


5-1-1962

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

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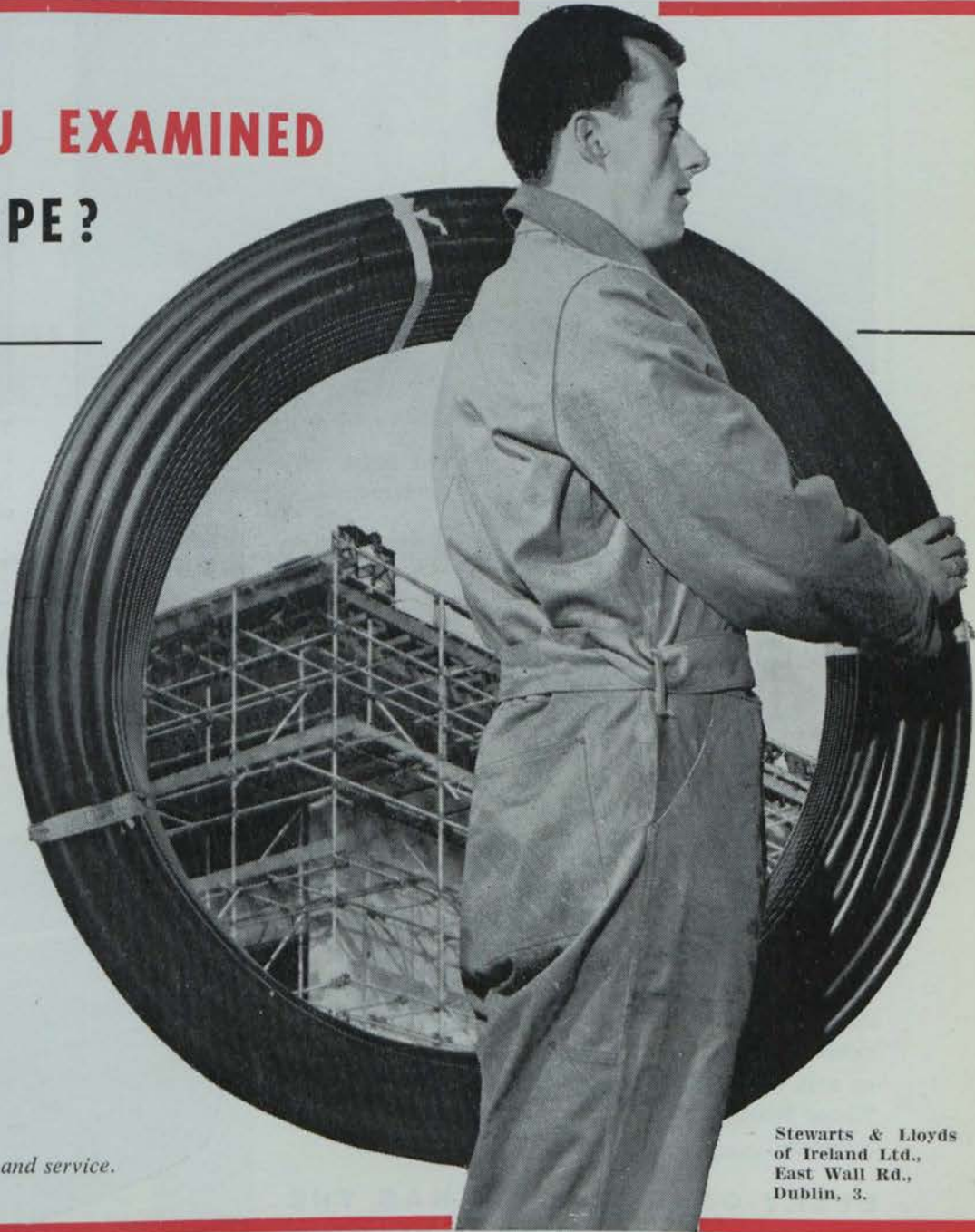
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THE IRISH PLUMBER & HEATING CONTRACTOR




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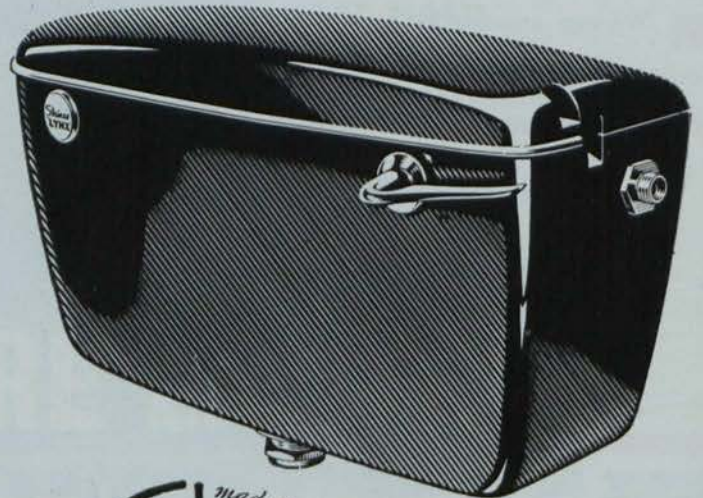
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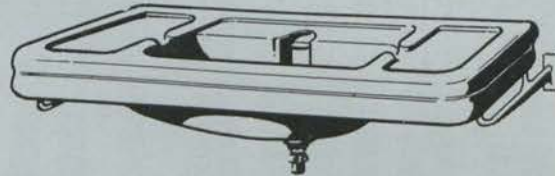
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T.S./483

One

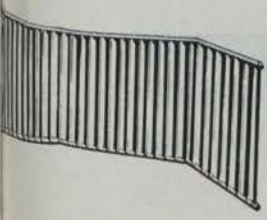
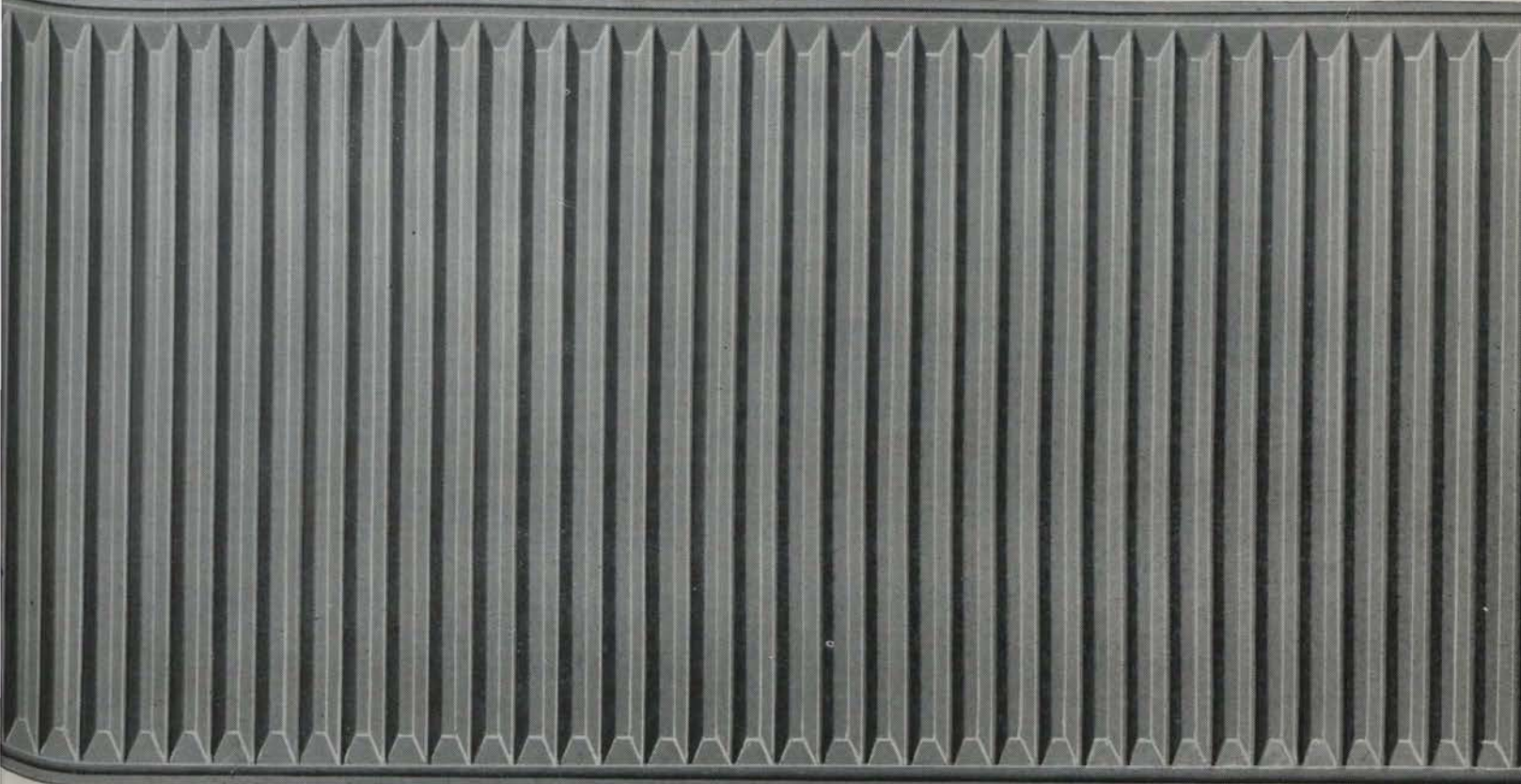
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Two



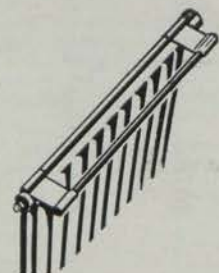
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or double or triple banked to give maximum heat where space is at a premium.



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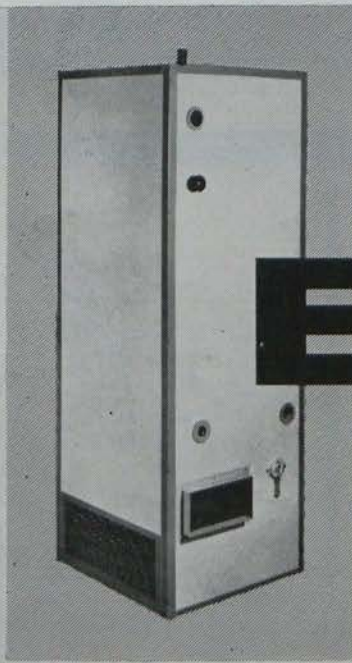
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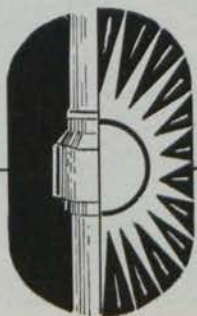
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The only publication in Ireland for the craftsman plumber and contractor, the heating, ventilation and insulation engineer and contractor, the electrical contractor, supplier, manufacturer and wholesaler of fittings and equipment for the trades.

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MAY, 1962.



THE IRISH PLUMBER & HEATING CONTRACTOR

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SPECIAL SURVEY—Pipes, tubes, joints and fittings, 11.

Due to heavy demands on space this month, our regular "Questions Answered" feature has been held over.—Ed.

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A remarkable association this — Minister

TRADE

TOPICS

Ruston, Hornsby at Show

THE Association was remarkable in the Irish industrial field, and one which gave much promise of the ability of Irish industry to adapt itself to meet the challenge of the times in which they lived, said Mr. Lynch, Minister for Industry and Commerce, at the annual dinner of the Irish Welding Association in the Shelbourne Hotel, Dublin, last month.

The Association, he said, was remarkable for the fact that it was a non-profit making body based principally on the initiative and co-operation of private enterprise firms, who were largely competitive with one another, for the general improvement of standards in the process of welding.

Mr. W. Dresser, M.C., M.I. Mech.E., past-chairman, said that no country like Ireland could afford to lag behind in the use and development of welding.

Mr. J. D. Barry, chairman of the Association, presided, and the other speakers were: Messrs. B. G. Cantwell, M. F. McCourt (president, Federation of Irish Industries), T. A. Simington (president, Institution of Civil Engineers), and S. J. McGloughlin, B.E.

THE LINCOLN firm of Ruston & Hornsby Ltd. have participated for about forty years in the Spring Show and this year they exhibited air cooled engines from their most modern and extensive range available and also the highest 2½ litre diesel engine.

This latter unit, the Ruston Rover, attracted much attention and this versatile unit can power most types of contractors' plant. Air cooled diesel engines with a range of power from 4 B.H.P. to 520 B.H.P. are available from Rustons and their associates, Davey Paxman & Co. Ltd. of Colchester.

★ ★ ★

Cape insulated

ROCKSIL rock wool and Caposite amosite asbestos, products of Cape Insulation and Asbestos Products Limited, have been used by the insulation contractors on board the vessel "Antrim," owned by Avenue Shipping.

Irish agent for Cape Insulation is M. A. Boylan Limited, 50a Harcourt Street, Dublin.

★ ★ ★

IN LONDON the Irish Week, 1962, prize in the Regent Street window display competition has been won by Mrs. E. Watson, of the Leisure Kitchen Showroom. Her prize is a week's holiday, with car, for two in Ireland.



