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THE IRISH PLUMBER & HEATING CONTRACTOR

VOL. 2. NO. 11. FEBRUARY, 1963.

Special Survey: *Tap Fittings And Controls*

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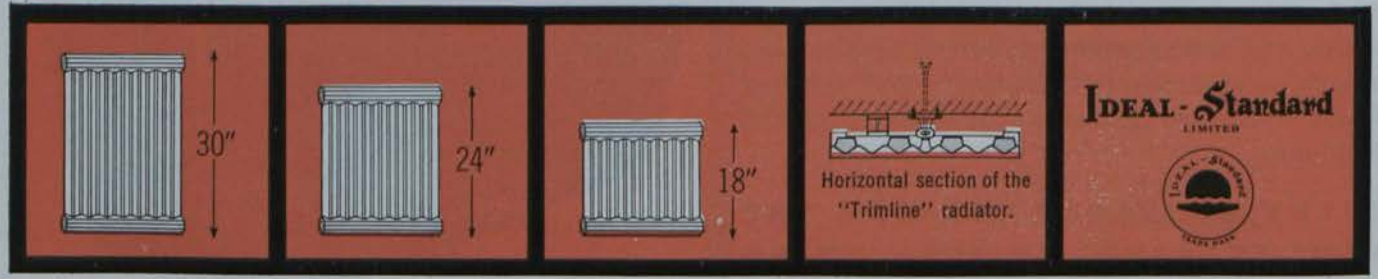

If you would like to know more about the IDEAL range of radiators, please write to: Ideal-Standard Limited, Ideal Works, Hull (Tel: Hull 68971), or Ideal House, Great Marlborough Street, London W1 (Tel: Gerrard 8686).

"IDEAL" AND "TRIMLINE" ARE TRADE MARKS OF IDEAL-STANDARD LIMITED

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THE IRISH PLUMBER & HEATING CONTRACTOR

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At opening of Mervue factory

★

Mr. Pat O'Beirne, Production Manager, examines a heater part with Mr. H. S. Buckley, Managing Director of Potez Ireland Limited.

£1 MILLION POTEZ FACTORY AT GALWAY OFFICIALLY OPENED

IT was a memorable day in Galway last month when the Taoiseach. Mr. Lemass, officially opened the new factory of Potez (Ireland) Ltd., at Mervue.

The factory, which produces the well known Potez heating units, is the largest industrial plant west of the Shannon and at this stage represents a £1,000,000 investment.

At the opening, Mr. Herbert S. Buckley, the American-born managing director of the industry, recalled that the parent firm, Potez of France, had been producing heating units in France since shortly after the war and had been very successful both there and in other continental countries.

Early in 1960 it was decided to build a factory to serve the British Commonwealth. It was intended to locate it in England but then it was decided that it would be more advantageous to locate it in Ireland because the Government here was inviting foreign industries to come and was providing tax reliefs and other concessions.

Reliefs

M. Potez felt that with these reliefs their industry could place their products on world markets under more competitive conditions. This was borne out when they came to Ireland as well as the fact that a large and willing labour force existed.

In August, 1960, Messrs. John Sisk & Son were given the contract to build the factory. It has 180,000 feet of covered floor space and is capable of turning out 150,000 heating units annually. Although the home market would not be ignored, the factory products were basically for export, mainly to the Commonwealth and E.E.C. countries.

The factory employs 150 at the moment and it is expected that full production will be reached in two years, when the labour force will be 700 on a one-shift basis.

Mr. Lemass pointed out in his speech that the countries with which we had important commercial relations were moving to free trade.

He declared: "In making plans for the future of Irish industry the Government thinks it is reasonable to expect that there will be a general desire to complete, in every protected industry and in good time, whatever re-equipment and re-organisation is needed to ensure the highest attainable level of efficiency. All the indications are that this is so and that the assistance offered by the Government will be fully utilised."

M. Henri Potez, the French industrialist, and founder of Potez Industries, replying to An Taoiseach, said that he was glad to have become an industrialist here.

"At a time when Ireland is making an extraordinary effort towards the improvement of its land and the development of its industries, great movements are in course of realisation to bring about better trade relations and also perhaps political relations, thus giving our 'old world' an orientation worthy of its past.

Participation

"Ireland wishes to be a part of these movements and there is no doubt that her participation will take place in her own good time. But her common sense will not be lacking and nothing should be allowed to upset her traditional balance, which is the envy of many nations."

The Mayor of Galway, Alderman P. D. Ryan, said that to them in Galway the Potez factory marked a milestone in the efforts to attract industry to the area.

The Bishop of Galway, Most Rev. Dr. Browne, said he was glad to see close relations established between Ireland and France.

Before the opening ceremony the factory was blessed by Most Rev. Dr. Browne, assisted by Right Rev. Monsignor J. Mitchell, P.P., V.G., Castlegar; Rev. J. O'Connor, C.C., do.,

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IRISH WELDING ASSOCIATION'S FIRST AWARDS

THE FIRST certificates awarded by the Irish Welding Association to six Dublin welders were presented by Mr. Martin Gleeson, Chief Executor Officer of the Dublin Vocational Education Committee, in the Building Centre, Lr. Baggot Street, Dublin, late last month.

The Irish Welding Association was founded a couple of years ago to raise the standard of welding and to spread the knowledge of welding techniques. Its members include trade unions, firms employing welders and dealing in welding equipment, insurance companies, educational bodies and consulting engineers. The establishment of the Irish Welding Association Welder Certificate scheme is the most important advance that the Association has made.

Certificates were awarded to Arthur McGuinness (Arthur Guinness, Son and Co., Dublin, Ltd.), and Christopher McDonnell, Joseph Quinn, George Murray, Sean Buckley and Michael Devine (all of the E.S.B.). Mr. Quinn was the only one of the six to win the Certificate with distinction. He is employed at the Ringsend Power Station.

Mr. J. D. Barry, vice-principal of the College of Technology, Bolton St., Dublin, and chairman of the Management Committee of the Association, presided.

NEW GAS-FIRED PROCESS HEATERS

WITH THE announcement of a new range of industrial process gas-fired air heaters, Powell Duffryn Heating Ltd. have increased their claim to offer a comprehensive range of industrial heating equipment. The new range—the Norwest gas-fired process air heaters—represent a new development in direct fired recirculation air heaters. They consist of a driving motor, a direct gas-fired air heater and a fan and can be applied to a variety of industrial heating, drying and curing processes.

The Norwest is produced in five models, each with thermostat control. The sheet steel casing is lined internally with asbestos composition or

TRADE TOPICS

similar insulating board and encloses a stainless steel combustion chamber cooled by the recirculating air. The recirculation and products of combustion mix together and are drawn into the recirculating fan fitted directly on to the heater outlet (or fitted separately as required depending upon the application). A slot burner fires into the diverging combustion chamber and accurate control of combustion air is obtained by adjustment of a sliding damper plate, which after initial setting is locked in position. The normal maximum temperature for the air leaving the heater is 600°F.

Irish agent: Mr. Denis H. Sullivan, Green Park, Coleville Road, Clonmel. Co. Tipperary.

in brief . . .

G. C. PILLINGER & CO. LTD. will be exhibiting at the London International Engineering Exhibition at Olympia from April 23 to May 2. Their exhibits will be on the stand of the British Oil Burner Manufacturers' Association in the Empire Hall.

★ ★ ★

THE ONLY exhibition in the world devoted exclusively to industrial and municipal effluent and water treatment problems will take place at the Seymour Hall, London, W.1, between March 26th and 29th next. More than 45 British, American and Continental exhibitors will have their plant and equipment on display

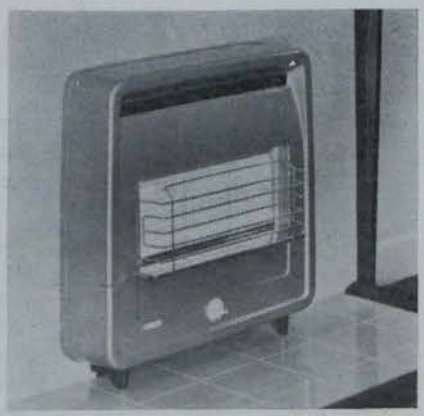
★ ★ ★

"IDEAL-STANDARD" are showing both central heating equipment and bathroom suites at the 1963 Daily Mail Ideal Home Exhibition.

"Ideal" heating equipment includes the new Titan fire, an open fire with a high powered back boiler. This is designed to give radiator heating and hot water in the average home.

★ ★ ★

VAUXHALL BOILER CO., LTD., have completed a reorganisation of the company and of its board of directors. The company have entered into association with Metal Formations Ltd., of Dudley, Worcestershire.



The neat "Ten" gas fire

BRATT Colbran Ltd., one of the Radiation group of companies, state that their new and neat Ten radiant convector gas fire is one of the cheapest available.

The "Ten" has a nominal rating of 16,000 B.t.u./hr. and will provide full heating for the average living room. By a simple adjustment of tht legs to high or low position, giving a variation in height of 2¾in., the one standard model can be installed to cover a normal 24in. high fireplace opening or may be mounted under a fireplace with a 22in. high overhang.

Alternatively, without the need of any extra parts, the "Ten" can be mounted on the wall.

The stylish and sturdy steel outer case is stove enamelled in gold, pewter or a subtle new colour, pearl bronze.

Irish agent: Mr. L. C. Young, 85 Gransha Road, Bangor, Co. Down.

DUBLIN FIRM'S NEW SERVICE

HALPIN & HAYWARD, Ltd., of Unity Buildings, 16-17 Lr. O'Connell Street, Dublin, 1, having built up a substantial business here in solving domestic water problems throughout the country, particularly in country districts, have now decided to offer a service to private individuals who may be using at their homes well water or river water. Some jobs have already been designed and installed by the firm with great success.

The firm's Belfast office is at Bedford Buildings, 7 Bedford Street, Belfast, 2.

The Irish Plumber and Heating Contractor.

Reporting

MODERN SOLID FUEL ROOM HEATERS

by

V. P. Duffy*

IN THESE days of rising fuel costs and higher heating standards, it has become increasingly apparent that the open fire is no longer capable of providing comfortable conditions compatible with economical operation. This, of course, has always been the case, but in days when fuel was cheaper and standards lower, this deficiency was not evident. It has been found, however, in the course of research by various laboratories connected with the heating industry, that the efficiency of the open fire rarely exceeds 25 per cent., and this figure is applicable even to the most modern type grates. In other words, a consumer will obtain from every ton of fuel that he purchases, the equivalent of only a quarter ton in useful heat.

The increasing awareness of the public to this fact has been shown by the demand for chimney throat restrictors, continuous burning grates, and refractory blocks for the modification of existing fireplaces.

In this ever increasing desire for further fuel economy, the attention of the public has now been drawn to the modern solid fuel stove which, during the past few years, has emerged as a highly successful and economical form of room heating. In the case of the writer's firm, the demand for these modern room heaters has been unprecedented this year.

