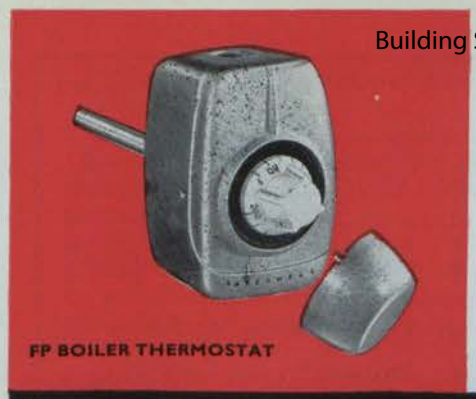

FP BOILER THERMOSTAT


XPM MOTOR


XC CONTROL BOX

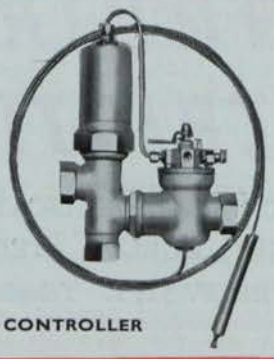
A Guide to SATCHWELL AUTOMATIC CONTROLS


M MOTORISED VALVE


TL ROOM THERMOSTAT


CENTRAL CONTROL PANEL


DUOTRONIC CONTROLLER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C4 COMPENSATOR

FP Boiler Thermostat. 4" stem instrument for control of water temperature. Scale easily read from any angle. Removable knob cover.

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Full details of any—or all—of these Satchwell automatic controls will gladly be supplied on request.

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