Iain Johnston Duncan (38), a native of Kuala Lumpur in the Federation of Malaya, has been appointed Domestic Heating and Agricultural Manager with Irish Shell and BP Limited.

Mr. Duncan joined Shell-Mex and BP Limited in 1958 as Domestic Fuels Superintendent. He has taken up his new position with Irish Shell and BP Limited at their Head Office in Fleet Street, Dublin.

Twin pump from Loewe Flygt

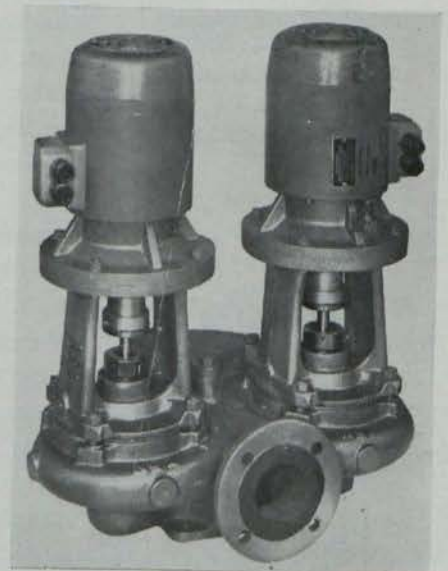
Pictured here is the Loewe Flygt twin pump. The Loewe Flygt arrangement consists of two vertical volute centrifugal pumps mounted on a common cast-iron base which incorporates the diffuse inlets and outlets for both pumps. Either pump can be switched into operation as required and an automatic valve fitted to the discharge inlet closes off the pump casing not in use. If it is required to use both pumps together the valve takes up a central position allowing full flow and pressure to the discharge line.

The pump or motor on either side can be dismantled for repair, over-

haul or replacement without interfering in any way with the operation of the remaining unit.

This twin pump arrangement has found wide acceptance on the continent since its introduction. One installation comprises a bank of 8 of these twin pumps, making a total of 16 units. An installation of this kind will give some idea of the flexibility of the arrangement and the wide range of capacities and heads to which this type of installation lends itself.

Available from H. R. Holfield Limited, 2-4 Merville Road, Stillorgan, Dublin.





At the reception at the Shelbourne Hotel were (from left)—Mr. T. Massey-Lynch, Director of Henry Wilson; Mr. George Reid, Agent in Ireland for Henry Wilson; and Mr. E. W. Piggot, Domestic Heating Supervisor, Irish Shell and BP Limited.

WILSON WALLFLAME SHOWN IN DUBLIN

THE NEW Wilson Wallflame oil-fired domestic boiler was introduced first last month at a meeting in Irish Shell House of Shell Appointed Installers and, some days later, to about fifty architects at a reception in the Shelbourne Hotel, Dublin.

At the Irish Shell House meeting, Mr. Bunnagar, Technical Officer of Henry Wilson & Co. Ltd., Manufacturers of the new burner, traced the development of oil-fired boilers, as applied to the domestic heating market during the last decade.

Combined

Messrs. Henry Wilson, he said, had combined the most important features of the vapouring boiler with those of the pressure jet and the result was the new Wilson Wallflame Burner.

Present at this meeting were Mr. George Reid, Irish Agent of Messrs. Henry Wilson, and Mr. E. W. Piggot, Domestic Heating Supervisor of Irish Shell and BP Ltd.

The Shelbourne Hotel reception was addressed by Mr. T. Massey-Lynch, Director of Henry Wilson & Co. Ltd.

Also present were Mr. J. Parce,

U.C.D. water development

AN APPARATUS has been developed in the Department of Chemistry, U.C.D., to produce pyrogen-free water and it was now in production for a well-known Irish pharmaceutical firm, said Mr. F. T. Riley, B.A., M.Sc., F.I.C.I., in his presidential address on "Some aspects of the Purification of Water" to the Institute of Chemistry of Ireland, in Trinity College, Dublin.

Director of the Company; Mr. F. McArdle, Fuel Oil Manager of Irish Shell and BP Ltd.; Mr. I. Duncan, Domestic Heating and Agricultural Manager, do.; Mr. E. W. Piggot, Domestic Heating Supervisor, do.; and Mr. George Reid.

The Wallflame is based on the advantages of one moving part—the sprinkler fan moving on a self-lubricated ball bearing—which spreads oil and air automatically mixed to the ideal state for combustion right on the wall of the boiler.

Rated output: Model WF 60, 60,000 B.t.u.'s/hr., and Model WF 90, 90,000 B.t.u.'s/hr.

Instantaneous HOT WATER from steam—without storage

Cox Steam and Water Mixers deliver from 50 to 24,000 gallons per hour.

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- ★ (2) **JUNIOR COX** 1—5 ($\frac{3}{4}$ "—2") for process work, vats and general purposes.
- ★ (3) **SENIOR COX** (2 $\frac{1}{2}$ "—8") for large volumes of hot water for process hot water supplies.

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NO LOSS OF CONDENSATION - NO MOVING
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Bedford Buildings, 7 Bedford St., BELFAST. Tel. 26343.

TRADE

TOPICS

On double shift

IRISH Foundries Ltd., Galboly—the Bailieboro bath and cooper manufacturers—are working two eight-hour shifts daily to meet the increased orders from home and overseas markets. This is the first time that the whole company has gone on double-shift work, although sections of the firm previously worked three shifts daily.

New heater from Allied

TO COMPLETE the new-style range of Agavector domestic warm-air heaters, Allied Ironfounders have now introduced redesigned and improved 15,000 and 4,000 B.t.u./hr. models. These are designated Agavector 15 and Agavector Junior.

With the Agavector 10, another wall-mounted unit recently introduced with considerable success, and the Agavector 25 (unchanged except in designation) an exceptional series is offered.



The Irish Plumber and Heating Contractor.

the
author

John G. Bolton

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

OXY - ACETYLENE PROCESS

**WELDING OF
COPPER LINES**

COPPER pipelines are a common feature in all modern building projects, and in many cases their installation accounts for a major portion of the plumbing and heating contract. We, in the trade, are therefore deeply concerned with all the factors which enter into their installation, particularly the economic jointing of the tubes.

When light gauge copper tubes first came into general use during the "twenties," the usual joint—in fact the only one available—was the compression coupling. In the "sixties," however, a complete change has occurred; the coupling, although still retaining its popularity for domestic plumbing, has nevertheless been superseded on large contracts by the use of bronze welding, or in a few cases by autogenous welding.

This complete turnabout is mainly due to economics; for instance, when it is considered that a 2in. straight compression coupling costs 15/- and a 2in. tee 30/-, the idea of welding is well pressed home, the welded joint in many cases costing less than half its opposite number.

We have a tremendous advantage, of course, in the fact that copper is a metal that is easily jointed. It can be soft soldered, hard soldered, brazed, bronze and autogenous welded, rivetted and so forth. It is, however, intended in this series to deal only with jointing methods adaptable to the oxy-acetylene process. In other words, the autogenous welding and bronze welding methods. We will deal with autogenous welding first.

**Autogenous
welding**

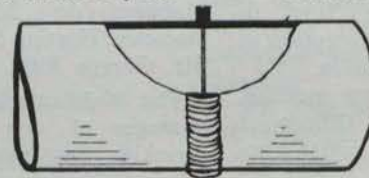
BY THIS is meant the actual fusion or melting of the copper pipeline at the joint, a welding rod of the same material being used as a filler

to strengthen the weld. At the present time, this type of welding on copper tubes is not used in the trade to any large extent, although future developments in the Argon Arc process may alter this, and so it is important for us to have a knowledge of the method.

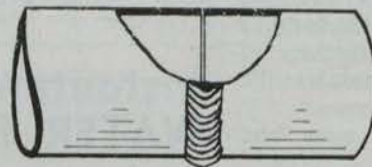
The autogenous welding of copper as distinct from bronze welding has the advantage that the finished joint

is of the same material and colour as the pipe itself. The weld surface can then be dressed and cleaned off so that the joint is invisible to the eye. It is mainly for this reason that copper welded joints are specified, although again severe corrosion problems sometimes demand that the pipeline be of the same material all through.

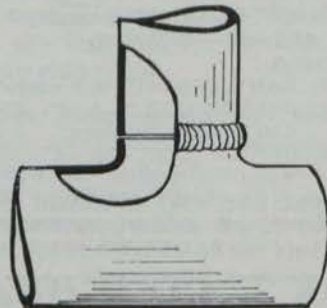
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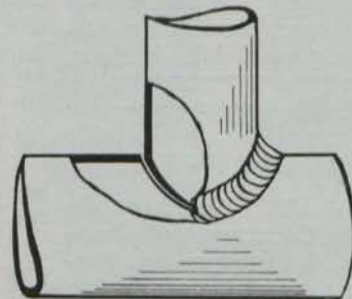
FLANGE WELDED



BUTT WELDED



BUTT TEE



SADDLE TEE

COPPER WELDED PIPE JOINTS

FIG. 1



for showers: flow control and thermostatic control of the water temperature are now combined in one compact, elegant, and recessible unit. This valve is called the Leonard 72 and is manufactured by Walker Crossweller & Company Limited Cheltenham.

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CRUMLIN RD., DUBLIN**



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4 FYFFE'S up-to-date range of *PLUMBERS' BRASS WARE* is at your stockist's now. All patterns can be supplied—polished or chromium-plated.

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IT PAYS TO KEEP TO THE FYFFE LINES

Fyffe Couplings (Ireland) Ltd.

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



AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

PIPES, TUBES, JOINTS
AND FITTINGS

NEED TO EXAMINE NEW TRENDS IMPERATIVE

TUBES and fittings are essential stock items for the plumber and contractor. Not so very long ago lead pipe and solder, and mild steel tubes and fittings, constituted the whole range of material in this sphere. With improved lead pipes, the development of copper tubes, and more recently, plastic tubes, the situation is very different to-day. New ideas flow so quickly through development stages and into the trade that the situation becomes quite bewildering. The need for all to examine each new material and method of applying it, as it develops, is of paramount importance if the trade is to become selective with advantage.

The canvas "Tubes and Fittings" is so broad that this survey can only draw an outline of the trends and leave you, the reader, to study the various adverts and write off to each for more detailed information. This you will find an interesting, informative and profitable exercise. It is the only way of getting to know something more about these up to the minute trends and by your knowledge of them to select those which may offer practical and economic advantages in your work.

MILD STEEL TUBES.—Apart from minor changes in dimensional standards, M.S. tubes, both black and

galvanised, together with their established range of fittings, change very little. Where robust strength is of greater consequence than appearance, these tubes will continue to serve well.

Compression

AN interesting development in M.S. fitting design is the compression joint by Stewarts and Lloyds. In principle this resembles the popular cone type of compression fitting for light gauge copper tube. In construction, it differs only in that the cone is of rubber suitably metal sheathed for most of its external surface and at the thick end which makes bearing surface contact with the rotating nut of the M.S. fitting.

The speed and economy with which this joint can be made in comparison with the traditional pipe thread method will be clear. The joint is being widely used for underground gas services.

Plastic jointing tapes for threaded M.S. pipe joints is a new departure from the old and messy compo and hemp method. Polytetrafluoroethylene, or P.t.f.t. for short, is a plastic material in $\frac{1}{4}$ -inch wide tape form and supplied on small convenient roll dispensers.

The tape is applied to the pipe thread directly from the roll or spool. It is wound tightly around the thread and in the direction of the thread. No jointing paste is used. The fitting is screwed directly on to the taped threaded pipe end and screwed home. The lubricating properties of the plastic tape make this screwing home easier. A sound, non-corrosive joint is assured. And what is more, since the plastic tape never "sets," the joint is easily dismantled at any time after it has been made.

M.S. tubes for soil pipework is another trend which offers scope for a material well tried in other fields. The advent of single stack plumbing and the economic advantages of pre-fabrication of plumbing units for this and other systems are factors which have given impetus to the use of this material for this service. The submission of working drawings to specialist manufacturers will be sufficient to obtain designs and quotations for dismountable pre-fabricated units for erection as the proposed building work proceeds. The reduction in site labour involved is a clear advantage both in time and money. It applies, of course, equally to pre-

continued overleaf



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

The Irish Plumber and Heating Contractor.

fabrication in other materials too.

LEAD PIPES are known to all, but the economic advantages of lead pipes in modern wall thicknesses and jointed with up to date techniques, especially in soil and waste pipework, is perhaps not so well known as might be.

In water service work, lead and lead alloy pipework installations show little change from the traditional method.

The solder-spigot joint is, however, a fairly recent development worthy of consideration. Developed during the war as a solder economy measure, this joint for particular application where brass or copper liners or tail pipes have to be joined to bath or basin waste or service tails, will show remarkable savings in costly solder.

A 1-inch wiped soldered joint will take about 1 pound of plumber's solder. 40 1-inch solder spigot joints can be made from 1 pound of tinman's solder.

Literature

THE Lead Development Association at 34 Berkeley Square, London, W.1, will gladly furnish, free of charge, illustrated literature explaining how this interesting and useful joint should be made.