It is therefore the aim of the writer in this article, to survey briefly the models currently available, and to make comments on each heater, which may serve as a guide to intending purchasers, so that their requirements may be fulfilled in the best possible way.

Broadly speaking, solid fuel may be divided into two categories: (a) volatile and (b) non-volatile, and modern stove design is greatly influenced by the type of fuel which it is intended to use in a particular appliance. Fuels which may be classed as volatile include most house coals, brown coal, peat briquettes, sod turf, and timber, while fuel of the non-volatile class is exemplified by coke and anthracite.

Room heaters designed to burn volatile fuels should incorporate a large amount of internal refractory surface, and in addition, have reasonably lengthy flue passages, so that the maximum amount of heat may be extracted from the flue gases before their discharge into the chimney.

Heaters conforming to this description, and which are normally stocked by the writer's firm, may be listed as follows:—

Mona Room Heater.—This is an excellent heater for rooms of average exposure up to 2,200 cubic feet in volume, and is the result of some excellent combined research by Bord na Mona and Waterford Ironfounders Ltd. It is particularly suitable for burning Bord Na Mona briquettes, and combustion may be very accurately controlled from banking conditions to full output, by means of a finely machined adjustable spinner situated at low level on the front of the heater. Another desirable feature of this appliance is the low level flue outlet, which enables the heater to be installed in almost every type of fireplace, including those with low lintels. Maximum fuel consumption of this appliance on full output is approximately 5 lbs. of briquettes per hour.

Seafire Heater.—This is also the product of combined research by Bord Na Mona and Waterford Ironfounders Ltd. and displays a strong Australian influence in design, this being chiefly noticeable in the provision of an observation window in the front of the heater, which is a characteristic of some Australian heaters expressly designed for the purpose of burning native brown coal briquettes. It is suitable for heating rooms of up to 3,500 cubic feet and may be accurately controlled by means of an easily regulated spinner. One feature which it shares with the Mona heater is its ability to remain alight under banked conditions for periods of up to ten hours.

Rayburn Room Heater.—This heater, from which the SeaFire was developed, is an old favourite, and is basically similar in design. It has the additional advantage, however, that it can also be supplied with a built-in boiler capable of heating a normal size domestic hot water cylinder, or alternatively about 32 square feet of single panel radiator surface.

County Stove.—This little stove is suitable for rooms up to 1,500 cubic feet in capacity and represents excellent value at £16 0s. 0d. It is specially suitable for briquette burning, and incorporates an accurately adjustable air spinner. It is manufactured in Ireland by the Hammond Lane Foundry Ltd.

Ahlmann Room Heaters.—These heaters are suitable for rooms of from 1,500 cubic feet to 5,000 cubic feet and embrace a wide variety of attractively styled models. They are of German manufacture suitable for brown coal burning, but they give excellent results on briquettes, and are very economical in operation.

On the other hand, room heaters designed for non-volatile fuels should incorporate refractory surfaces in the actual fire chamber to assist radiant heat emission, but they do not normally require any subsequent complicated flue passages if this refractory work is designed satisfactorily.

R Series Courtier Heaters.—This popular series of Esse room heaters manufactured by Messrs. Smith & Wellstood, are justly famous and have deservedly maintained their popularity over the years. They are available in six sizes and are capable of cater-

**Heating Division, Thos. Heiton and Co. Ltd.*

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THE PLUMBER GETS THE LEAST OF ALL FROM THE FROST PERIOD

—TRADE UNION SECRETARY

COMMENTING recently on the icy conditions in Britain, Mr. Tom Sullivan, London Secretary of the Plumbing Trade Union, said:—

"People seem to think a thaw is the golden harvest of the plumber. In fact, for a relatively short period the journeyman plumber works a bit of overtime, and if there's any harvest it's only the plumbing contractor who reaps it.

"The more you think about it, the bloke who gets least of all out of the frost period is the plumber who has to contend with it. They dislike it, contrary to what most people think."

Much of the blame for recurring winter crises is still being laid on bad architecture. "Walk into an architect's office," Mr. Sullivan said, "and you'll find him drawing houses with pipes on the outside."

Older plumbers are uneasy at the preference for thin copper plumbing, with pumps, instead of the old gravity system which fell through solid lead pipes.

Meanwhile, Mr. Henry Morley, an elderly London plumber, said that younger people had far less craft pride.

"In the twenties and thirties," he said, "few parents could afford an apprenticeship and so youngsters had to come up the hard way.

"I used to push a whacking great barrow round full of lead pipe coils and dig out the holes.

"These chaps with the small bore stuff just smash it in, pump it round and that's their lot. I had to go to a house the other day . . . a tremendous house over in Hendon. I couldn't drain that small bore properly. They'd come down from upstairs and looped it back. There was a great loop of pipework there, holding water.

"I had to report to the agent that the only thing I could do was to disconnect every radiator, tip it up and drain the water that way."

Like Mr. Sullivan, he saw no golden harvest for the journeyman plumber this winter. "They might make a few shillings to spend on medical supplies, as I'm doing just now," he said —he's at home with 'flu. "You get some biting draughts in these roof spaces that go right through you."

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ROOM HEATERS

ing for rooms of 1,100 cubic feet in the case of the smallest model to 5,000 cubic feet in the case of the largest type.

In addition these heaters are available fitted with boilers, and the largest model, besides heating a room of 2,400 cubic feet, will also provide sufficient heat for 75 square feet of single panel radiator heating surface.

L. O. Series Courtier Heaters.—This recent addition to the Esse range is, perhaps, the most popular and successful of all room heaters both with regard to performance and appearance, and it has been the author's experience to find his firm hard put to satisfy the demand for these heaters. Apart from perfect control of the burning rate by means of the adjustable machined spinner when both glass doors are closed, this heater also caters for the aficionados of the open fire by having doors which fold back alongside the heater, and are concealed by the hinged casing of the appliance. The low-level flue outlet enables this heater to be installed in any existing fireplace and its smart styling enhances the appearance of any room. It is suitable for rooms up to 3,000 cubic feet capacity and may be supplied with a boiler if required.

Esse Autovector.—This ingenious heater, while having all the attributes of the previously described Esse Models, also incorporates a self-feeding fuel storage hopper that enables it to burn for exceptionally long periods even on high output without refuelling. It is available in three sizes, with or without boiler, and it is one of the few room heaters that are thermostatically controlled. It is suitable in its three sizes for rooms of 3,250 to 5,500 cubic feet.

Parkray 33.—A product of the well known Radiation Group, this heater is designed for recessing into an existing fireplace and is almost flush fitting. It has a large toughened glass window, and when in operation, casts a very warm and attractive glow through this window. It is equipped with the normal air spinner control and is capable of catering for rooms up to 3,000 cubic feet in capacity.

This heater is of all stoves the most similar in appearance to the traditional open fire, without the concomitant disadvantages of the latter method of heating.

Parkray 66.—This model is generally similar to the Parkray 33 but is fitted with a back boiler capable of supplying ample heat for normal hot water requirements and in addition for a towel rail.

Parkray 77.—The largest model of the Parkray range has almost the same appearance as the other two models, but is equipped with a high output boiler capable of serving a hot water cylinder and up to 50 sq. ft. of radiator surface.

Searchlight Heaters.—This heater is manufactured with a room heating capacity of 8,000 cubic feet. It is specially suitable for schools and large rooms and can burn unattended for up to ten hours. Coke, coal, briquettes, and sod turf have all been successfully used in this appliance.

Irish fuel merchants are particularly aware of all the problems associated with house heating and have always had the most whole-hearted co-operation of the British National Coal Board and our own Bord Na Mona.

There also exists a very fine potential market for Irish Anthracite producers in this field, but unfortunately there is no control of quality or of standards such as is exercised by the British Coal Industry. Quality control is essential in every industry but especially so in the fuel trade, and until standards are set regarding ash content, fines content, etc., this problem will always confront consumers when using Irish Anthracite.

It is to be earnestly hoped that some centralised bureau will shortly be established to ensure consistent fuel standard from Irish collieries. And, to summarise in a nutshell:—There is a solid fuel heating appliance available for every application.

The Irish Plumber and Heating Contractor.

TREND IS FOR PACKAGED UNITS IN AIR CONDITIONING—Executive

PAPERS given by Haden headquarters executives recently included a talk on air conditioning by Mr. L. C. Bull, A.M.I., Mech.E. M.I.H.V.E., and a paper on planning and site control by Mr. F. A. Pullinger, M.A., M.I. Mech.E., M.I.H.V.E.

The trends towards packaged units in air conditioning and greater co-operation between the builder and the heating engineer in the use of prefabrication, were the points raised respectively in the two papers, which created particular interest.

Emphasised

Mr. Bull's paper emphasised that the use of packaged units for central plants such as heat generators, water chillers and airhandling plant, cut capital costs and reduced design engineering and installation costs. Increased awareness of the advantages of air conditioning could result in a demand which would provide a very substantial summer load for electricity.

Mr. Bull supported this forecast by citing stories of power failures in New York heat waves due to the demands of air conditioning plant.

Mr. Pullinger, in his paper, called for more co-operation between the architect, builder, heating engineer and heating contract engineer.

Too many critics of the building industry asked for more prefabrication but failed to appreciate what was already being done in this direction.

His company's experience of prefabrication had taught them that it was only a practical proposition if planned with the builder and architect at a time when the designs of the building components are being evolved.

Training

Mr. Pullinger also emphasised that technical training in the industry was good but that more formal instruction was needed in planning and management.

The limitations to economic pre-

fabrication of heating systems are dimensional accuracy of buildings and repetitive situations. Situations do not repeat so often for the heating engineer as for the builder.

Modular discipline and building systems which encourage off site prefabrication are a movement in the right direction, but do not necessarily result in building to closer tolerances.

Prefabrication of large building assemblies leads to local accuracy, facilitating prefabrication of connections to heating, air conditioning units and plumbing. It does not necessarily make it economic to prefabricate the central distribution system.

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Mr. Henry Potez, President of the Potez Aircraft Company of France and founder of Potez Industries of Ireland, Ltd., Galway, shows the Taoiseach, Mr. Lemass, a part of an industrial heater when the Taoiseach opened the new Potez factory at Galway.

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Potez plant will employ 700 people

and Rev. M. Spelman, Diocesan Secretary.

The attendance included the Minister for Industry and Commerce, Mr. Lynch; the Minister for Defence, Mr. Bartley; the Irish Ambassador to France, Mr. D. R. McDonald; the French Ambassador to Ireland, M. Paris; Professor L. O Buachalla, Cathaoirleach of the Senate: Mr. J. C. B. McCarthy, Secretary, Department of Industry and Commerce; Mr. J. Geoghegan, T.D.; Mr. M. Kitt, T.D.; Mr. F. Coogan, T.D.; Mr. M. Donnellan, T.D., and Mr. A. Millar, T.D.