Lead pipes for soil and waste pipework, especially in branches from more inflexible vertical stack materials such as cast-iron, etc., become increasingly specified. This is not because of any sentimental attachment for lead, the traditional material of the trade, but in awareness of its useful property of malleability which permits of some adjustment in final fixings of sanitary appliances to previously erected vertical stacks.

Pre-fabrication is a modern trend.—But pre-fabrication demands working to fine dimensional tolerances. Building work generally, and for a variety of reasons, often prevents such desirable degree of dimensional accuracy. A rigid pipeline material installed as the building rises may have pan branches, etc., inserted at the different floor levels. But what if the finished floor levels end up even only $\frac{1}{2}$ in. above or below the plumber's hoped for or previously informed level? His sanitary appliances just will not marry up to the rigid branches and costly alterations or unhappy make-shift alternatives are the frustrating result. A lead branch permits some adjustment to suit these almost inevitable variations.

fitting of the branch to the appliance rather than the torturous, often disastrous straining of the fragile appliance to rigid branches. This relief of strain by using lead pipe is but one of the practical advantages of this material.

Modern Leadburning Techniques offer considerable economy in the jointing of lead waste and soil pipework with no loss of traditional quality and efficiency. A wiped joint to a 4-in. soil pipe will absorb some

from previous page

The savings here are very clear

4 pounds of plumber's metal. A leadburned joint to the same pipe may take as long to prepare and execute as a wiped joint would but no jointing material other than a few strips of lead will be needed. The savings here are clear.

Leadburning applied in pre-fabrication increases the productivity and economic potential of any job. This is clearly shown in another free publication of the Lead Development Association entitled "Leadwork For Plumbers." Ask for No. 2 of Vol. 3 in this series of booklets.

LIGHT GAUGE COPPER TUBES for water, sanitary and gas installations are also well known. More plumbers and contractors are now taking the trouble to master bronze welding techniques of jointing copper tubes. Such foresight will lead to advantageous application in L.G. copper tube work. Apart from the neatness, relative lightness, and other useful properties of copper tube, the ease and speed with which it can be bronze welded into prefabricated units in the comfort and convenience of the plumber's shop for subsequent transport and erection on site, makes it adaptable to the productive advantages of such pre-fabrication methods.

A special article on this important trend appears in the Spring issue of "Copper," a free publication obtainable from the Copper Development Association at 55 South Audley Street, London, W.1. It outlines techniques and advantages of pre-fabrication that is quite beyond that which space permits in this survey.

Branches in copper tube may be

formed much as the technique of working openings in lead pipes except that all work is done with the copper tube kept locally heated to dull red heat. This is to ensure absence of work hardening and it offers no problem to the plumber who has an oxy-acetylene welding kit. This kit is, of course, essential to the bronze welding practice and it should form an important and essential part of the modern plumber's kit.

Weldable fittings may be used as

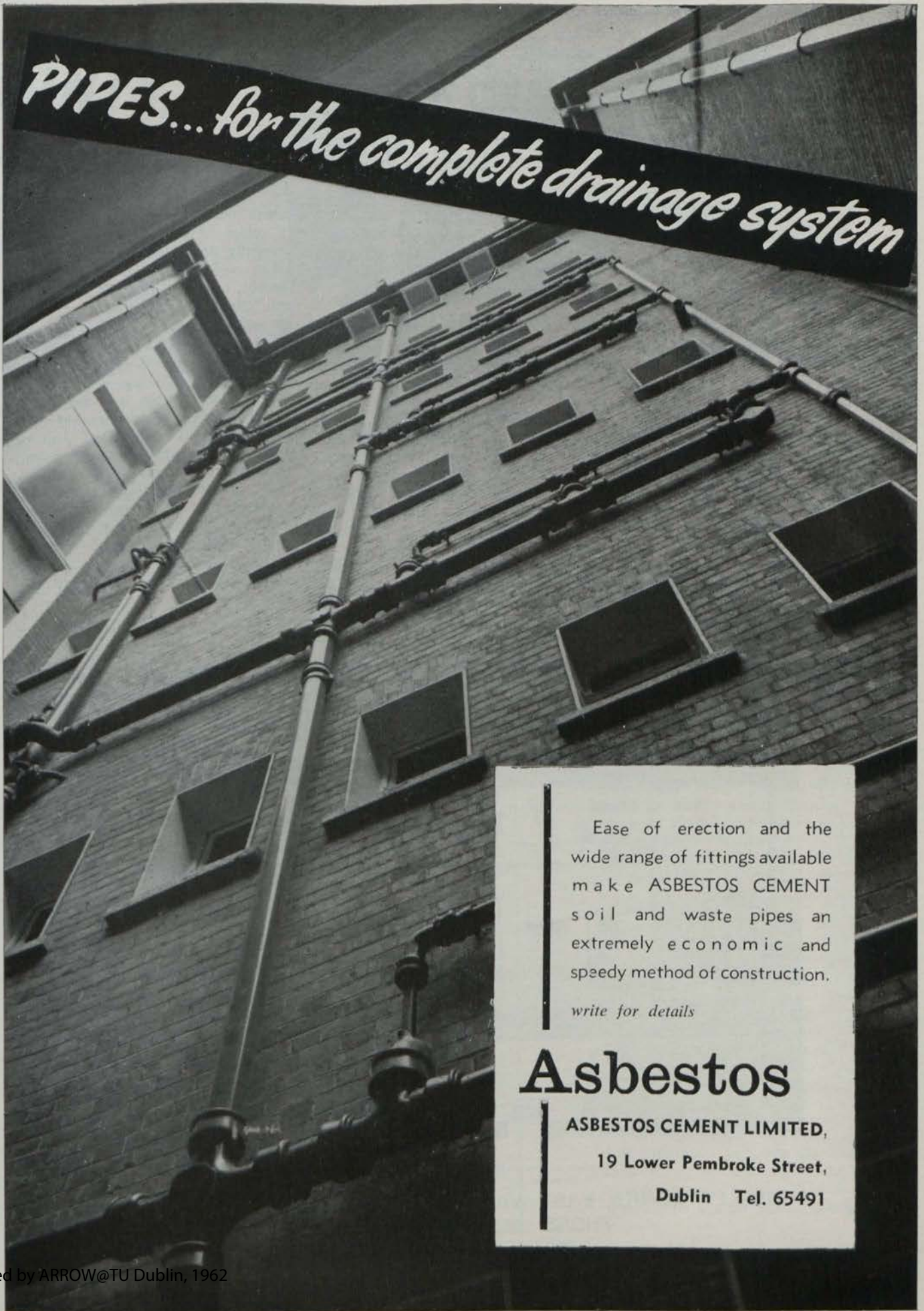
alternative to manually worked branches and joints for soil and waste pipework. They are also available in smaller sizes from $\frac{1}{2}$ in. up for use on water service pipelines. Choice of method, i.e., weldable fittings or bossed joint preparations will depend upon taste, and cost comparisons of fitting plus labour as against the greater labour content for bossed preparations but with no fittings cost.

Formation

CAPILLARY Jointing of L.G. Copper tube using specially designed tool kits for the formation of sockets for running joints and for the preparation of branch openings to fine tolerances for silver solder capillary jointing is quite new. The technique saves in fittings costs and eliminates the use of zinc alloy bronze welding rods which, in certain circumstances, can fail through dezincification of the weld deposit. The tool kits designed and made by the Allen Tool and Engineering Company, London, are obtainable in complete kits to cover all L.G. copper tube sizes from $\frac{1}{2}$ in. to 2 in. Larger sizes are being developed, it is understood. This method will undoubtedly show good return where a considerable amount of repetitive jointing is to be carried out.

Joints for L.G. copper tube.—Apart from the developments referred to above, joints for smaller diameter L.G. tube for water and gas services

continued page fourteen



PIPES... for the complete drainage system

Ease of erection and the wide range of fittings available make ASBESTOS CEMENT soil and waste pipes an extremely economic and speedy method of construction.

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show little change. The fittings available fall into two easily recognisable groups. These are: Compression Fittings and Solder Capillary Fittings. Compression fittings are further subdivided into two kinds or types. These are the non-manipulative or type A fittings and the manipulative or type B fittings.

Manipulative fittings are those which require that the square cut tube end be flared or so worked as to render its pulling out of the fitting unlikely, if at all possible. Non-manipulative fittings are those which can be assembled and tightened with none other than merely cutting the tube end square before its introduction into the fitting.

Both manipulative and non-manipulative may be used in above ground work but as a rule most water authorities insist on manipulative fittings for underground pipelines. The reason being that the flared or otherwise worked and expanded tube ends do not permit joints to pull apart in event of strain due to ground settlement, etc.

Some common forms of non-manipulative fitting employ a copper cone which is compressed on to the exterior pipe wall as the fitting is made

from page twelve

TWO EASILY RECOGNISABLE GROUPS

up. Others use a "wedding ring" kind of compression ring to achieve much the same end but with double indenture of the pipe wall at the points of contact of ring sides and exterior tube wall.

Manipulative

SOME manipulative joints are prepared by passing the fitting nut over the tube end (how many of us can truthfully say that we have never failed to do this?) and then tube is flared with a purpose provided steel drift. The flares are opened sufficiently to admit loose olives made from brass and the flared tube ends are compressed between these and the machined interior ends of the fitting nuts.

Solder capillary fittings of the established soft solder kind show no change. They differ only in that one kind has an integral solder band, i.e.,

the "Yorkshire" fitting, and that the others need the external application of solder. Usually this is most conveniently done using one of the flux cored solders. Again, personal preference, cost, and perhaps appearance will affect ultimate choice of fitting from this range.

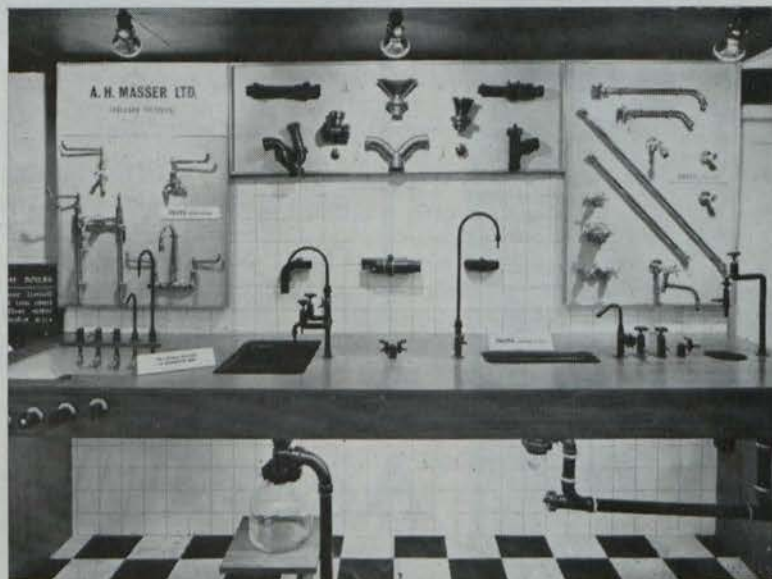
Undoubtedly, the solder capillary fittings are neater in appearance than the compression fittings and the copper capillary fittings are neater still than the thicker brass ones.

Copper solder capillary fittings would be desirable in underground work where corrosive soil conditions might prompt electrolytic action and in this respect it is worth noting that compression fittings are obtainable in gunmetal for underground pipelines.

PLASTIC TUBES become increasingly popular for sanitation and cold water services.

continued page twenty-eight

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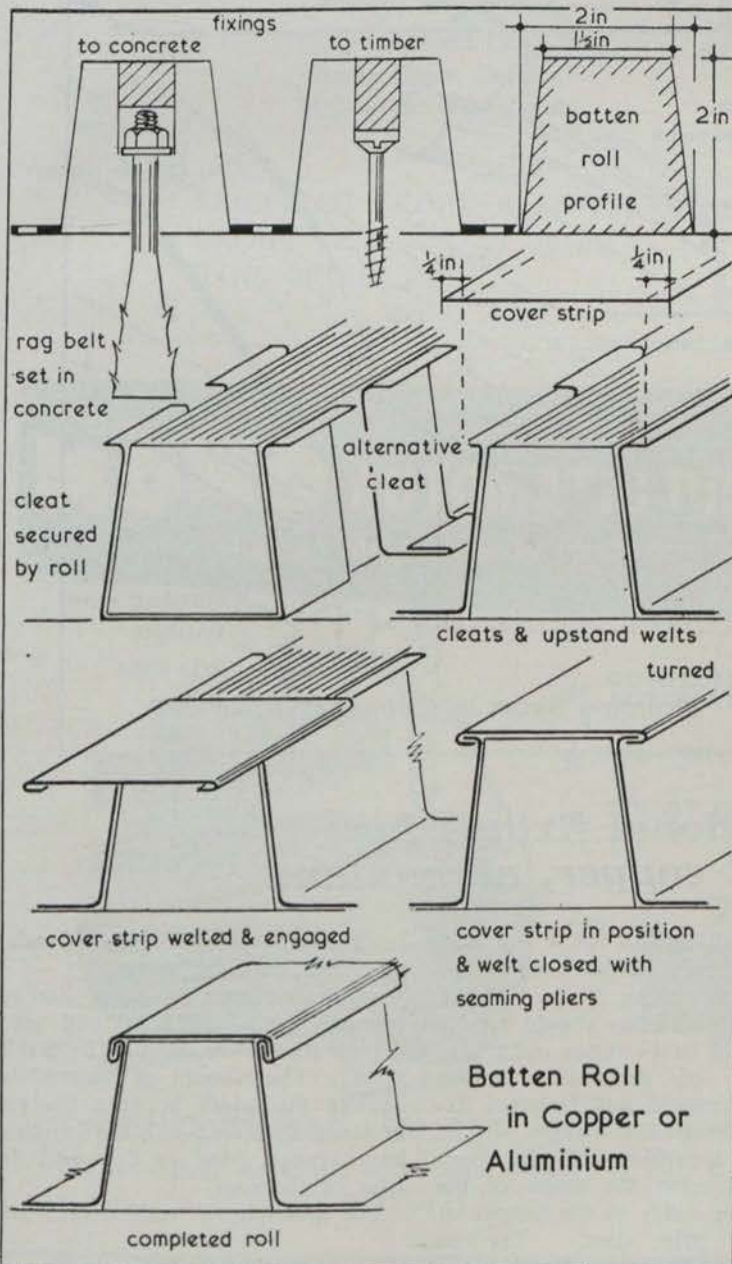
JOINTS, FIXINGS FOR



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.

SHEET COPPER AND ALUMINIUM



AS has already been said, there is some similarity in the working of copper and aluminium for abutment flashings, chimney weatherings, and so on. These materials are also worked and fixed in much the same way when applied in large areas on flat or pitched roofs.

The following descriptions will therefore generally apply to both metals, but any special fixing requirements are given earlier under the heading "Fixings." You should note especially the type of nails to be used, the sizes of the fixing clips or cleats, and the correct spacing for these.

Joins with flow

THE solid or wood cored roll may be used on flat or pitched roofs, but it must be used where people are likely to walk on the roof. The simplest, easiest to work, and therefore probably the most common roll form, is the Batten Roll (see illustration).

Sometimes the wood rolls are undercut slightly, but not for the same reason as are rolls for sheet leadwork. In the case of copper and aluminium, the purpose of the undercut is simply to provide an expansion space. These metals are secured entirely by special clips, which are fixed to the substructure or beneath the rolls, and are folded or seamed in with the sheeting joints to give an indirect but secure fixing.

The importance of these fixing clips cannot be over-emphasized. They must be the right size and spaced properly in order to hold these light metals against strong winds.

continued overleaf

The Irish Plumber and Heating Contractor.

from previous page

The Standing Seam: This could perhaps be called the "hard" metal version of the hollow roll used in sheet leadwork. It may be used on pitched roofwork, or for flats where it will be protected from pedestrian traffic. It is clear that its "water barrier" would be seriously reduced if it were flattened by people trampling on it.

It is, however, a simple, quick and effective way of joining bay sheets down their length, and it is a form of joint which is very much used for copper and aluminium roofwork.

Illustration shows the stages for forming a standing seam joint, and illustrates a few of the special tools which are helpful in this work. These are easily made with suitable pieces of timber and short lengths of bright mild steel bar.

Joins across flow

ALL copper, aluminium and zinc sheet edges should be fully secured against being lifted by the wind, and for this reason laps are to be avoided.

Drips are used to end joint bays on roofs of less than 10 degrees pitch.

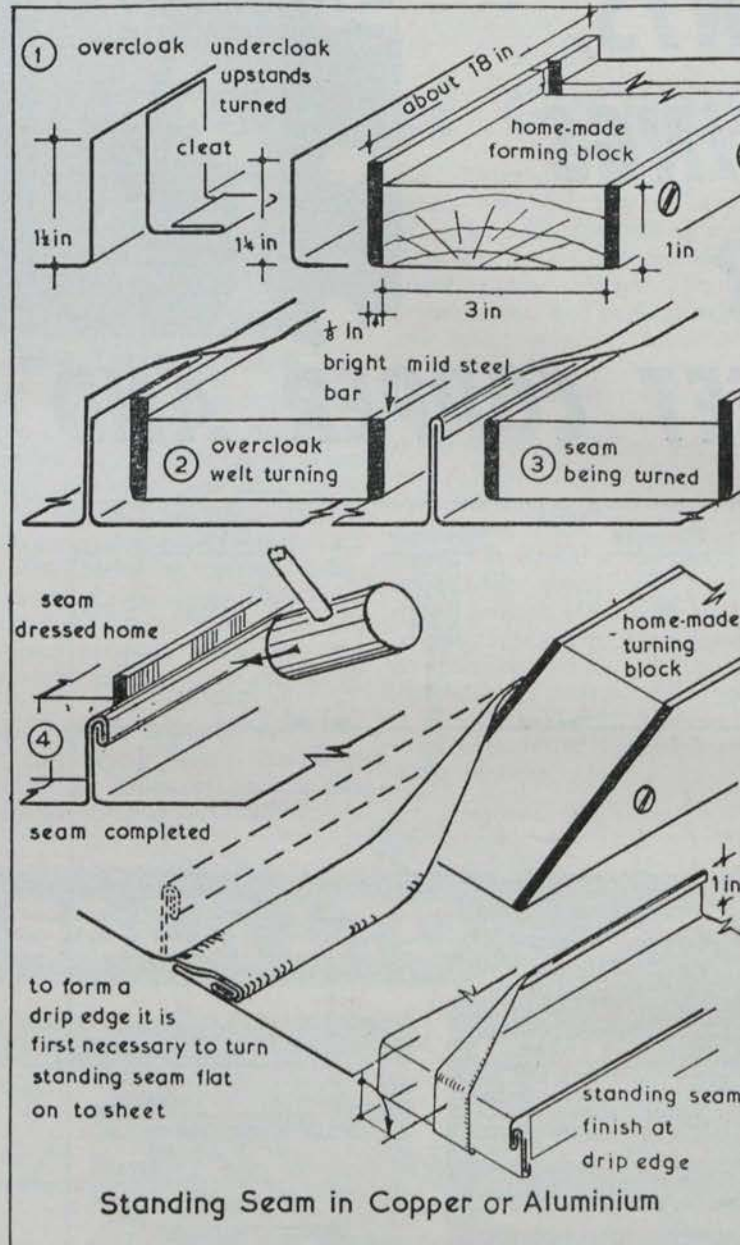
Our third drawing shows two types of drip which may be used. Notice that in the first there is no free edge. In the second there is no vertical lap, unlike a leadwork drip, and therefore there is no need for an anti-capillary gap or groove.

Double Lock Welts are used to join bays end to end on pitches of more than 10 degrees. In all cases where this welt is used, it must be remembered that its "water barrier" is very shallow. This particularly applies when the welt is used to end joint long lengths of strip in D.P.C.'s, cornice coverings or cap flashings.

Double lock welts are also used either across or vertically with the flow, to join bays fixed in a vertical position; for example, dormer window cheeks. (See illustration).

Single Lock Welts may be used for the jointing of vertically fixed bays, for the short end joints to vertical drip edges, or for joints across the flow on roofs of 60 degree pitch or over. (See illustration).

Fixing clips or cleats must be placed along all joints at 14" to 18"



Additional fixings for sheet copper, aluminium

THE minimum fall for a flat roof covered with either copper or aluminium should be 2" in 10' 0".

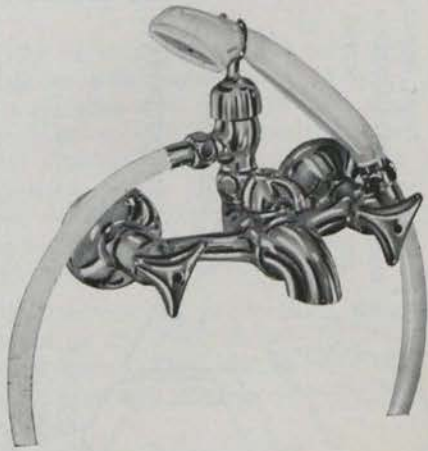
The length of a bay should not be more than 12 to 14 ft., in order that the effects of thermal expansion should be reduced and frequent fixing possible at the joints. The shape and dimensions of the bays will depend upon the shape of the roof and the width of the copper or aluminium strip used. Try to work the bay shapes so that they can

be cut economically from standard sized rolls or coils of metal.

Allowance must be made for roll upstands, drip upstands, and seaming on the 12' or 14' bay in the flat sheet. The amount of material left decides the width between the rolls or standing seams, and the length of bay between drips, or drip and drip edge of the roof.

For example, 2' wide copper strip

continued page eighteen



GROHE

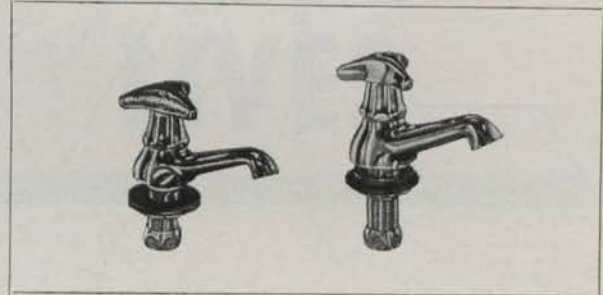


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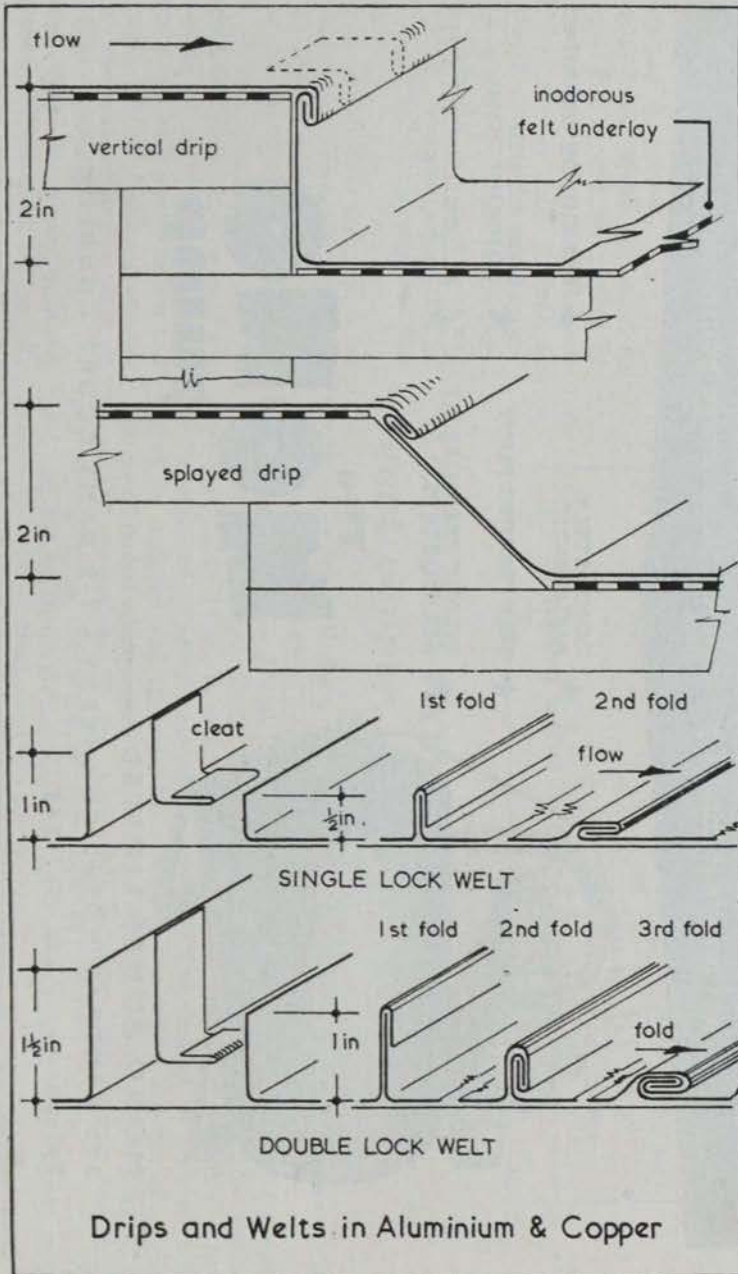
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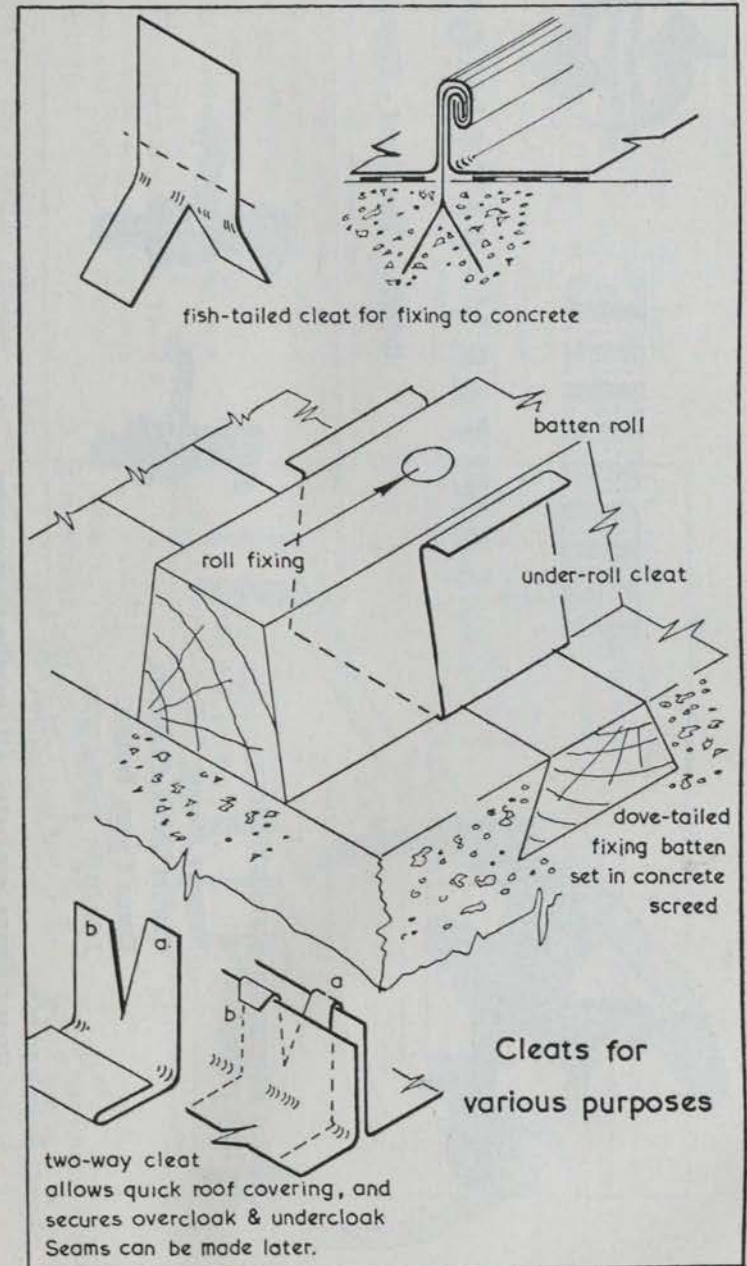
MP308