Tedcastle/McCormick & Co. Ltd., one of the largest and oldest firms of fuel merchants in the country, have been appointed sole concessionaires for Potez Industries in Ireland.

STAND HIGHLIGHT

HIGHLIGHT of the stand of Sadia Water Heaters Ltd. at the E.D.A. Sales Conference Exhibition at Harrogate this month was a display of the N-50 "off-peak" electric water heater. It was shown both complete and sectionalised to demonstrate its construction.

It is a low-pressure heater of 50 gallons capacity with a loading of

TRADE TOPICS

2½ kW.—two elements of 1,250 W. each—to spread the heating over seven hours, and with a very high standard of insulation.

Irish agent: A. P. Haslam, 39 Lr. Gardiner St., Dublin, 1.

DUBLIN FIRM NOW STILLITE DISTRIBUTORS

STILLITE PRODUCTS LTD., one of the Turner & Newall Group of Companies, have appointed Structural Waterproofing Co. (Ireland), of 7, Upper Fitzwilliam Street, Dublin, 2, as main distributors for the whole of Southern Ireland.

Structural Waterproofing Co. (Ireland) will handle the full Stillite range of heat, cold and sound insulating materials.

PUMP COMPANY TO ENTER IRISH MARKET

MESSRS. J. T. WADE & SON, Ltd., of Fairfield Works, High Wycombe, Bucks, have announced that they intend to introduce their products to the Irish market.

Wade Centrifugal Pumps have been manufactured for many years in larger sizes and with the knowledge and experienced gained, they have entered the small pump field. The reception already accorded to this range is very encouraging.

The Company's "Junior" is ideally suitable for fountains, water displays, and cascades, in addition to industrial applications which include circulating, cooling, bulk transfer, suds pumping, etc.

The Wade Mini-Pump is suitable for small water displays, fountains, cooling, bulk transfer, etc. The totally enclosed capacitor type motor has been especially designed for long and trouble free running and being an induction motor, no tedious brush troubles arise.

All pumps are guaranteed against faulty workmanship or materials and a complete after sales service is available.

Mr. E. A. Wheeler has recently been appointed Sales Manager to J. T. Wade & Son, Ltd., Fairfield Works, High Wycombe, Bucks.

BIDDLE SPONSOR NOISE PROBE

F. H. BIDDLE LTD. have sponsored an extensive research programme into the noise level of their new trim quiet Forceflo Convector.

The new Forceflo is the result of an extensive study into the structure and arrangement of heater components. Coil, element, motor, fan and filter have been extensively tested to provide maximum output in terms of B.t.u.'s yet maintaining a very low noise criteria level. Biddle's research programme has been executed by an independent firm of Acoustic Engineers recognised by the National Physical Laboratory.

This development has meant that Biddle's can now predict with accuracy the noise levels of these Forceflos under given conditions. They will extend this testing programme to all motorised units.

A Special Correspondent reports on

Recent development in turf burning equipment, techniques

FOLLOWING the development some years ago of new combustion techniques for turf fuel, the wet-back Supereconomic boiler became a sound choice for medium sized steam plants (2,500—25,000 lb. steam per hour). The patent on these boilers has expired and they are now obtainable from all the larger manufacturers, so that the steam user has a wider choice of suitable plant.

The effort made by fuel technologists towards higher efficiency has led to boiler designs directed to increased convected heat transfer, either by extending secondary heating surfaces or by increasing gas velocities. While this development leads to higher efficiencies with all fuels, the relative increase with a long-flame fuel such as turf is substantially higher and recent boiler tests, carried out under meticulous control, have shown that efficiencies are quite as high as can be achieved with any other fuel and that with proper selection of equipment the makers' capacity rating can be exceeded by a substantial margin.

Vertical steam boilers, usually manufactured for capacities lower than the range indicated above, have never shown high efficiencies on turf-fuel due to the low secondary-primary heating surface ratio.

Altered

A NEW vertical boiler, the Cochran Series II, has recently been developed which has altered this situation. This boiler, a development of the well-known Cochran Multibublar vertical boiler, was originally designed as a packaged oil-fired unit but is now obtainable in semi-packaged form for turf-firing.

The first of these boilers is now operating as a completely automatic unit on turf and the indications are that the efficiency and reliability are up to what the manufacturers claim for the oil-fired plant.

Stokers. — For horizontal steam boilers up to 25,000 lbs./hr., the Hodgkinson Low-Ram Stoker has become firmly established as a most satisfactory machine for burning turf-fuel and there are now many of them working both in factories and institutions with uniform success. An improvement lately made to the stoker has been the addition of a device which prevents the occasional feed failure previously experienced due to the presence of oversize pieces.

The turf-burning "hopper-unit" has now proved itself to be a reliable and efficient device for firing central heating boilers up to about 1,000,000 B.t.u.'s per hour. This unit was originally meant to be hand regulated (occasional adjustment of a primary air spinner is all that is necessary) on natural draught, but some users

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Many impressive advances made

have asked for automatic control and time-switch operation. The requirement can be satisfied by means of a small fan operated by a thermostat and time switch.

Efficient

SEVERAL very efficient room-heating appliances are now available for turf and briquette burning. The Mona Roomheater is a highly efficent convector stove which is suitable for offices and rooms up to about 2,000 cu. ft. capacity. It is a completely closed appliance, which militates against its popularity with most householders who do not feel comfortable unless they can actually see the fire. A new roomheater—the Seafire—which is now available, is fitted with a circular convex glass window in the front fuelling door, thus allowing a clear view of the fire.

Continuous improvement is proceeding in the field of the solid fuel domestic cooker, which is still a most economical appliance for combined cooking, domestic hot-water supply and kitchen warming. The development of turf-burning cookers, or to be more exact, all-fuel cookers which are designed with a special eye to turf-burning, has, if anything, outstripped the general improvement. New developments have been mainly by way of improved sealing to reduce fuel consumption and facilitate overnight banking which is now virtually foolproof with turf fuel, and improvements in the appearance of the appliances to bring them into line with contemporary kitchen equipment.

Outstanding

THE "ELITE" Cooker, manufactured by Hammond Lane Foundry Co., an appliance of outstanding manufacture, is fitted with two ovens and a glass inspection port in the firedoor.

Two new cookers of completely new design—the "Clayton," manufactured by Messrs. Waterford Ironfounders Ltd., and the "Coste Orchidee," an imported appliance—are now approved for turf-burning. The distinctive feature of these appliances is the surround, which is stove or vitreous enammelled sheet steel, shrouding a plain cast iron cooker. The appearance of these cookers is up to the very best in their class.

There are also available other good turf-burning cookers such as the "Jubilee" and "Stanley," which have now been in widespread use for several years and have proved deservedly popular.

THE PLUMBER'S HANDS

Protection and prevention

HANDS—In every occupation and every trade they are the most important tools, they are irreplaceable. They must be in good, healthy and efficient shape in order to guarantee efficiency to the man in the plumbing and steam fitting industries.

The skin of every hand, of every finger, shows certain lines which are different in every single man. They

By DR. W. SCHWEISHEIMER

enable the identification of a person through fingerprinting. In plumbers who are handling metals and other heavy material, these lines may be absent temporarily, and fingerprinting may be without success. This absence, however, is of short duration. The "papillary lines" of the fingertips are promptly reformed when work is discontinued.

Callosities

Plumbers, gas and steam fitters have in general rough hands and deeply cut and scratched, worn out nails, worn out fingertips and palms studded with particles of steel from handling and filing rough and heavy metal parts. The metals employed in plumbing are iron, steel, lead, tin, zinc, copper, brass and bronze. Machine oil, cutting oil, etc., do their part in roughening the hands of plumbers and steam fitters.

Calluses or callosities are circumscribed patches of hard, thick skin. Actually the callosity is a form of protection of the body against harmful pressure by a tool or any hard object. Permanent pressure would injure important parts in the deeper layers of the hand; the developing callus represents a sort of protective dam that diminishes the strength of the pressure. Technical progress makes some marks disappear while others may be produced. A machine may have replaced manual work—or a pedal has been invented instead of the use of the fingers.

Staining

Staining of the hands was always considered a special sign of one's occupation. Stains that can easily be removed with soap and water are not regarded as occupational characteristics. Stained hands occur when certain substances act upon the skin to form stable chemical compounds—or after deposits form on the skin when the hand becomes covered with particles of the material used at the place of work.

Some staining is due to chemical materials. Chemical plumbing con-

Continued overleaf

from previous page

Plumbers' Hands

sists of the erection and jointing of large chambers of heavy sheet or plate lead; the manufacture and fixing of large pipes for conveyance of acids and gases; covering earthenware, cocks, lining vessels, etc.

Sterility of hands

A strange observation has recently been published by I. Lominski and G. R. Thomson in the British Journal of Industrial Medicine. They found the hands of certain steel and metal workers poorer on germs, or more sterile than that of the average man or worker. They studied the kind and number of germs present on the hands of men working with engine oil and metal filings, and they found markedly fewer germs (bacterias) in comparison with men working with either oil or filing alone.

This relative sterility occurred without regard of other hygienic conditions. The observations suggested a particular antiseptic (germ-destroying) effect of the combination of oil and metal filings. A practical consideration, brought out by this finding, was the fact that hand wounds in such workers usually healed without becoming septic, without any complications.

L Schwartz mentions a few particular hazards to the skin and hands of workers handling steel and iron and other metals. Such hazards are: heat, which causes not only burnings but also changes of the veins; lime; alumina; chromium; pickling acids; drawing compounds like soaps, greases; lubricant oils, etc. For welders in particular Schwartz mentions melanosis (black colouring of the skin) from ultraviolet rays of arc; zinc chloride.—More next month.

NORTHERN NOTES—See also page 19

NEW GRATE BOILER

WM. WILLIS % CO., LTD., 23-29 Dublin Road, Belfast, have recently introduced to the market an all-round grate boiler which will heat on average domestic hot water plans three or four radiators using their method of pipe fitting. This boiler surrounds the fire and the self-contained flues all around it makes every a heating surface.

The " All Around " standard boiler, for smaller requirements, has four times the heating requirements of the ordinary block back boiler. It is identical to the " Super " only it has not the front flues—the boiler is in contact with the fire all around and under.

TENDERS

MINISTRY OF FINANCE.—Heating contractors and boiler plant manufacturers experienced in and organised for the carrying out of large-scale sub-contracts to a strict programme are invited to apply to have their names considered for inclusion in a list of firms which may be asked within the next two months to submit competitive tenders for a complete M.P.H.W. Boiler-house installation comprising boilers, oil-firing equipment, calorifiers, circulating pumps, mains booster set. The sub-contract will include the design, testing and supervision of the automatic control system connected to three Shell type boilers and ancillary equipment, capacity 3,000,000 B.T.U.'s per hour, and full responsibility for commissioning the plant. The installation is required for an 18-storey building of approximately 178,000 sq. ft. to be erected as Government offices in the centre of Belfast, and the successful tenderer will eventually be appointed as a nominated sub-contractor by the main contractor for the superstructure. Written applications should be made to the SECRETARY, Ministry of Finance, Room 131, Law Courts Building, Belfast, 1, not later than FEBRUARY 26, 1963.