From
page
sixteen

Joints,
fixings
for sheet
copper
and
aluminium

(See text opposite)



See illustrations opposite

might be used with batten rolls $1\frac{1}{8}$ " high for which upstands of $1\frac{1}{8}$ " plus a seam allowance of $\frac{1}{4}$ " at each side must be made. The width of the bay, after these allowances had been deducted, would be $21\frac{1}{4}$ ", and the rolls would be fixed accordingly. In the same way the spacing of the bay end joints would be decided.

In the case of gutter bays, there should be not more than 10' 0" between drips. These should be of the square type, and should preferably be $2\frac{1}{2}$ " high.

Wide variety

Gutters do take a wide variety of shape in cross section, and since some of these shapes give stiffness they may be used in longer lengths. Advice on gutter designs should be got from a specialist.

Dormer window cheeks and similar triangular areas may have long free edges at the roof abutment. It may be desirable to cut the bays vertically, so as to introduce the need for a welted joint, along which additional fixings can be inserted.

Continuous fixing strips, sometimes called lining plates, are always close nailed to the vertical drip edges of a roof, cornice, or cap flashing, and the free edge of the copper or aluminium sheet is single welted round these.

Fine concrete

Fixings to concrete substructures.—These may be fishtailed cleats embedded in the fine concrete screed which is laid over the flat structural roof slab, and trowelled smooth and to falls. Alternatively, dovetailed battens might be embedded in the surface screed and clips fixed to these just as they are for ordinary timber deckings. Illustrated are examples of these fixings.

Linseed oil painted along welt edges before the welt is made will repel water and help to prevent possible capillarity at such joints.

Bitumenous paint on all surface of aluminium work in contact with new concrete will help to prevent corrosion, but if felt underlays are properly used this precaution should seldom be necessary.

DON'T RISK MEN'S LIVES

In the interests of public safety, the E.S.B. has statutory authority to prohibit the erection of buildings and structures within twenty-five yards on either side of the E.S.B. lines. Should such building be necessary, the Board should be given, in writing, two months notice of such intention in order that the feasibility of such building may be investigated.

The Board has also issued repeated warnings to farmers and other operators of special equipment to exercise care in the use of high machinery near E.S.B. lines.

The ignoring of such regulations and warnings has caused a number of accidents, and in the last five years six of these accidents were fatal.

When work becomes necessary adjacent to E.S.B. lines, local E.S.B. staff will, in the interests of public safety, make arrangements so that the work can be done in safety.

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BORD NA MONA 28/32 UPPER PEMBROKE STREET - DUBLIN, 2

HEITONS OPEN CENTRAL HEATING EXHIBITION

SPEAKING at the opening of the central heating exhibition at the Thomas Heiton & Co. Ltd., Westmorland Street, Dublin, showrooms late last month, the Minister for Transport and Power, Mr. Childers, stressed the dangers of wasteful expenditure on fuel.

The National Fuel Efficiency Service had been engaged with a view to stimulating greater interest in fuel efficiency. Seventy firms here were being invited to avail of the opportunity of a free appraisal of their heating and power plants.

Congratulated

The Minister also congratulated Messrs. Heiton and the Irish coal mining interests associated with the exhibition on their enterprise in sponsoring the exhibition. This was an example of what could be achieved by co-operation between the coal trade and the Irish anthracite producers.

The Heiton exhibition will be a per-

by _____
A Contractor reporter

manent fixture at their Westmorland Street address. Stocks of boilers will be available to the trade at trade terms and the Heiton technical staff are available to give advice where required.

Items included in the exhibition are: Trianco boilers, Janitor boilers, Suxe burners, Wellstood cookers, Hammond Lane Industries convactor stoves, Fyffe Couplings (Ireland) Ltd. products, Satchwell controls, Venner time switches.

Anthracite exhibits were from Balingarry Colliery, Rossmore Colliery, and Castlecomer Colliery. Bord na Mona also exhibited.

Fibreglass insulation was another feature of the exhibition.

Insulation materials available to trade: "Cosywrap" and "Supawrap"; Rigid Section Pipe Insulation; Flex-

ible Bandage for pipework. Literature on full savings in central heating are also available.

In an address before the official opening, Mr. J. C. D. Hewat, Managing Director, Messrs. Heiton, said: "The future of domestic heating with solid fuel is bright, but it can be made even brighter with the co-operation of all concerned—not by tiresome slanging matches, but by outdoing the service offered by competing interests.

"All round competence and efficiency is the keynote of modern requirements. It relates to producers and distributors alike," he said.

Compete

Mr. J. Derham, B.E., A.M.Inst.F., said that Irish fuel can compete without fear of competition in the domestic central heating market.

Speaking of reserves, he said that there were more than adequate. Production was "completely controlled by labour shortages and not by deposits," he added.

"There are some points touched on in the Minister's speech which I wish to emphasise," said Mr. Derham.

"Firstly—the importance of the domestic central heating market to Irish anthracite producers. I refer, of course, to the use of grains and peas in the modern, gravity feed, magazine boilers which you see here. This

continued overleaf

A sectional view of the newly-opened central heating exhibition at the Westmorland Street showrooms of Thomas Heiton & Co. Ltd.



The Irish Plumber and Heating Contractor.



● Mr. J. Hussey of Thomas Heiton and Co. Ltd., showing some of the equipment on display to Mr. P. A. Brady, T.D., Deputy Lord Mayor of Dublin, and Mr. Erskine Childers, Minister for Transport and Power.

from previous page

is a market in which Irish fuel can compete without fear of competition.

“The proved economics and the labour saving nature of the appliances make for rational installations which

Focal point

Focal point of interest in the exhibition is the Trianco boiler, which is shown in operation and which provides heat and hot water for the entire building.

avoid the necessity of basing claims for support on National grounds only. This latter, however, cannot be completely dismissed as the industry here is a big employer and is also self supporting.”

The small grades of fuel form a high percentage of the production. The reasons for this could not be covered here but it was important to stress that the stability and development of the industry could be dependent on the growth of this ‘most rational market’. The producers were

very aware of this and have thoroughly investigated the market needs.

Draw-back

“I would like to stress that,” he said, “because of its special characteristics, anthracite does not have the range of use of other more volatile fuels. It was a strange fact that its very quality is a drawback to its use

in industrial steam plant, and in this field the range of alternative low cost fuels is immense.”

Advantage must, therefore, be taken of this new market by all concerned, and he was certain, he added, that if full support were given by the trade and public that satisfied consumers and a strong native industry will result.



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TENDERS

Roscommon water supply scheme

ROSCOMMON COUNTY COUNCIL: Cootehall Water Supply Scheme.—Tenders are invited for the construction of the above scheme, in accordance with Plans, Specification and Bills of Quantities prepared by Mr. Ed. G. Pettit, B.E., M.I.C.E.I., M.Cons.E.I., Consulting Engineer, 7 South Mall, Cork, from whom copies of the contract documents can be obtained on the payment of a deposit of £21-0-0 (returnable).

The work includes the construction of a 50,000 gallon R.C. Service Reservoir and the laying of the following pipes, including valves, fittings, etc.:—

- 2,160 L. Yds. 4" Class "C" Rising and Supply Main.
- 4,799 L. Yds. 5" Class "B" Service and Distribution Mains.
- 12,784 L. Yds. 3" Class "B" Distribution Main.
- 1,528 L. Yds. 3" Class "B" Distribution Main (provisionally).

Completed tenders in sealed envelopes, endorsed "Tender Cootehall Water Supply Scheme," will be received by J. P. Moran, Esq., Acting Co. Secretary, Courthouse, Roscommon, not later than 5 p.m. on Thursday, June 14.

★ ★ ★

WEXFORD COUNTY COUNCIL: St. Senan's Hospital, Enniscorthy.—Tenders are invited for the Steam, L.P.H.W. Space Heating, Hot and Cold Water Services and the supply and installation of Calorifier Room Plant at St. Senan's Hospital, Enniscorthy, in accordance with the Plans, Specifications and Bills of Quantities prepared by Messrs. Nicholas Mathews & Co., Consulting Engineers, 42 Fitzwilliam Place, Dublin.

Contract documents may be inspected at the Engineer's Office during normal office hours. Contract documents and Bills of Quantities may be obtained from the Consulting Engineers on receipt of a deposit of £30-0-0 (returnable).

Tenders, with separately sealed Bill of Quantities priced and fully extended in ink, on the prescribed forms, should be submitted in a sealed envelope endorsed "Tender for Mechanical Services, St. Senan's Hospital, Enniscorthy," and addressed to the Chief Clerk, St. Senan's Hospital, Enniscorthy, Co. Wexford, and must be lodged with him not later than 4 p.m. on June 14.

The Irish Plumber and Heating Contractor.

NEW PIPE COMPANY REGISTERED

CEMENT PIPES LIMITED is a new company registered with a nominal capital of £750,000. This is divided: 500,000 "A" and 250,000 "B" Ordinary shares of £1.

The company will manufacture primarily for export. Principal objects of the new company are to carry on the business of manufacturers and merchants of and wholesale and retail dealers in, importers and exporters of all types of pipes, adaptors, auxiliaries therefor, foils, floor and wall covering, plumbing materials and so on.

The first directors have been given as: Otto Anker Lund, 1 Boyne Ave., Boyne Road, Drogheda, Co. Louth; Axel Gunnar Larsen, Selandia, Newtown Park Ave., Blackrock, Co. Dublin; John Leyden, 141 Stillorgan Rd., Dublin; James Asher Mackintosh, Scravels, Broomfield, Chelmsford, Essex; Kenneth Neve, Wall's Pit House, Streeton, Nr. Warrington; James Patrick McCormick, The Manor Farm, Tytherington, Nr. Maclesfield.

Agent appointed

THE Silent Ballcock Co. Ltd. (Scotland), sole manufacturers of the Craig ballvalve for WC cisterns and storage tanks, announce the appointment of the Irish Equipment Company Ltd., Ballymount Road, Walkinstown, Dublin, as their agents.

New circulator from S.M.C.

RECENTLY released for production from their research and development section, Sealed Motor Construction Co. Ltd., have circulated advanced information of a new small-bore circulator—called the "RAD 66" (patent pending).

This pump is very compact, measuring only 1 1/2 inches in diameter and 2 1/2 inches in height. It is available in two sizes, 1/2 and 3/4 inch bore. The pump is made of stainless steel and is completely sealed. It is suitable for use with water, oil, or other liquids. The pump is available in two sizes, 1/2 and 3/4 inch bore. The pump is made of stainless steel and is completely sealed. It is suitable for use with water, oil, or other liquids.

TRADE TOPICS

weighing only 13lbs., and so shaped that it can be installed right at floor level or in corners.

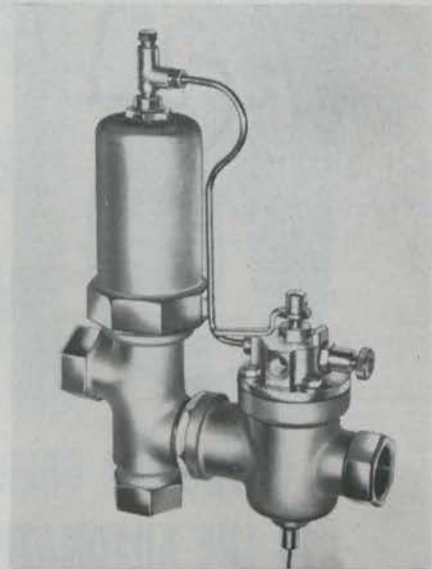
Particular attention has been paid to the bearing arrangement and lubrication—balance—and internal finish, based on months of research and years of practical experience.

Construction is of close grain cast iron, all internal surfaces being double coated with a high temperature stoving enamel to give protection against corrosion, etc.

Incorporated as standard, is an easy to adjust Output Regulator, giving a wide variation range to meet the demand of all domestic installations up to 85,000 B.T.U.'s.

The new motor has increased starting torque over the present "Rad-pump," yet still only consumes 75-85 watts.

Production, it is stated, will begin in July. Sealed Motor Construction Company Products are available from British Steam Specialties Ltd., 33 Leeson Park, Dublin.



Shown here is the Stachwell BMT automatic controller for small pipe central heating systems. This unit provides automatic temperature control of small central heating systems without interfering with the domestic hot water supply from the same boiler.

It has been developed for use with small pipe systems where an electric pump is used to circulate the hot water through the radiators or other heating surfaces. The unit incorporates a temperature sensitive phial, connected to the valve by capillary tubing, which controls the mixing action of the valve. In response to the phial—installed outside the building—the BMT mixing valve prevents temperature changes inside before they can occur.

Details from: R. E. Ayres, Esq., Manager for Ireland, "Graystoke," Nashville Road, Howth.

Oil pump by Danfoss

A COMPACT oil pump type R.S. is a one-stage pump for high pressure oil burners which "Danfoss," the Danish manufacturer of automatic controls and equipment is marketing under the designation "RS." It represents a development and improvement of the well-known Danfoss oil pump type, "HP 5."

The change in design in the first place applies to the gear-wheel pump which through the introduction of trochoidal toothing, has added to the ability of the oil pump to meet the specific demands that may be made on a modern high pressure pump.

The Irish representatives for Danfoss, of Nordborg, Denmark, are J. J. Sampson & Son Ltd., 12a Wexford St., Dublin.

Last month

IN THE survey of Pumps, Circulators and Mixing Valves which appeared in our April issue, it was stated that Messrs. Rutledge & Thompson Ltd. were in a position to supply the "Home" Range of water pumps. We now understand, however, that these pumps are in fact no longer available.

TRADE

TOPICS

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

**HEATING WORK ENQUIRIES
INDICATE BOOM IN TRADE**

THE VOLUME of enquiries for heating work being currently issued by consultants and public authorities in the North of Ireland must be running at record proportions. Some of these enquiries relate to major installations and it is clear that, so far as this year is concerned at any rate, there is little point in talking about "the heating season"—and certainly little sign of a close season for heating.

Even in the field of domestic heating enquiries are running at a high level.

The domestic market is being encouraged by frequent publicity emanating from the Coal Utilisation Council, the oil companies, gas and electric authorities. All are pressing the claims for their particular form of space-heating—and the trade is being kept busy answering enquiries as a result of this publicity.

Provision

It is interesting to note the growing number of new estates in Ulster in which a feature of the houses or bungalows on offer is the provision, at time of construction, of a complete central-heating system. At the time of writing it would be difficult to say which heating medium—oil, coal, gas, etc.—is leading, but solid fuel interests received something of a body blow in the recent announcement of dearer coal prices in Northern Ireland.

Coal prices, of course, affect such other mediums as gas and electricity (except where oil-fired installations are employed). Clearly there is little hope of relief from the new charges and some concern over this matter was expressed at the annual meeting of the Irish Gas Association in Belfast on May 2 by Mr. W. A. Campbell (Belfast Corporation Gas Department) when giving his presidential address.

Pointing out that the gas undertakings had seen coal rise in price from 24/9 per ton in 1939 to its present price of 139/- per ton, Mr. Campbell said that undertakings in the Republic had, at least, the choice of buying coal from Britain, the Continent or even the United States, whereas the Northern Ireland undertakings had to take what they considered to be the "left-overs" from the National Coal Board and at a price per ton much greater than in the Republic.

Dark hint

Mr. Campbell gave a dark hint that Northern undertakings were considering taking supplies from "a feedstock other than coal." Thinking of the growing tendency to consider oil as a fuel, Mr. Campbell said that Belfast, after 40 years, had come to the parting of the ways. He made a reference to the fact that Cork was avail-

ing itself of alternative feedstocks from the nearby oil refinery and suggested that Belfast would follow suit when the new oil refinery, at present on the drawing board, came into production.

Messrs. Wm. H. Leech & Son, Belfast, who handle the products of Ryaland Pumps Ltd. in Ireland, are extremely gratified at the reception which has been accorded the new glandless accelerator—the "Ryflow." Messrs. Leech report that although marketing arrangements for the "Ryflow" were concluded as recently as March last, more than 500 of these units have already been sold.

The "Ryflow" accelerator has the advantage of being a simple adjustable unit capable of carrying out all the duties in the small-bore range.

Heads obtainable are from 1ft. to 9ft. and outputs range from 1½ gallons to 17½ gallons, which covers the small-bore range.

New Belfast plumbing coy.

THE formation of a new Belfast heating and plumbing concern has been announced. The firm, Willis Heating and Plumbing Limited, have their registered office at 32-34 Dublin Road, Belfast.

Nominal capital is £10,000 (£1 shares).

Names and descriptions of subscribers to Memorandum and Articles of Association (subscribers of one

share each): John Arthur Willis, master plumber, 2 Glenshane Park, Newtownabbey, Co. Antrim; George Herbert Leitch, Junior, solicitor, 32 Chichester Street, Belfast.

Names of First Directors: John Arthur Willis and Patricia Anna Margaret Willis, both of 2 Glenshane Park, Newtownabbey; John Gillespie McCausland, 26 Dhu-Varren Crescent, Belfast.

TENDERS

(Additional)

COMHAIRLE CHONTATE ATHA
CLIATH.

North Dublin Regional Water Supply
Scheme—(Contract No. 4).

TENDERS are invited for the laying of 10,800 lin. yards approximately

of 27" steel pipes from Leixlip to Ballycoolan Reservoir in accordance with specification obtainable from Messrs. N. O'Dwyer, Son & Partners, Consulting Engineers, 6 Burlington Road, Dublin, on payment of deposit of £10-10-0 (returnable). Latest time for receipt of completed tenders enclosed in official envelope provided is 12 noon on June 14.

14/6/1962.

from page fourteen

Plastic tubes

POLYTHENE tubes have been extensively used where corrosive soil conditions prohibit metal pipelines except in frequent and costly replacement. The corrosion resistant properties of the plastic tubes is one of their well-known and valued properties but its mechanical strength is relatively low.

Although extensively used for cold water services, the thermo plastic polythene and P.V.C.'s cannot be used for sustained hot water flows at pressure. Consequently two different materials become necessary for hot and cold water services and this does sometimes constitute a drawback to its more general usage in domestic services.

Plastic Tubes for Soil and Waste Pipework are, however, a decided and growing trend. Manufacturers really have gone to town to develop sound practical types of joints and fittings, many of which are just now coming on to the market.

Most commendably, the majority of this development work has been entrusted to specialists who have "graduated" from the plumbing ranks. As a result we are enjoying the spectacle and use of new joints devised by plumbers for plumbers.

Thermal expansion is a property possessed of all plumbing materials but the plastic materials have a much higher co-efficient of expansion than the plumber's metals. This has been something of a problem with plastic pipe installations, particularly with the less rigid polythene which are best supported horizontally on layboards. The rigid P.V.C.'s on the other hand are more adaptable to some form of expansion jointing method. This, then, is the trend with many of the newer soil pipe joints. Often a socket formation accepts the spigot end of the upper pipelength and a neoprene ring rolled on to the spigot is compressed between the exterior spigot wall and the interior socket wall to provide an air and water tight joint.

It also provided vertical movement to accommodate thermal movement of the pipe as alternate hot and cold

continued next column

● In conjunction with this special survey on pipes, tubes, joints and fittings, we review products from the leading manufacturers' ranges.

INTEGRON SURFACE TUBING

"INTEGRON" and other types of extended surface tubing in ferrous metals are made by the Extended Surface Tube Co. Ltd., which was recently formed by Stewarts & Lloyds Ltd., and the Imperial Chemical Industries Ltd.

Ferrous "Integron," particularly suitable for operation at very high temperatures, is available in both High-fin and Low-fin forms. The factors determining which is the most appropriate for any given duty are much the same as for non-ferrous "Integron."

The manufacturing process, during which fins are extruded from the tube

discharges pass through it. Care to ensure a small gap between spigot end and shoulder bottom of socket for this expansion will be a clear need.

Prefabricated

THE day has arrived when a complete soilpipe assembly for a two-storey dwelling can be prefabricated in the workshop, or as easily on site, and lifted into place by one man. Truly a change from some of the back breaking lugging of massive cast iron pipes as in our earlier days.

The sanitary pipework in the Shell Centre buildings on the South Bank at London are all in Polythene. The joints are by the Folkards Ltd. "Polyfusion" method. This well tried joint technique for polythene wastes and soil pipes really is a simply made yet very sound joint.

When it is remembered that this remarkable building will accommodate 6,000 people when complete, that most of the building is ten storeys high and that the tall block is twenty-seven storeys high, one comes to realise the faith that the designers have in these plastic tubes.

wall by rotary cold forming, is basically the same as that used for non-ferrous "Integron," and confers the same technical advantages, including an automatic inspection of the entire tube surface.

In Dublin: Stewarts & Lloyds of Ireland Ltd., East Wall Road.

★ ★ ★

JAMES H. LAMONT & CO. LTD., Gylemuir Works, Edinburgh, are the patentees and manufacturers of the "Securex" Compression Fitting for copper tubes which are widely specified for domestic hot and cold water supplies and for steam heating.

"Securex" fittings conform to B.S.864—type B—and are manufactured for use with copper tubes to B.S. 659 and B.S. 1386 for underground use.

The Company's official stockists in Northern Ireland are Messrs. Potter, Cowan & Co. (Belfast) Ltd., Great Patrick St., Belfast.

★ ★ ★

A complete range of asbestos-cement flue pipes and fittings are manufactured by Turners Asbestos Cement Co. Ltd., Trafford Park, Manchester. The agents in Ireland are Asbestos Cement Ltd., 19 Lower Pembroke St., Dublin.

★ ★ ★

TRAPEZE joints on all units permit simple and rapid site installation and in conjunction with "Trapeze" couplers provide an economical, rapid and efficient method of assembly.

Manufactured by Bendz, the range includes four fittings introduced for use on waste runs. Made in 1½" and 1¼" bore sizes only, they provide an inexpensive, simple and rapid means for connecting up BSS 659 copper tube and are ideally suited for most sanitation requirements.

Informative literature is available from the manufacturers at Lister Street, Birmingham 7.

★ ★ ★

AMONG THE range of Conex fittings for polythene tubes is the new "Polydaptor" which tests have proved make an extremely simple joint which will resist even greater pressure or pull than the actual polythene tube itself.

continued page thirty-one

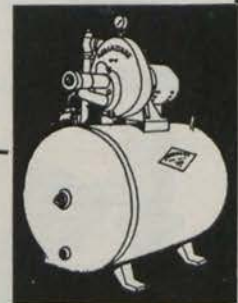
WATER ON TAP

ACT NOW— AND DISCOVER HOW LITTLE IT COSTS!

Aquadare Automatic Pumps are fully automatic and give water more pressure at all outlets. No attention or lubrication required. Satisfaction guaranteed. Hydrodare Polythene tubing is manufactured to B.S. 1972/1953 and is thus approved for all Grant-aided water schemes.



AQUADARE PUMPS HYDRODARE TUBING



Low density Polythene. BS.1972/1953. 500 ft. coils.

HYDRODARE H.D. Classes B, C, & D.

High density Polythene. BS.3284/1961. 500 ft. coils.

UNIDARE HARD P.V.C. PIPE Classes B, C, & D.

Dept. Local Gov. prov. Spec. June '58. 2" to 6".

bring it home to you!

Without obligation, please send me illustrated Brochure/Price Lists on Aquadare Pumps, Hydrodare Tubing.

NAME.....

ADDRESS.....

 **POST
THIS COUPON
TO-DAY**



The Irish Plumber and Heating Contractor.