The Irish Plumber and Heating Contractor.

HYDRAULIC OR WATER RAMS

the author

John G. Bolton

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

THIS type of pumping appliance is reputed to be the invention of a Derby engineer, Mr. Whitehead, in the year 1772, but his design was afterwards improved upon by Montgolfier, Blake, and others.

Where water is needed for domestic or farming purposes, and a suitable stream or spring can be utilised, the hydraulic ram will be found to be a very economical and trouble free pumping unit. There are no motive power costs involved as the water flowing through the machine does the work, so that the pumping action is continuous day and night without stopping. In fact, it is the nearest possible approach to perpetual motion we are likely to find in the trade. Except for an occasional inspection—in one job that I know of—about every two years—it is a case of fit and forget, no oiling or expert attention being necessary.

Why then, you may say, is this appliance not used to a greater extent? Well, this, more often than not, is due to lack of a suitable position for its installation.

Must flow

IT CANNOT be worked from a well —the water must be flowing—so that unless you have a spring with a constant overflow, or, as is more usual, a river or stream, the ram cannot be installed. A very suitable position is beside an old mill race or weir.

There must also be a suitable fall from this river, etc., to the ram, and provision for a channel to remove the waste water, after it has provided the motive power. The fall to the ram may vary from 18 inches to 100 feet, and, in general, the more fall you obtain the less driving water will be required. It has been calculated that provided a plentiful supply of driving water is available, a fall of four feet is sufficient to force water to a height of 800 feet! Of course, the ram to give this lift with such a small fall would have to be specially designed and therefore costly. In general, most modern rams are designed for falls of five to 30 feet, and for lifts of up to about 300 feet.

Working principle

THE PRINCIPLE by which the ram works is sometimes not properly understood. Why, for instance, does the dash or waste valve open after it has once closed?

We all have experienced the jarring tremors or banging noises, like so many quick and sharp hammer blows, which occur when the flow of water through a tap is suddenly stopped. This is the well-known "water hammer" due to the use of plug or other quick closing taps or ballcocks.

As water is virtually incompressible, it follows that this quick closing results in a recoil action of the water with resultant increase in pressure in the pipe, possibly causing another hammering sound when the recoil wave hits a sharp elbow or bend at the opposite end of the pipe—a continuation of which trouble will probably result in a burst pipe.

Phenomena

WE MAKE use of this phenomena to work our ram. In **Fig. 1** we have a simple diagram to illustrate this action. Water flows down a drive pipe (A) into the body of the ram, and escapes through the dash or waste valve (B). This water continues to increase in speed until it has gained sufficient velocity to suddenly close the valve. Immediately this occurs, the sudden shock sends a recoil wave back, so driving some

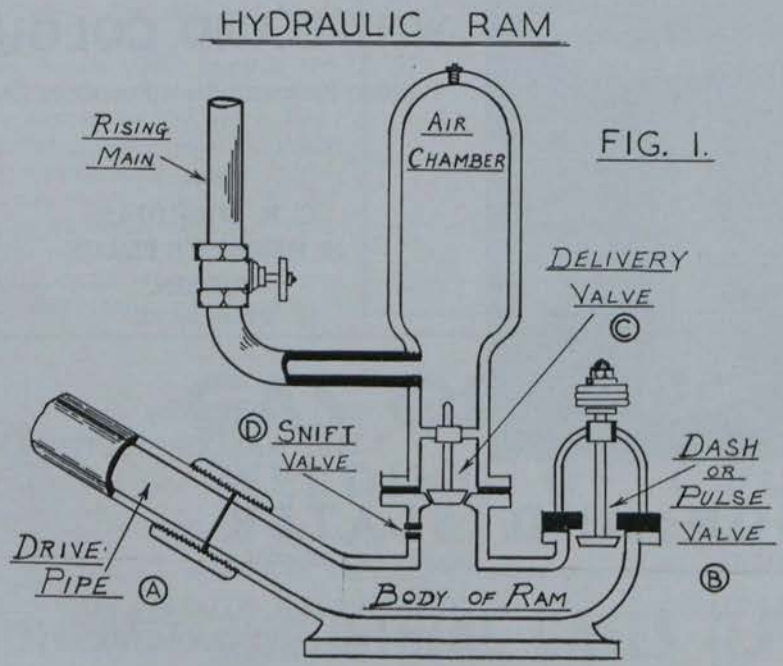

FIG. 1.

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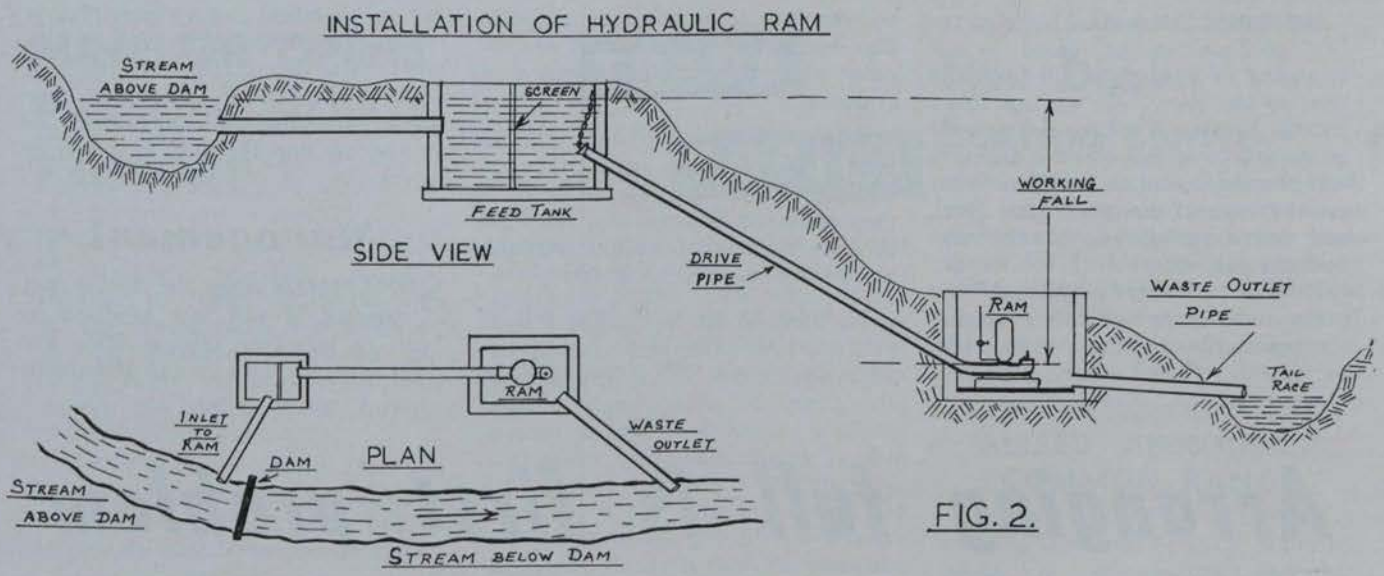

FIG. 2.

from previous page

Reputed To Be A 1772 Invention

water through delivery valve (C) into the air chamber. The recoiling of the water has, in the meantime, caused a partial vacuum to form under valve (B), which thereupon drops. Immediately the water, having exhausted its recoil, begins to flow out again until sufficient speed develops to close the valve, so repeating the whole action once more.

This goes on day and night as long as there is water flowing down the drive pipe, the opening and closing of the dash valve varying from 40 to 200 times per minute, depending on the type, fall and lift of the ram —a medium sized ram averaging from 40 to 50 beats per minute.

Forced

WITH each beat a portion of the water is forced through the delivery valve (C) into the air chamber, so compressing the air. This air, in turn, again pushes the water into the rising main, whence it is gradually forced upwards by each succeeding inflow until it enters the storage tank. The snift valve (D) on the inlet pipe to the delivery valve is for the purpose of supplying fresh air into the air chamber to keep it replenished by making up for losses through air bubbles escaping up the rising main. The valve is simply a small hole or aperture of capillary bore.

In some rams this is left entirely open, and in others a small pet cock is used instead. As the name implies, a small bubble or "snift" of air is sucked in at each pulse or stroke of the ram and ascends to the top of the air chamber with the inflow of water.

It will have been noticed that the main portion of the water which flows down the drive pipe goes to providing the pumping effort, which in turn exerts pressure to push the remaining water up the rising main. About one-seventh of the water flowing through the ram can be raised to a height of at least five times that of the fall.

Formula

FOR INSTANCE, if a ram be placed under a head of, say, five feet, then for every seven gallons entering the drive pipe, almost one gallon will be sent up the rising main to a height of 25 feet, or a half-gallon to a height of 50 feet.

A simple formula for finding the approximate quantity (Q) of water raised per minute is as follows:—

Multiply the number of gallons (G) per minute flowing down the drive pipe (D) by twice the drive pipe fall in feet and divide the result by three times the vertical height (H) the water has to be raised.

The formula then is: $$Q = \frac{G \times 2 \times D}{3 \times H}$$

For example, a ram having a vertical fall of five feet, and an inflow from a river of 50 gallons per minute, has to deliver water to a tank 60 feet above the ram, what should the approximate outflow be at the tank?

$$\frac{50 \times 2 \times 5}{3 \times 60} = 2.7 \text{ gal./min. or } 172 \text{ gal./hour.}$$

Efficiency

THE efficiency of the ram will depend on the relation between the drive pipe fall and the vertical height the water has to be raised. Where a plentiful supply of driving water is available, it is often cheaper in the long run to purchase a larger ram which will work with a small fall, than to alter the course of a river so as to use a small ram with a high fall.

If the water is scarce, or if large delivery output is required, try to obtain the highest fall possible. It must not be forgotten also that the length and bore of the drive pipe has an important bearing on the working of the ram.

Continued overleaf

Installation Methods.—Usually the first problem to be faced is the arranging of a suitable fall from the river to the ram. If we are lucky enough to have a mill stream or weir as the source of supply, little difficulty will be experienced as the drive water can be taken from the higher level, and the waste allowed to discharge into the tail race.

However, this is not feasible in many cases, so that where a river runs through flat land it may, or may not, be possible to instal a ram.

from previous page

Arranging fall is first problem

TO DECIDE, we must check levels. After all, it is obvious that if the river is flowing some fall must exist. What then will be this fall over a distance of, say, 400 yards downstream? Perhaps by damming the river with planks or a concrete wall, etc., we could get a fall of three to four feet or so, which will be sufficient for our purpose provided the supply is plentiful and is not likely to diminish to any large extent in summer. Where the fall is three feet or less, it will be necessary to check levels very carefully, as in this case a ram of special design may be called for. In **Fig. 2** will be seen some methods of damming a stream in order to obtain a suitable fall.

We must next consider the height the water has to be pumped. This distance should be measured from the lowest point of the drive pipe where it joins the ram. While rams can be obtained to pump water to a height of more than 500 feet, it must be remembered that the greater the height, the more powerful must be the ram, and hence more driving water will be required.

It should be noted that it is only the vertical distance which is important in our measurements—horizontal distance is of no consequence except in so far that pressure losses through friction must be allowed for—usually by increasing the diameter of the rising main. It is not unusual for a ram to pump water over distances measured in miles.

Rate of flow

IF THERE is any doubt about the amount of water available in a [illegible] preferably by two people working in conjunction—one with a large bucket and the other with a watch—a stop-watch if available.

Water is allowed to flow into the bucket over a fixed period, say, 20 seconds. The quantity collected is then measured in pints, etc., and from this the number of gallons available per minute can be ascertained.

In order to get a uniform rate of flow into the bucket, it is usual to dam the stream with stones, sods of grass, etc., and in the middle insert a piece of drain-pipe through which will flow a steady spout of water. With large flows two or more pipes can be provided and each measured separately. It is of interest to note that even a delivery rate of a half-gallon per minute spread over the 24 hours will produce 720 gallons—sufficient for an average rural dwelling.

Drive pipe

THE length of this will depend on the amount of fall which can be given, but a common rule is to allow nine to twelve inches for each foot of vertical height—a longer drive pipe where the fall is low, and a shorter if the fall is high. It is good practice to fit a flap or inlet valve on the top of the drive pipe to cut off the flow if work is being carried out on the ram.

Installation.—The ram must be fixed upon a good solid foundation of concrete into which strong bolts should be inserted so that the appliance can be firmly secured. The ram must be fixed **perfectly level,** but at such a height that the dash valve will always work out of the tail water. If building a ram-house, see that it is large enough; leave 2ft. 6in. to 3ft. space all round the ram, and build it frost-proof.

It is usual to fit a gate valve on the rising main to keep the water up if repairs are being carried out to the delivery valve or air chamber. It is also a good plan to fit an emptying cock on the rising main to allow for draining during repairs or frost.

A draw-off cock at the bottom of the air chamber, and an inlet plug at the top to allow for recharging with air, is also very useful. On the feed tank at the top of the drive pipe should be fitted a wire screen or strainer to stop the inlet of weeds or leaves.

Management

SOMETIMES when the ram is first started, it will not continue to beat; in this case keep working the dash or waste valve up and down with the foot or hand, until you have got sufficient water in the air chamber and pipes to give a certain degree of pressure. If the ram goes irregularly, beating quickly and then slowly, it is a sure sign of air in the drive pipe. To expel this, hold down the dash valve for a few minutes to blow the air out. Make sure the snift valve is always clear of the tail water, or it will be useless.

If the water from the rising main be delivered in spurts, it may be that the air chamber is waterlogged—usually in this case the ram will make more noise, and will beat quicker.

In our next issue we will conclude this series on pumping appliances by examining rams of the plunger type suitable for pumping pure water with the aid of foul water, and with the installation of multiple rams on the same rising main.

● **The author is indebted to Messrs. John Blake Ltd., Ram Makers, Accrington, England, for technical data used in this article.**

Allied In Hilton

ALLIED IRONFOUNDERS have manufactured and installed kitchen equipment and baths for the London Hilton Hotel, to be opened shortly. Built to Hilton Hotels International specifications, under what is believed to be the largest order for this type of equipment for any hotel in Britain, the kitchen units are in stainless steel, with edges rolled for cleanliness and all-welded tubular frames for strength.

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MINISTER OPENS PARSONS HOWTH FACTORY

THE Minister for Justice, Mr. Haughey, officially opened at Howth, Co. Dublin, on February 1st, an engineering factory in which will be manufactured fabricated steel tanks, ducts, platforms, feed water heaters, oil coolers, metal furniture and office equipment.

The factory is owned by C. A. Parsons of Ireland Ltd., a subsidiary of C. A. Parsons & Co., Ltd., of Heaton Works, Newcastle-on-Tyne.

More than 80 people are employed and that figure is expected to rise to about 120.

Attended

Representatives of leading industrial firms attended the opening and were afterwards entertained to luncheon in the St. Lawrence Hotel, Howth.

Mr. Haughey said that this new company would carry on a business similar to that which was previously conducted in the same premises and would engage in the manufacture of all kinds of fabricated steel work. It would provide for the parent organisation many items of plant and equipment not previously available within the organisation and in that way would contribute in no small measure to the future progress and well-being of the group. It was encouraging to learn that the company planned to expand the factory.

Mr. E. C. Rippon, chairman, and a director of the parent company, said that it was the intention of the Irish directors to strengthen the company's position by design improvement and manufacturing efficiency and at the same time to equip the factory with appropriate machine tools to enable it to undertake the manufacture of power station auxiliaries for large plant to be installed in Ireland.

TRADE TOPICS

New Dublin heating centre

OIL Fired Homes (Ireland) Ltd. will open premises to be known as the Leinster Heating Centre—sole agents for Perkins, boilers, domestic and industrial heating at 6 Harcourt Road, Dublin—towards the end of this month. Mr. S. H. Hodson is principal of the firm.

ALLIED ANNOUNCE COMMON RANGE

ALLIED IRONFOUNDERS LTD. and The Universal Asbestos Manufacturing Co. Ltd. announce that they are to have a common range of P.V.C. plastics rainwater and soil goods.

The Metrex P.V.C. soil system was introduced by Allied Ironfounders early last year. U.A.M. have marketed their Aspect system of rainwater goods since the autumn of 1961. From 1st March, 1963, each Company will sell both systems, thus bringing about a degree of standardization and interchangeability unique in this field.

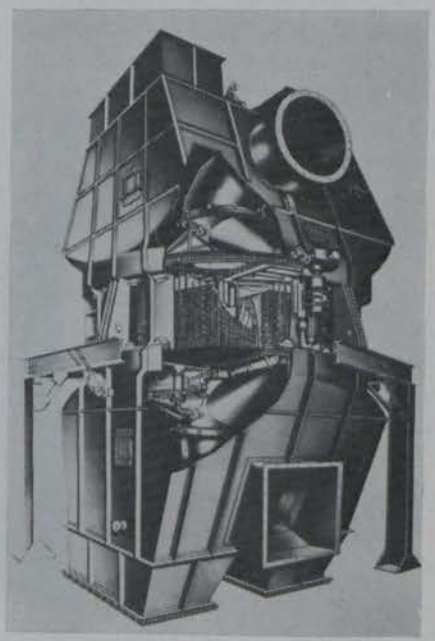
NORTHERN NOTES FROM OUR CORRESPONDENT

£350,000 order for Davidson

DAVIDSON & CO. LTD., Sirocco Engineering Works, Belfast, have been officially informed that they are to receive a £350,000 contract for the supply of equipment to Coolkeeragh power station at Derry.

The contract covers six regenerative air preheaters of the type for which Davidson's were recently awarded a £1,250,000 contract by the Central Electricity Generating Board and also includes forced and induced draught fans and flue dust collectors for three new boilers which are being added to the Derry station.

The air preheater units are among the most advanced of their type and the work—which includes a considerable amount of welding and prefabrication—involves a large number of man hours. The preheaters will be assembled at Sirocco's Mountpottinger Road works, where a new shop was recently completed for this purpose.



● **Cut-away drawing of a regenerative air preheater of the type which will be installed at Coolkeeragh Power Station, Derry.**

ELECTRICALLY HEATED ROADS HAILED

SURVEYORS and road engineers in Northern Ireland and Britain have reported favourably on experiments with electric heating built into roads to prevent snow, ice and slush causing a hazard to drivers. . . The Royal Automobile Club have sent to the British Ministry of Transport a survey of heated roads and suggested 60 more sites where tests might be made.

The survey stated that many councils are interested in electric road heating but have not enough money for it. It costs about £2 a square yard to instal.

https://arrow.tudublin.ie/bsn/vol2/iss11/1
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AN IRISH PLUMBER & HEATING CONTRACTOR SPECIAL SURVEY

REVIEW OF TAP FITTINGS AND CONTROLS

WATER SERVICES PIPES HAVE EVOLVED OVER YEARS

PIPES for water services have evolved over many years of experience and now are seemingly well established in their lead, copper or mild steel materials, weights and dimensions.

Announcements that several new firms are entering the plastic tube field indicate the growing interest in this material for cold water and waste pipelines. Polythene tubes have much to recommend them but it is likely that the neater, rigid P.V.C. tubes will eventually capture the major share of plastic tube work. Used extensively for underground mains, and finding increasing use in soil and waste pipework, P.V.C. tubes do not, as yet, seem to have been so widely used for internal cold water services or distributions.

Lead, copper, and M.S. tubes will always have their particular applications and many designers, and their clients, will retain a preference for one or the other. But plastic tubes will gain ground and the forward looking plumber wastes no time in learning the simple methods of using this newer plumbing material. Advertisers are most helpful and produce interesting literature and booklets designed to show the plumber how his inherent craft skills may be easily and quickly adapted to the new processes of bending and joining all types of plastic tube.

Topical

FROST protection of pipes is a topical item now that the disastrous effects of the January "freeze-up" are still in mind.

Good installation design, coupled with sound living practice, are essential pre-requisties to protection against frost damage. The maintenance of internal temperatures above freezing is another requisite but solely the responsibility of the householder.

Thermal insulation of pipework, even in exposed and not too well warmed positions, will retard the onset of freezing.

Insulating material of the wrapping kind and in pre-formed sectional type are well known. Perhaps, as a result of some hard learned lessons of this winter, a wiser application of insulation might figure in some future installations.

Turner Bros. Asbestos Co. of Rochdale (Lancs.) have just marketed an asbestos fibre fitted rope. This is particularly useful for awkwardly placed pipes and situations where normal lagging materials are not easily or effectively applied. The company offers free tables showing how much rope is needed to cover a given length of pipe to given finished thickness.

Pre-insulation

THE Anglo-Nordic Burner Produc- Ltd. now offer a pre-insulated B.S.659 copper tube.

Sold under the trade name of WICU tube, the insulation consists of an ivory coloured P.V.C. sheath. The inner surface of the sheath being serrated, it makes only points of contact with the copper tube. In this way the good principle of thermal insulation — entrapped still air — is achieved. The tube is thus protected from ambient temperatures by this air cushion and the P.V.C. outer skin of approximately $\frac{1}{8}$-in. thick.

Condensation

Ideally suited for use in steamy atmospheres where the insulant will prevent condensation on so treated cold water pipes, the WICU tube shows considerable reduction in heat loss from D.H.W. pipes.

The chemical inertia properties of the P.U.C. sheath make it highly resistant to corrosion and it can be buried in concrete or similar corrosive influences without other protection.

"Denso" wrapping, by Messrs. Winn & Coates—a petrolatum jelly base carried in cotton or glass-fibre open weave bandages, has long been used with great success for protection of pipes and metal structures exposed to corrosive conditions.