**CÉAD
MÍLE
FÁILTE**



290 Trap



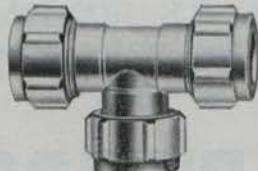
5301 EC. Pillarcock



5302 Bibcock



080 Lavatory Waste



12x Tee-Piece



171x Combined Fitting



53x Stopcock



1650 Valve

... AND MAY WE OFFER TO MEET ALL YOUR REQUIREMENTS FOR

**PLUMBERS' BRASSFOUNDRY
TAPS AND FITTINGS**

The SANBRA-CONEX (IRELAND) LTD. range is designed to meet your requirements for all plumbing services in copper or plastic tubes, above and below ground. It includes Pillarcocks, Bibcocks, Wastes, Plugcocks, etc.—and CONEX Compression Joints and Fittings, Valves, Stopcocks, and Drawn Copper Traps. SANBRA-CONEX products are approved by the leading Architects, Surveyors, Plumbers, Contractors, Government Departments, Municipal Authorities and Water Works throughout Ireland. For speedy, economical, **better** plumbing, you can always depend on SANBRA-CONEX products.

★ **VERY PROMPT DELIVERIES**

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**HOT BRASS PRESSINGS TO SPECIFICATION
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FULLY ILLUSTRATED CATALOGUE.**

SANBRA-CONEX (IRELAND) LIMITED, SANTRY AVENUE, SANTRY, CO. DUBLIN

Telephone: Dublin 373637. Telegrams: SANCO, DUBLIN.

from page twenty-eight

The Polydaptor replaces the standard Conex ring and performs two functions—firstly it entirely removes the necessity of any heating or expansion of the tube; and secondly, it has been so designed that the Conex P.H.I insert is now suitable for either normal or heavy gauge polythene tubes.

The manufacturers: Sanbra-Conex (Ireland) Ltd., Santry Avenue, Santry, Co. Dublin.

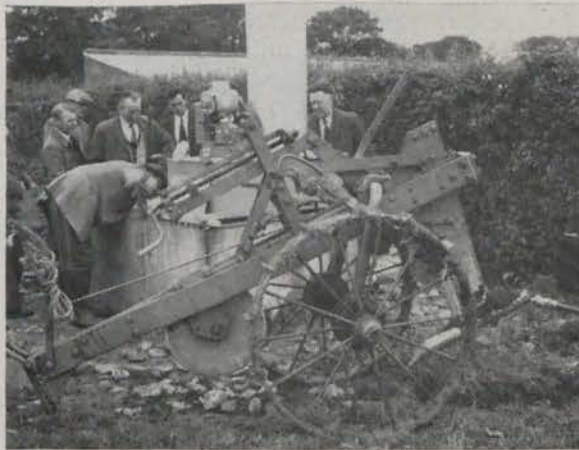
★ ★ ★

Forged steel, and stainless steel flanges, malleable tube fittings, stainless steel stub nipples, fabricated pipe-work in steel, stainless steel and copper, are numbered in the range of Kirk & Co. (Tubes) Ltd., Paradise St., London. The Irish agents: D. P. Engert & Co., 5 Ardee Road, Rathmines, Dublin.

★ ★ ★

THE "KINGLEY" Senior fitting for Copper Tube 2½" and over, offers the following advantages: The metal to metal seating is completely effective, ensuring rigid and trouble free installations.

Tees, bends, etc., are made in Copper, thus giving the smooth bores, strength and lightness. The flanges are instructed of brass and not iron.



● Laying of Hydrodare polythene tubing by mole drainer.

Shown here is the laying of Hydrodare Polythene Tubing by mole drainer.

This tubing, a Unidare Ltd. product, was first manufactured in Ireland in March, 1953. In 1959 Unidare Hard P.V.C. pipes were introduced.

The following year Unidare were first on the market with High Density Polythene Pipes to the new B.S. 3284: 1961.

Known as Hydrodare H.D. this tubing is similar in many aspects to conven-

tional low density "Hyrodare" Tubing, both in appearance and in coil lengths. It is, however, available in Classes 'B', 'C' and 'D' and in sizes from ½" to 2" nominal bore.

In 1961 also, Unidare introduced the "Terrain" range of Rainwater Systems and Soil and Waste Systems, employing P.V.C. extrusions and fittings.

A subsidiary Works, Unidare Engineering Ltd., manufactures similar items at Portadown.

The Kingley Senior is from the range of the Kings Langley Engineering Company Ltd., Kings Langley, Herts.

★ ★ ★

TALBOT fittings for Polythene in-

clude ferrules, stopcocks, connectors, tees and adaptors. They are produced in hot stamped delta metal and cast

continued overleaf

Polythene Tubing for Cold Water Services

MANUFACTURED TO BRITISH
STANDARD SPECIFICATION 1972

By—

O'BRIEN PLASTICS LTD.

BISHOPSTOWN, CORK

TRADE ENQUIRIES INVITED.

Phone 41834.



The Irish Plumber and Heating Contractor.

from previous page

gun metal to suit individual requirements.

The fittings are manufactured by F. W. Talbot & Co., Pitt, Winchester, Hants, and full details of their range are available from their Irish agents: S. W. Carty & Son, 12 Lower Mount St., Dublin, 2.

F.F. joints are made by Federated Foundries Ltd. They can be cast in four standard positions and are made to suit the standard sizes of copper, lead, mild steel, and polythene tube waste branches. Head office: Hawthorn St., Glasgow.

A. H. MASSER LTD., Engineers and Merchants, Annesley Works, East Wall Road, Dublin, are the agents in Ireland for the Vulcathene range of laboratory waste drainage pipes and fittings manufactured by J. S. & F. Folkard Ltd., Capitol House, The Broadway, Mill Hill, London, N.W.7.

"Vulcathene" represents a system of plumbing equipment covering pipes and pipe fittings, valves and vessels for the use of containing, conveying, or otherwise controlling the flow of liquid, and especially those liquids of a corrosive nature.

The material is tough and horn-like and can normally be considered as quite unbreakable.

It is resistant to most strong acids and all alkalis, and waters considered corrosive to metals, and even waters causing solvency to lead do not affect it. At 20 degrees C., it is practically insoluble in organic solvents.

★ ★ ★

"KONTITE" fittings supplied for use with all polythene tubes are sent out with bodies and nuts in gunmetal, which alloy is corrosion resisting, and particularly suitable for use underground and where water and soil conditions are liable to cause dezincification of fittings made from hot brass pressings.

The copper pipes are serrated in bore to enable a firm and effective joint to be made without damaging the polythene tubes. The liner used in the end of the tube on which the joint is to be made prevents collapse of the tube wall when tightening takes place. It is practically impossible to overtighten one of these joints.

The manufacturers are Kay & Co. (Engineers) Ltd., Bolton Brassworks, Blackhorse St., Bolton.

In Ireland: Stewarts & Lloyds of Ireland Ltd., East Wall Road, Dublin.

THE BROWNALL bronze weldable copper tube fittings are made from a high percentage copper content brazing metal alloy which facilitates brazing and bronze welding, while at the same time ensuring a corrosion resistant installation free from any tendency to dezincify.

From Donald Brown (Brownall) Ltd., Lower Moss Lane, Chester Rd., Manchester.

★ ★ ★

TEMPLE FIBRE conduits are manufactured from cellulose, and asbestos fibres, and impregnated with a special pitch to ensure an impervious material that is ideal for the protection of cables everywhere. They are suitable to carry all types of cable, including plastic, lead or armoured.

Normally supplied in 8ft. lengths with either spigot and socket, or sleeve joints, and with either heavy or light wall thickness, the heavy wall material is manufactured to be laid direct into the ground without any concrete support, provided a few simple requirements are ensured.

Heavy wall conduit types are manufactured for drain and sewer pipe. The light wall conduit is for use only with concrete surround. They are made by Temple Tubes Ltd., Hampshire, and the agent in Ireland is Victor H. Campbell, 11 University Road, Belfast.

Simplex Cam Clamps are high quality galvanised castings for connecting tubes together. There are nearly 100 patterns in stock. The Cam Clamps are manufactured by Simplex (of Ireland) Ltd., Inchicore, Dublin.

THE TYTON Joint spun iron pressure pipe is available in diameters 3" upwards, conforming to British Standard 1211 for water, sewage and industrial mains. In addition 2" Tyton Joint spun iron pipes can be supplied.

Hydrostatic pressures up to 5,000 lb./square inch with pipes in the "in-line" position, and up to 3,500 lb./square inch with the pipes deflected 5 per cent., have been successfully retained.

The manufacturers are Stanton & Staveley Ltd., near Nottingham.

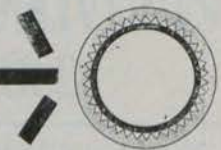
★ ★ ★

THE "HANLITE" compression joint has been introduced to meet the demand for a fitting lighter in weight than the standard "Hanlo" and "Gunmetal" range. "Hanlite" fittings are supplied in ½", ¾", and 1" sizes. The types of fittings available cover those in normal demand for housing scheme work.

"Hanlite" fittings are supplied in hot pressed brass form, with deep external chamfer nuts. Available from Lovell & Hanson Ltd., Oldbury Rd., Greets Green, West Bromwich, Staffs.

continued page thirty-four

THIS is effective



W.I.C.U. tubing prevents cooling of hot water, affords protection against rust and pipe corrosion and is decorative for external insulation. ½" size ex-stock from

L. R. WOOD

174 PEARSE ST., DUBLIN.

Leaflets and Technical advice freely available.

PIPES and FITTINGS
 — for —
STEAM - HOT & COLD WATER - CHEMICALS

PIPES:
FITTINGS:

Mild Steel - PVC - Polythene
 Mild Steel - Malleable Iron - Gunmetal
 Copper - PVC - Polythene
 Large stocks available of all types

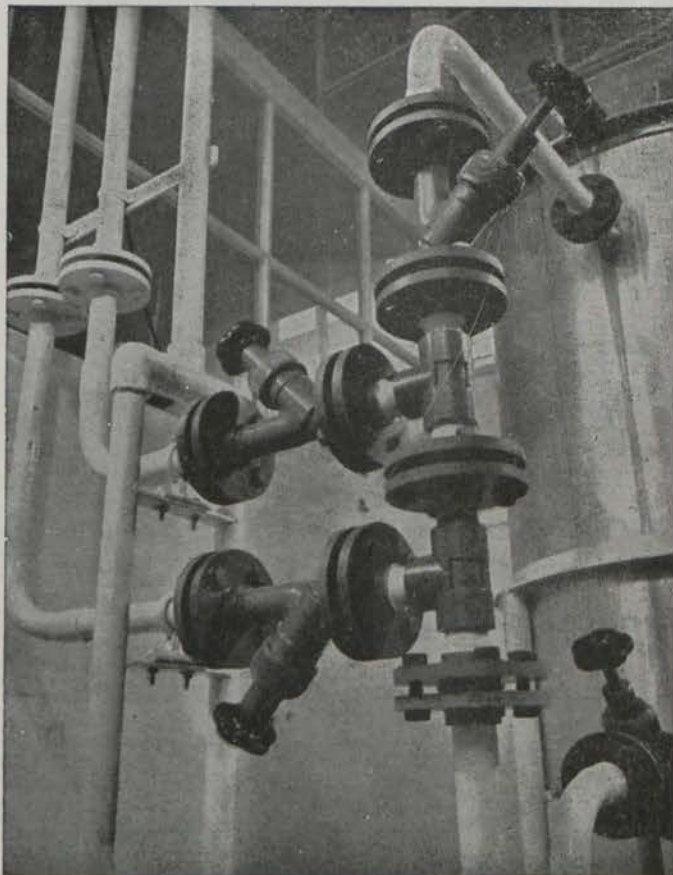
STOCKISTS OF:—

DURAPIPE } Pipes and fittings
 WAVIN }

... PHONE DUBLIN 66961 for immediate supplies

THE BRITISH STEAM SPECIALTIES LTD.
33 LEESON PARK DUBLIN 6

also at 98 Lisburn Road, Belfast, 9. Telephone: 28608.



We chose Wavin PVC...

AT CASTLEFORBES WORKS

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

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

wavin

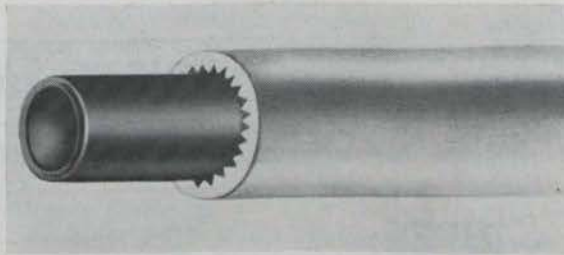
WAVIN PIPES LIMITED
 CIAN PARK, DRUMCONDRA, DUBLIN 9
 Telephone : 48000 or 373614/6

The Irish Plumber and Heating Contractor.

from page thirty-two

THE RANGE of Hard PVC pipes from Wavin Pipes Ltd. is, of course, already well-known.

It is interesting to note, however, that the large quantities of Wavin Hard PVC pipes, which have already been manufactured and sold in Ireland and abroad have been made to the provisional specification issued in 1957 by the Department of Local Government. This specification sets down not only the sizes and dimensions of pipes but also the tests to be carried out by the manufacturer to ensure a satisfactory pipe, which will be suitable for use for the conveying of potable water under pressure. The specification covers a range of pipes of nominal sizes from $\frac{1}{2}$ " to 6" and suitable for working pressures equivalent to 200, 300 and 400 ft. head of water—87, 130 and 173 pounds per square inch.