Pipe wrap

SELLOTAPE Products Ltd. now weigh in with a new polythene pipe wrap. Coated with corrosive inhibiting adhesive, the 0.01-in. thick tape is claimed to be practically vapourproof.

It resists chemical, fungi, bacterial, and stray electric current attack. It is therefore suitable for all soil conditions and all pipe materials.

New Joints for plastic tubes, both

Continued overleaf

polythene and P.U.C., are known to be in development. Details are not disclosed as yet but exciting advances are likely and these will add further impetus to plastic tube applications.

The Wavin P.U.C. pipe saddle and under pressure tapping ferrules are typical examples of up to the minute, purpose designed fittings for P.V.C. water main connections. They show clearly what can be done and suggest that other similar advances can be expected.

Economies

CAPILLARY Silver Soldered Joints for L.G. copper tube offer considerable economies over other forms of joint, especially for large installations, although they are used with advantage in smaller domestic installations and the odd "one-off" joints.

Preparation of running and tee joints is easily achieved using a purpose developed tool kit. The suppliers of these tools, Messrs. Johnson Matthey Ltd. of 73-83 Hatton Gardens, London, E.C.1, offer a free illustrated booklet which explains how the joints are made. Now that copper

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New Plastic Tube Joints Are In Development

tube is so firmly established as a pipe material for water services and is being much more used for soilpipe work, this really new, economic, and pleasing jointing technique should be examined by all plumbers and heating contractors.

Dependable

TAPS change but little and then, generally, only in outward appearance where the competitive manufacturer wishes to offer some improvement in appearance or handling properties. The B.S.1010 design is sound, functional, and dependable. The quality of taps from British manufacturers leaves very little, if anything, to be desired.

There appears to be a move forward in the Spray-Mixer type of tap as produced by Leonards Valves of Cheltenham. The waste saving and fuel saving properties of these, together with the higher hygiene attendant upon hand washing under sprayed water, is at last becoming recognised as advantages to be enjoyed in domestic dwellings as well as proved in school washrooms and toilets of larger establishments.

Taps of this kind have dual nominal ¼-in. copper tanks—one for H.W., the other for C.W. They are best suited to single tap holed lavatory basins and many styles of L.B. are now available in this form.

The taps appear expensive initially, but closer examination of their function and potential subsequent economy in use will commend further serious attention to their likely adoption.

New series

SUPA-TAPS, by F. H. Bourner & Co. of Cranley, announce introduction of the new "D" series taps.

https://arrow.tudublin.ie/bsn/vol2/iss11/1
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Readers will be aware that the "A" series were first produced about fifteen years ago. The outstanding features of these taps are ease of handling and that they are re-washerable without turning off supply. The "A" series have no packing gland as conventional taps do and consequently were not suited to those connected feeds to washing machines and other water-using domestic equipment. The "D" series incorporate a rubber seating ring which enables taps to be used ordinarily or for hose connected feeds to kitchen equipment.

"Ball-o-taps" are a continental importation. The tap is a neat, unobtrusive, flow control on the plug-cock principle except that the bored "plug" is spherical and fully contained within the tap body. Intended solely as a stop-tap, it is supplied with female B.S.P. ends. No crotan handle is fitted, the bored sphere being rotated, as required, by a screw driver engaged in a kerf provided on the operating spindle.

Raised 'brows

CLEARLY this is not a tap of the "screw down valve" kind and consequently water undertakings may raise eyebrows if asked to accept it universally in lieu of conventional stop taps. Selling at about 8/6, it is attractively priced and being well designed and made it should function quite well. In any case it offers a neat, inexpensive control of distribution pipelines and is likely to become quite popular.

Water Softeners continue to serve their lucky owners well. More and more people come to recognise the expense and discomfort which hard water usage entails. It is not surprising therefore to find more clients seeking advice on water softener installation costs. The plumber with an eye to business could well get "genned" up on the basic principles of bare-exchange water softening as a useful salestalk line wherever he goes to do a job. Water softener sales promotion by the plumber can lead to good profit and the everlasting goodwill of every client he persuades to take the plunge and have one installed.

Water softeners are no longer to be regarded as a luxury in hard water districts. Hard facts quickly convince that they are an economic necessity apart from the invaluable comfort and convenience which springs from softened water usage in laundry, cooking and personal ablution.

Waste grinders

FOOD Waste Disposers, though by no means universally adopted in smaller homes, do offer hygienic disposal of plate wastes and thus eliminates the unpleasant deposition and subsequent putrification of wet wastes in dust bins.

Many firms now produce food waste "grinders" at prices around £40 each, and here, too, the good business man will see the need to get at possible literature from advertisers so as to be well aware of the potential profit which could be his for the trouble of getting to know the useful capabilities

Continued page twenty-five

The 1963 Directory will be greatly enlarged

DUE to the considerable number of additional entries submitted for inclusion this year, the June, 1963, Directory of Manufacturers, Agents, Representatives and Distributors of **Plumbing, Heating, Air Conditioning, Ventilation and Insulation Materials,** available in the Republic of Ireland and Northern Ireland, will be greatly enlarged. The Directory is now being prepared, so if you have not already sent in details for it please do so as soon as possible. The latest date for receiving details for inclusion in the Directory is **Saturday, May 4, next.**

A list of the Categories to be included started on the inside back cover of last month's issue and is continued on the inside back cover of this issue.

Send details without delay to:—
The Irish Plumber and Heating Contractor,
Callaghan Chambers, 13/15 Dame Street, Dublin, 2.

https://arrow.tudublin.ie/bsn/vol2/iss11/1
DOI: 10.21427/D7370J

of these 20th Century appliances.

Mixing Valves save time and hot water. Hot water savings mean commensurate fuel cost savings.

Popularity

THE increasing popularity of shower baths either for cleansing swills after immersion bathing or as the sole bathing appliance, prompts the need for all to study the many splendid items in this range now available from many manufacturers.

Thermostatic Mixing Valves of the Bi-metallic coil type or the volatile gas vapour type afford protection against scalding and against wasteful misuse of hot water. These should receive careful consideration in all cases where mixing valves to showers, L.B. ranges, etc., are proposed.

The adverts. in this issue should not be merely scanned. The advertisers should be requested to send you all available data and information so that you are always prepared to advise a client in his, and your own, best interests.

SPECIAL SURVEY

from page twenty-three

IN CONJUNCTION WITH THIS SPECIAL SURVEY WE REVIEW HERE PRODUCTS FROM THE LEADING MANUFACTURERS RANGES

F. H. BOURNER & CO. (Engineers) Ltd., have, since last year, introduced the Temperfix thermostatic mixing valve.

The Temperfix consists of a body shell, the shape of which is varied slightly dependent upon the use for which the mixer is required. This contains a working unit which is so designed that the regulating valve and all parts form one element. The body shell is cast brass, chromium plated to B.S. 1224 : 59 : NiC3, and the main seatings are of stainless steel. The thermostat control consists of an element containing high pressure saturated gas vapour. This element does not come into contact with the water and is therefore considerably more accurate than the usual bi-metal strip (which can suffer loss of accuracy through "furring-up") or liquid filled bellows which are comparatively slow in reaction to temperature changes. Temperfix thermostatic mixers react at once to maintain accuracy of temperature to within a margin of 2°C.

Temperfix automatic mixers can be used with any hot and cold water systems without special precautions, since back pressure valves which art since back pressure calves which are not required with the unit. In normal use Temperfix will need no maintenance, since the construction virtually eliminates "furring up" and the built-in filters prevent foreign bodies entering the unit.

The firm also produce a range of Supataps and Spa taps.

Irish agent: Mr. George A. Reid, 16 Fade Street, Dublin, 2.

★ ★ ★

CHARLES WINN & CO. LTD. announce the introduction of their new, improved "Econofic" mixing valve, which is now in production in the ½" size, and will also be made in ¾" and 1" sizes.

PRODUCT PREVIEW continued page thirty-one

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STILLSON

PATTERN PIPE WRENCHES

Heat treatment of the handle and jaw gives correct degree of hardness and prevents bending and breakages. Sturdy, light in weight and easy to handle, these wrenches are guaranteed against defects in material and workmanship.

Chatwin Chatwin Chatwin Chatwin

Ample Strength for the TOUGHEST JOB

Chatwin Chatwin Chatwin Chatwin

JONES'S PIPE CUTTERS

All parts of these efficient cutters are machined to gauge and are interchangeable from stock. The detachable handles are of tough steel. To cut pipes from 2" to 24" diameter.

THOS. CHATWIN & CO.

Victoria Works, Great Tindal Street, Birmingham, 16.

Telephone: Edgbaston 3521-3.

ONE OF THE BROCKHOUSE COMPANIES

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.

A SPECIAL CORRESPONDENT DISCUSSES

HOT WATER SUPPLY BY ELECTRICITY

THERE are two methods of supplying hot water electrically:—

(1) Centralised Sytem; and
(2) Decentralised Sytem.

Centralised Sytem.—In this system the water is heated at a central point, stored in a large cylinder and supplied on demand through piping to the draw-off points, i.e., washbasins, baths and sinks.

The water is heated either by immersion groups inserted direct in the storage cylinder or by an electrical boiler located close to the cylinder. Immersion groups would be used in smaller cylinders up to 100 gallon capacity and a boiler for the larger cylinders. The immersion groups are usually arranged in vertical formation in the cylinder and are individually switched and thermostatically controlled. Individual switching gives the facility of heating only sections of the cylinder, the quantity of water to be heated being determined by the anticipated consumption.

Little space

Electrical boilers are small and take up very little space. No boilerhouse or flue is required and they give a rapid recovery.

It is imperative with any electrical centralised system to have the storage cylinder and piping effectively lagged. It is, of course, also desirable in most installations, apart from small premises such as houses, to have the piping arranged on a flow and return basis to ensure that hot water is immediately available on demand at each draw-off point.

Advantages of Centralised Electrical Sytem: Low installation cost; no boilerhouse or fuel storage; automatic operation; and cleanliness.

Decentralised Sytem.—In this system each bedroom washbasin, bathroom and sink is provided with its own water heating unit. The water heating units (under-the-sink, pressure, non-pressure and cistern-type) are connected directly to the cold main. This, of course, means that the normal hot water piping system, apart from local connections to the water heating units, is unnecessary, since the cold system supplies the water for both hot and cold draw-off points.

Advantages

These are some of the many advantages:—

(1) Piping is very much reduced;
(2) Pipe losses are eliminated; and
(3) Complete flexibility of operation is achieved. The number of units on at any one time can be tailored exactly to suit the occupation of the building.
(4) Hot water is immediately available on demand;
(5) There is less likelihood of waste. The quantity of hot water stored in the individual units is sufficient to meet normal demands. Instant hot water is available at the tap which prompts the user to insert the stopper in the washbasin or sink. The system, therefore, encourages thrift by reducing wastage of hot water to a minimum; and
(6) As with the centralised system no boilerhouse or fuel storage is required.

The main application of this system is in buildings which have a widely varying hot water demand. A typical example would be a hotel doing mainly seasonal business.

It is also a very practical and economic system in existing buildings where piping is unlagged and pipe losses are consequently excessive. This system, of course, short-circuits the piping by heating the water locally.

EXPANSION

F. H. BIDDLE LTD., manufacturers of heating, cooling and air conditioning equipment, have expanded their office at Tuttle Hill, Nuneaton. This is part of the new factory which opened last year.

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TWO NEW TEMPAIR CONDITIONERS

TWO NEW compact air conditioners introduced by Tempair Ltd., Maidstone, combine high efficiency with good looks and modest overall dimensions.

Both the 1 h.p. Director and the Pacific 10, as the new models are designated, are styled to blend harmoniously with the decor of boardroom, office or reception room, and occupy little space.

Standing against an interior or exterior wall, the Director measures only 29¼" high, 33½" wide, and 12" deep. Available as a self-contained water-cooled unit, or with a remote air-cooled condenser requiring no wall breaching or other structural alterations, this highly effective conditioner has a nett cooling capacity of 10,000 B.t.u./hr. and is fitted with 3 kw. heaters as standard in the U.K.

In the 1 h.p. Pacific 10, the air-cooled condenser is an integral part of the equipment. Equally suitable for wall or window mounting, the unit measures 26" wide, 16¼" high, and 22" deep. It has a cooling capacity of 9,000 B.t.u.'s/hr. and a maximum dehumidification capacity of 1.6 pts./hr.

Dual fan speeds provide for rapid cool-down to comfort conditions and ultra quiet running. The Pacific has four circular grilles to give full control over the direction of the conditioned airflow.

As on the 1 h.p. Director, the Pacific 10 can exhaust stale air or bring in fresh air by the turn of a knob, and both "fresh" and "room" air filters are easily reached for regular cleaning.

Irish agents: L. Sterne & Co. (Ireland) Ltd., 186 Pearse St., Dublin.

The new Tempair Pacific 10 air-conditioning unit.

TRADE TOPICS

New H.Q.

HEATING Contractors (Ireland) Ltd. announce that their new headquarters are at 2 Mount Street Crescent, Dublin 2.

SEEN AT U.S. TRADE CENTRE

CHRYSLER AIRTEMP units on exhibition at the United States Trade Centre in London, from February 24 to March 16, 1963, will include two models seen for the first time in Britain, and specially designed for operation on normal British power supplies.

The newly introduced units exhibited, which combine high performance with low power consumption, are two-room air conditioners designed for operation on 50 cycle alternating current. They are a 1 h.p., 10,500 B.t.u./hr. cooling capacity model, and a 1½ h.p. reverse cycle unit with a cooling capacity of 13,000 B.t.u./hr. and a heating capacity of up to 14,000 B.t.u./hr.

BOILER NEWS

Reserve hopper

The Chappee C.G.100 series boilers with their automatic combustion control are designed with a coal reserve hopper. The fuel is burned in a thin layer on a water cooled inclined grate. To ensure uniform combustion of the unit the boilers are fitted with electric motor and fan units.

The boilers are constructed of cast iron, which is a suitable heat resisting metal and are of sectional construction and therefore can be extended. The standard parts are easily dismantled while assembly is completed by means of the conventional cast iron nipples and exterior assembly rods.

Owing to the design and control of the boilers they are ideally suited to fast temperature changes.

The boilers are fitted with a hammer finished insulating jacket which should harmonize with any home decoration schemes. As the CG.100 series boilers ensure complete combustion there is no atmosphere pollution.

Irish agents: Irish Technical and Production Co. Ltd., 25 Upper Mount St., Dublin.

From Glow-Worm

GLOW-WORM BOILERS Limited, 47 Hatton Garden, E.C.1, and their associate company, Sunrod Domestic Boilers Limited, include in their latest range two handsome new gas-fired boilers—the Thermglow II. and the Sunrod G.50. The Thermglow II., a re-designed and improved version of the popular Glow-Worm Thermglow, is enclosed in a sleek modern casing, with room inside for a small bore circulation pump if required. The Sunrod G.50 replaces the well accepted G.5 and is remarkable for its compact size. Many added refinements are featured.

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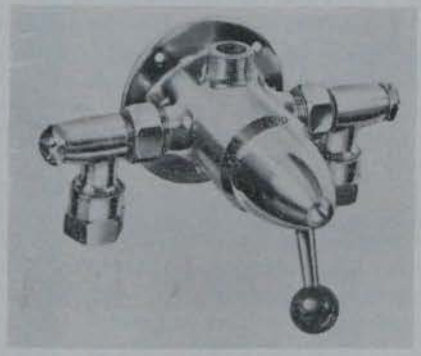
It is made to conform to British Standard 1415, with chromium plating to British Standard 1224. It carries the blue label of the "Mond" quality scheme for chromium plating. It is accepted by the British Waterworks Association and water authorities in general. The makers state that its performance is in excess of the minimum laid down in the Standard, which means that it allows a greater flow for a given pressure.



Whilst primarily intended to operate a shower, patterns are available for hairdressing and other purposes.

The new valve is a development, in principle, of the valve which the

SPECIAL SURVEY

from page twenty-five

makers have sold in scores of thousands over the last 20 years or so. The whole sequence of operation—turning on the water, and adjusting the temperature—is controlled by a single handle, and it is impossible to reach the hot position without first passing through cold and tepid. Moreover, as the same control must be used to shut off, the shower can never be turned on without passing through this sequence.

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

★ ★ ★

KAY & CO. (Engineers) Ltd., of Blackhouse St., Bolton, manufacturers for more than 30 years of the well known Kontite Gunmetal Compression fittings, have developed a new capillary joint. Known by the trade name "Kon-Kap," it is made for use on domestic hot and cold water services, gas, oil, air and other similar installations using light gauge copper tube.

Special consideration has been given to design and finish as the Kon-Kap fittings are intended for use in exposed positions where the more robust appearance of a compression fitting may be less acceptable. All Kon-Kap capillary fittings are made from corrosion resisting cast gunmetal.

★ ★ ★

OUR PHOTOGRAPH shows the No. 6250-L concealed basin mixer (size ½-in. BS.1010), made by Barking Brassware Co. Ltd. It has control handles at 12in. centres.

Barking Brassware introduced concealed tap and shower fittings more than 25 years ago. They were, however, reluctantly withdrawn, owing to

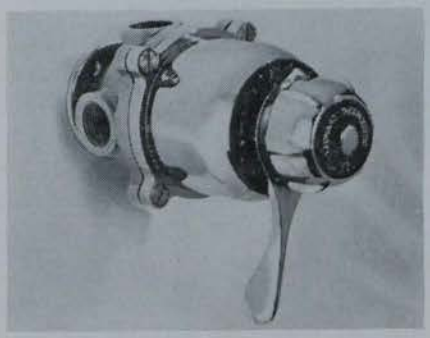
Continued overleaf

SPECIAL SURVEY

from previous page

the trend at the time for more conventional fittings. In keeping with to-day's modern and practical design, B.B.C. have now introduced a completely new range of concealed under-tile fittings. These new fittings incorporate B.B.C.'s new, easy-to-clean Crystal cross-top.

★ ★ ★



NEW "LEONARD 72" MIXING VALVE

The new "Leonard 72" mixing valve, which combines thermostatic control of water temperature with flow control, is shown here.

By combining the two functions concentrically and in one compact unit, the valve dispenses with the need for non-return valves or separate inlet or outlet flow control taps. It is manufactured by Walker Crosweller & Co. Ltd., of Cheltenham.

Irish agents: Modern Plant, Ltd., Crumlin Road, Dublin.

★ ★ ★

THE NEW Broadstone ballvalve is designed to give improved performance on existing types of ballvalves. It offers instantly detachable clip for ease of maintenance; combined shut off so that the water supply need not be turned off when detaching; just flick the clip and the valve is detached with automatic cut off of water supply; maintenance can be carried out at leisure without depriving the rest of the household of water.

Nylon seating and jumper for long life (water is the natural lubricant of nylon); interchangeable seatings so that the valve can be quickly converted to high, medium or low pressure; double anti-syphonage device to guard against back flow, and quietness of action.

WILL PRODUCE POLYSTYRENE

INSULATIONS LTD., a new private company, will produce expanded Polystyrene under licence, from Expanded Rubber and Plastics Ltd., Croydon, London, a division of the Distillers Group. It will also act as their sole agents in all other products the company produce. Onazote expanded rubber gasket flooring and rubber and plastics goods generally, for industry and marine purposes. Offices and showrooms have been opened at 186 Pearse Street, Dublin. The Crown Alley office in Dublin has been closed. Mr. H. S. Wood is the Pearse Street manager.

Mr. Richard J. Hearne of L. Sterne and Co., refrigeration engineers, 2 Hanover Street, Dublin, is a Director of the new Company which was registered on December 5, 1962, with a nominal capital of £1,000 divided into 1,000 shares of £1 each.

Objects of the company are stated to be to manufacture, process, buy, sell, import, export, and generally deal in rubber, synthetic rubber, etc.

The other first Director named is, Mr. Francis Parsons, Building Contractor, Goldenbridge Avenue, Inchicore, Dublin.

TRADE TOPICS

PERIODICAL REVIEW

"LEADWORK For Plumbers" is a periodical review specially produced to keep master plumbers and plumbing teachers in touch with developments in the use of lead sheet and pipe. The latest number is entirely devoted to the lead roofing chosen for the 351 foot high Tower block of the new Shell building on the South Bank, London—an outstanding contemporary example of lead used for this purpose.

The opportunity has also been taken, in the introduction to the review, to draw attention to the present low market price of lead. Copies may be had from the Lead Development Association, 34 Berkeley Square, London, W.1.

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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.

SANITARY APPLIANCES (Contd.)

SKETCHING METHODS

IT IS helpful to have a system or method. In a previous article, "Tools of the Trade," a simple method of sketching tools, was described and illustrated.

Sanitary appliances and many other plumbing fittings are more difficult to sketch than the simple tools, but, with perseverance, one or other of the following methods should prove helpful and produce pleasing results.

Gridding. — This method can be used when a picture of the object to be sketched is ready to hand. The picture is covered with a "grid" of squares of any convenient size. If the grid cannot be drawn directly onto the picture, then square drawn on tracing paper placed over the picture will do just as well.

"Gridded"

LET us suppose that a small picture of a W.C. pan is available and that another, larger sketch of it is required. First, the small picture is "gridded" with squares. Then a square or shape large enough to contain the sketch is drawn on the sketching paper and gridded with the same number of squares as was the original, smaller picture.

Clearly, the squares in the larger grid will be bigger than the squares on the small picture, but they will be bigger **in proportion.** Now, if lines be drawn in the bigger squares just as they appear in the ones gridding the original picture, a larger, **proportionate,** enlarged sketch will result.