● Wicu Thermo tubing which features double insulation.

P.V.C. sheath provides double insulation

WICU Thermo tubing (pictured here) is being stocked in Dublin by L. R. Wood, Wholesale Distributors, Pearse St. A heat insulated copper tube with air-ventilated PVC jacket, it is marketed in Britain by Anglo-Nordic Burner Products Ltd., for the manufacturers, Hackethal, Draht and Kabel, Werke Aktiengesellschaft, of Hanover.

Wicu features double insulation provided by the interior ribbed construction of the ivory p.v.c. sheath. Point contact between the sleeve and the

copper tube creates a still free air space throughout the length of tubing. Thus the tube is shielded from ambient temperatures by the sealed air cushion and a P.V.C. skin of approximately $\frac{1}{8}$ " thickness (varying with pipe diameters).

The P.V.C. jacket, being chemically inert and non-inflammable, has a high corrosion resistance and can therefore be buried without protection in cement, concrete, plaster and directly into the ground.

in brief...

FOLKARD AT SHELL CENTRE

A TOTAL of 59,000 ft. of plastic pipe and over 89,000 plastic mouldings have been supplied for waste drainage and cold-water systems in Shell Centre (the Shell International Petroleum Co.'s new building on the South Bank, London) by J. S. & F. Folkard Ltd., a subsidiary of Allied Iron Founders Ltd.

The pipes and fittings supplied are of the "Vulcathene" heavy-duty type originally developed for corrosive waste drainage, particularly in laboratory and industrial installations.

Waste Drainage for Shell Centre.—The length of pipe used for waste drainage totals 46,000 ft. Some 68,000 "Vulcathene" mouldings were supplied for waste pipe fittings and ancillary equipment for wash rooms and for sanitation in sizes from $1\frac{1}{4}$ to 6 ins. This figure also includes nearly all the fittings for the vertical P.V.C.

Cold-Water Services.—The "Vulcathene" system was also used extensively for cold-water services and liquid soap supply lines. Approximately 13,000 ft. of pipe and 21,000 mouldings were supplied in sizes from $\frac{1}{2}$ to 2 ins. for these purposes. **Irish Agents:** A. H. Masser Limited.

We have been advised that signed copies of Mr. Townsend's book, **PLUMBING, FIRST YEAR**, are available from Messrs. Veal, 60 Cowley Road, Oxford, England, upon remittance of 17/0d. (post free). This book, now being serialised in the *Contractor*, was reviewed last month.

Factory visit

A PARTY from the Imperial Defence College recently visited Davidson & Co., Ltd., Sirocco Engineering Works, Belfast, during their visit to the North of Ireland as part of a study tour.

The party of twelve members were received at the Sirocco Works by Mr. D. R. S. Turner, Managing Director; Mr. T. B. Collins, Design Director; Mr. S. O. Hicks, Works Director; and Mr. R. C. Brown, Technical Director, and accompanied on a tour of the works.



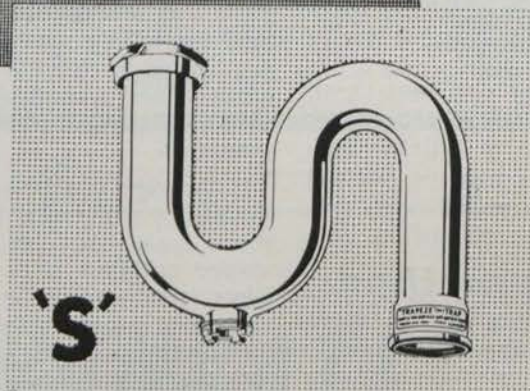
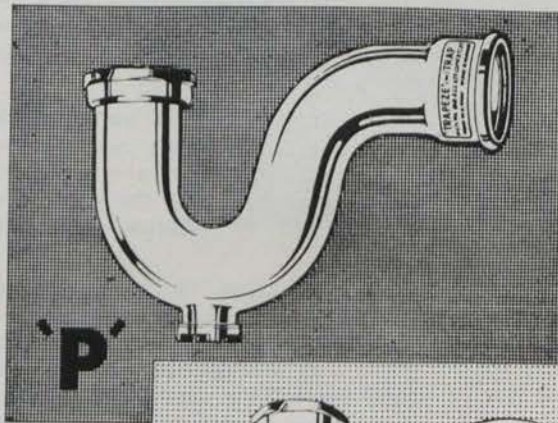
● To coincide with the launch to the general public of their new 'Mira' shower mixing tap, Walker Crowweller & Co., Ltd., of Cheltenham, have introduced this attractive and practical point-of-sale showcard. Produced on extra-stiff material, the showcard does not require any independent fixing.

Irish agent is Modern Plant Limited, Crumlin Road, Dublin.

Use
'TRAPEZE'
Traps and Fittings



With the "Trapeze" it is necessary only to wet and push into joint. Ideal for connecting up in restricted and inaccessible positions. It never leaks. Tested to pressure of 600 lbs. per square inch.



Solid drawn copper tubular traps are available in 1¼" and 1½" sizes, 'P', 'S', or 'Q' pattern with or without inspection eyes, with 1½" or 3" seals, and with outlets suitable for connecting to copper, lead iron and plastic piping.

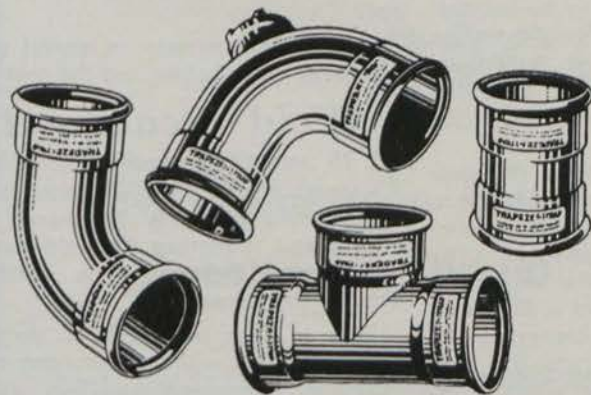
Advantages are:—

- Full Bore
- Never Corrode
- Never Choke
- Non-porous
- Cheapest in ultimate cost.

COPPER COUPLERS

Patent "TRAPEZE" (Regd.) Patent Nos. 757884, 757888 and others.

Illustrated are the four fittings introduced for use on waste runs. Made in 1¼" and 1½" bore sizes only, they provide an inexpensive, simple and rapid means for connecting up BSS 639 copper tube and are ideally suitable for most sanitation requirements.



Agent for Northern Ireland and Eire:
MR. F. E. TODD, Office No. 11, 32 Ann St., Belfast. Telephone No. 31874.



Head Office:
Lister Street, Birmingham, 7. Telephone No. ASTon Cross 3771-2-3.

The Irish Plumber and Heating Contractor.



From page eight John G. Bolton on

Copper pipeline welding

The welding of copper was, for a long period, a very difficult process due to the fact that it readily absorbed oxygen from the air on being heated to any extent. This was not necessarily harmful in itself, but when the heating was continued so as to bring the metal to a welding temperature, a reaction sometimes occurred between the cuprous oxide in the copper and the reducing gases in the welding flame so that cracks and porosity developed in the finished weld giving a gassed or pinholed appearance. It is essential, therefore, that oxygen be prevented from entering the joint during the welding process.

Deoxidised copper

To overcome this difficulty a type of copper tube known as deoxidised is used for pipelines where copper welding is specified. The difference between this and ordinary copper tube is that in the final stages of production a small quantity of phosphorous or other deoxidising agent is added to the molten metal.

This unites with the oxygen in the copper and forms an oxide which evaporates or volatilises, so leaving the copper oxygen free. Whilst most of the phosphorous disappears in this process, a residue is still left in the metal and acts as an oxygen remover during welding. This makes it possible to produce satisfactory welds on copper, but remember, the tube must always be specified as "deoxidised" or trouble will arise.

The welding rods for deoxidised copper must also be of a special kind, and are generally of a Phosphor Copper composition, with the addition of deoxidising elements to remove any oxygen present in the weld metal during the welding operation.

Fluxes

WHILE it is possible to weld small pipe joints, etc., without the use

satisfactory job if one is provided.

The main purpose of the flux is to dissolve surface oxide and protect the molten metal from impurities, etc.

A borax based flux is the most satisfactory, and at present on the market are several proprietary fluxes composed on this basis, but with the addition of compounds to increase the solvent powers of the flux.

Flame adjustment

FOR the welding of copper an absolutely neutral flame is necessary. The adjustment of the blowpipe to achieve this was explained in previous articles, so it will be sufficient to mention that if excess oxygen is permitted in the flame a very brittle unsatisfactory weld will result. If, on the other hand, an excess of acetylene should occur, it will be even more disastrous as then the resultant weld will become porous, with perhaps the formation of cavities.

Jointing methods

FOR simple joints on thin sheets and pipes the edges of the copper can be turned up to form a flange about $\frac{1}{8}$ " in height, or about twice the gauge of the material to be welded. The edges of the sheets or pipes are then butted together and the flanges are melted down by the blowpipe without there being any necessity for the addition of a filler rod.

On thicker walled pipes the ends are usually butted together so as to leave a small gap between them equal in size to the wall thickness. The joint is then welded in the usual manner with the addition of a filler rod. For branch joints the copper can be tafted up as in Fig. 1, and the joint made as indicated, or alternatively the branch pipe can be saddled.

When welding, it must not be forgotten that copper is an excellent conductor of heat, so that it will be necessary to fit a larger size blowpipe nozzle than would be the case with the equivalent size of mild steel pipe. Again, keep the gas pressures as low as practicable so that a soft flame

is produced without any tendency to blow away the weld metal.

The usual procedure when commencing to weld is to pre-heat both sides of the joint thoroughly. If the pipe is of a large diameter or thick walled, it may be necessary to use two blowpipes to achieve satisfactory pre-heating, and another helpful point is to block off, if possible, one end of the pipeline and so prevent cold air blowing through it.

Temperature

WHEN welding temperature is reached, the joint is tack welded in two or three places to hold it firmly and in line.

We now start to weld, commencing from one of the tacks and continuing around the pipe in a series of waves made by fusing the pipe ends together with the addition of a filler rod.

On small pipes, the melting down of the preformed flange will provide a sufficient body of material to make a satisfactory weld without the need for a filler rod. The finished joint should be about $\frac{3}{8}$ " in width and present a neat wave-like surface without any pinholes or burnt (gassed) appearance.

If the pipe can be rotated during welding, it will make the operation much easier as the downhanded method can then be used. Where joints must be made in position, the spigot and socket method will make the operation much easier, as the socket edge provides a base for the deposition of the metal from the filler rod.

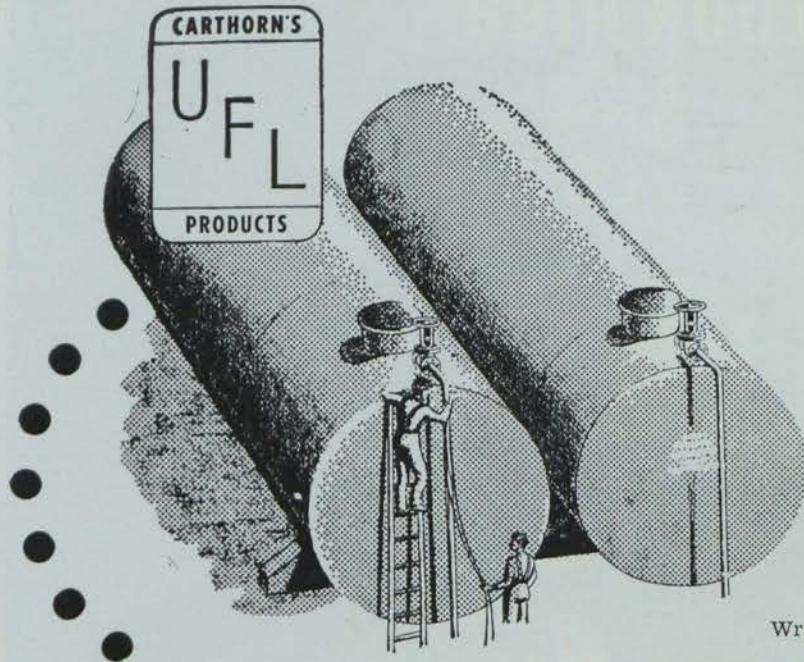
It may be necessary to anneal the pipe edge when belling out the socket.

Weld treatment

IT IS sometimes specified that immediately welding is finished, the joint should be lightly hammered to harden and strengthen the weld metal and prevent excessive grain formation in the copper.

This is often impossible to do on pipe-line joints without damaging the tube, but its omission need not cause any worry, especially where deoxidised copper is used, as the benefits to be gained are considered by many experts to be of doubtful value.

In our next issue, it is intended to deal with the bronze-welding of copper, a subject of the utmost importance to the plumbing and heating industry.



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