In a like manner a larger picture can be reduced to a smaller sketch simply by gridding the large picture and transferring the picture freehand to the smaller grids on the sketch paper, which has already been prepared to the required size.

Proportion

OBVIOUSLY the "grid" method can be used only when a picture of the object is available for gridding and copying from. This is not always convenient or even possible. In examinations, for instance, one is not allowed to have pictures or books of reference. In this and many other cases, for example, when sketching an object as it stands, some method other than "gridding" must be used.

In such cases, the first step is to gain a sense of proportion—to get the height, width, and so on correctly related one to the other.

The next step is to obtain by measurement, or from memory, the most notable dimensions of the object to be sketched.

Measured

WHEN there is an actual object for one to examine, these salient dimensions can be measured directly with a rule. If the object is not in a position to be measured, its proportions can be gauged by eye. It might be clear that the length is just about twice the height, for example. This easily seen fact can just as easily be transferred to the paper, and a good **proportionate** sketch will result.

10.—Mark out the depth of the flushing rim—2"—and draw a horizontal line to show this.

11.—Set up a vertical line from mark (3).

12.—Mark a point 2½" to the right of line (11) at rim level.

13.—From this point (12) measure 12" to the left to represent the length of the bowl opening at the top of the pan.

14.—Add 2" for the flushing rim at the front.

15.—Mark in overall front to back length of the pan top (front edge to end of flush pipe inlet).

16.—Draw freehand curves to complete the front of bowl and pedestal.

17.—Add the back of pedestal—and the sketch is complete.

These dimensions are actual pan sizes. In your sketch they can be reduced to any scale.

Will bring success

SHOULD this sequence of "steps" seem too laborious, just try it once and then judge by the results. If faithfully followed it will certainly bring success and the pleasure that comes of success. Remember that with practice the number of steps can be reduced until they are no longer necessary as aids to sketching.

Remember, also, that it has been said "Sketching is the language of the workshop." This is very true, and all the diagrams in this book of sinks, lavatory basins and traps offer useful material for practice.

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from previous page

Sketching sanitary appliances

But, once again, if objects are not available, for example in an examination room—what then?

Mental picture

IN such cases one has to create a mental "picture" of the object, and from this "picture" make a proportionate sketch. Sometimes a sketch can be built up from dimensions remembered from past experience or from past practice in sketching similar objects.

Examples of both methods were shown last month on page 28. The gridded example has already been dealt with, but the proportionate and outstanding dimensions method, shown at the bottom of that figure, needs some explanation.

The full steps suggested for the first "trial run" are set out below. With practice, and as memory and skill improve, many of these steps can be left out until eventually a W.C. pan can be drawn without any effort at all. Both methods are applicable to all forms of sketching likely to be encountered in plumbing work.

Sequence

Note—The numbered sequence of steps below are also to be found on the same diagram.

1. Draw the floor line.
2. Draw the slope line (about 104 degrees) to represent back of pan.
3. Mark distance from floor about 5" up slope line.
4. From this mark (3) draw a semi-circle 3½" in diameter to form the bottom of the pan trap.
5. Draw a horizontal line 2" above mark (3) to show the water level in the pan, and to show the trap seal, which has a depth of 2".
6. Continue the trap outgo parallel to the slope line (2).
7. Turn the outgo where the line (6) cuts water line (5).
8. Draw the top of the outgo 3½" away, and parallel to line (7).
9. Mark the height of pan from the floor to the top of the rim and draw a horizontal line to represent the rim.

NEW COMPANIES

New companies recently registered are: **Cenheatral Ltd.** (Private Company).—Registered Office—Not stated (Republic of Ireland). Nominal Capital—£1,000 divided into 1,000 shares of £1 each. Objects—To carry on the business of general builders, decorators and contractors, and in particular, designers, fabricators, manufacturers, suppliers and installers of, and advisers and agents for boilers, radiators and central heating systems, etc.

Names and descriptions of Subscribers to Memorandum and Articles of Association (Subscribers of One share each)—Hugh Mary Donnelly, contractor, 5 Gracefield Avenue, Harmonstown, Dublin; Thomas William Masterson, contractor, St. Brigid's, Knocknacree Road, Dalkey, Co. Dublin. Names of First Directors are not stated.

* * *

J. B. Purser & Co. Ltd. (Private Company).—Registered Office — Not stated (Ireland). Nominal Capital — £1,000 divided into 1,000 shares of £1 each. Objects—To carry on the business of plumbers, decorators, builders, building contractors, etc.

Names and description of Subscribers to Memorandum and Articles of Association (Subscribers of One share each)—Oliver G. Fry, solicitor, and Esmond A. Davies, solicitor, both of 14 Lower Mount Street, Dublin. Names of First Directors are not stated.

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1963 DIRECTORY

of MANUFACTURERS AGENTS, REPRESENTATIVES and DISTRIBUTORS

★ The June 1963 Register of Manufacturers, Agents, Representatives and Distributors of Plumbing, Heating, Air Conditioning, Ventilation and Insulation materials available in the Republic of Ireland and Northern Ireland is now being prepared. The Directory this year will be greatly enlarged to accommodate the considerable number of additional entries which have been submitted for inclusion.

If you come under the heading of any of the categories listed on the right, or in the list in last month's issue, we would ask you to submit complete details without delay. **A limited number of copies of last year's Directory are available should you wish to make alterations or amendments.** Names and addresses of Agents and/or Representatives should be included with all entries. If you require an agent, please indicate accordingly.

Please Note!!

CLOSING DATE

Saturday, 4th May, 1963

Please Check This List Of Categories

- Economisers, Fuel
- Ejectors, Steam
- Electric Heating Elements
- Electric Heating Equipment
- Expansion Joints
- Extractors & Ventilation Fans
- Fan Speed Regulators
- Filters, Air
- Fixing Tools and Bolt Driving Guns
- Filters, Liquid, Oil, Water, etc.
- Flame Failure and Protection Devices
- Flue-Gas Corrosion Protection
- Fuel, Ash and Clinker Conveying Plant
- Fume Removal Equipment
- Floor Heating Installations
- Gauges, Air, Pressure, Vacuum, etc.
- Gauges, liquid
- Gauges, liquid level
- Generators (Steam)
- Grilles, louvres, etc.
- Grit Arresters
- Headers
- Heaters, Air
- Heaters, Water
- Heat Exchangers
- Heating, Storage
- Hospital Equipment
- Humidifiers
- Humidity Controllers, Indicators, Recorders, etc.
- Injectors, Nozzles, etc.
- Instruments, Meters, Indicators, Gauges, etc.
- Insulation
- Jointing Compounds

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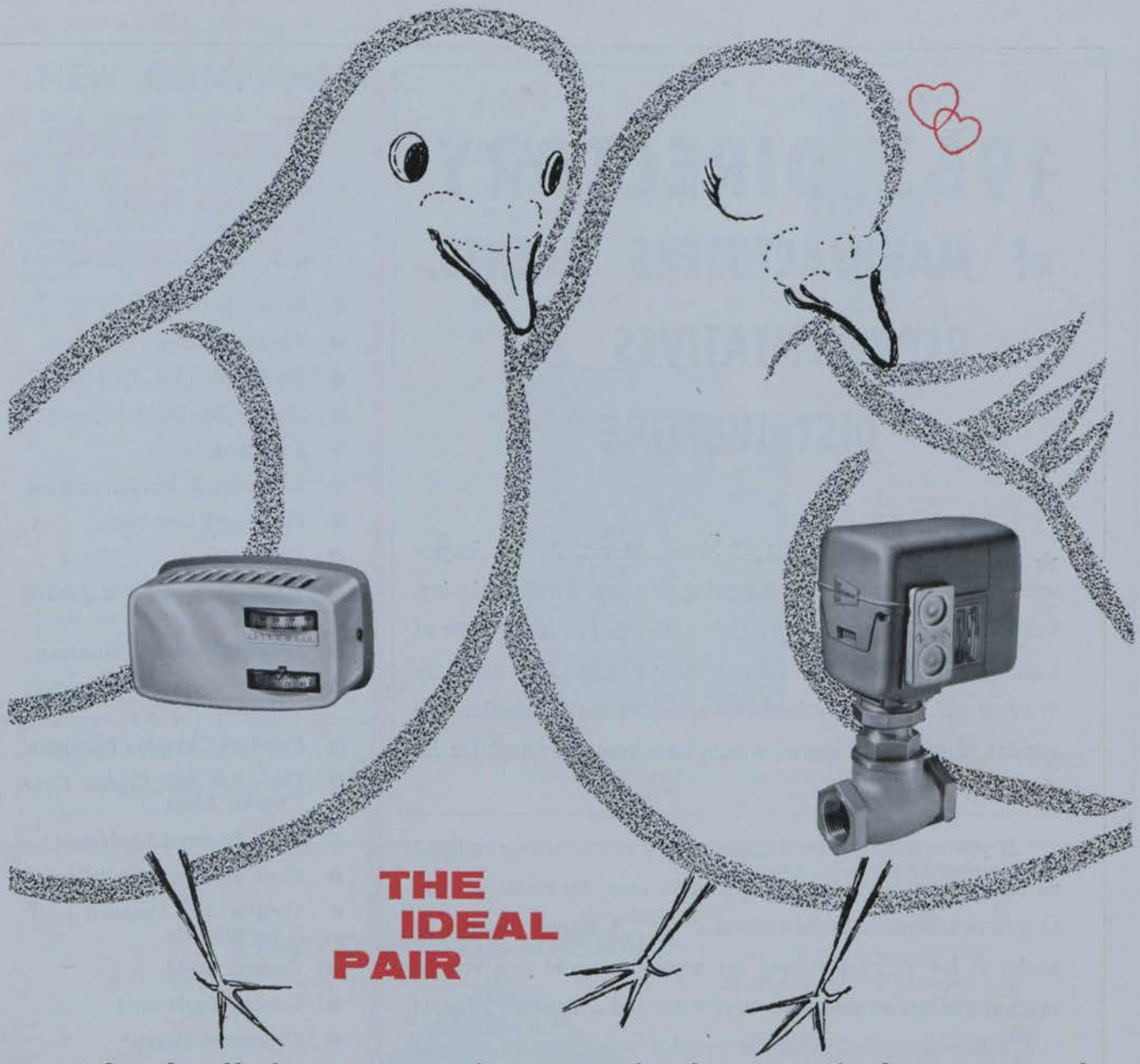

Satchwell thermostat and motorised valve give ideal zone control

Made for each other . . . the handsomely styled TL wall-mounted thermostat gives accurate on/off control with simple setting adjustment. This compact unit incorporates accelerator heaters which, in effect, cause the thermostat to anticipate a rise in temperature when it is called for, so reducing overshoot and ensuring very close control of ambient temperature. It is available with an edge-reading thermometer incorporated.

The ideal companion . . . the M type motorised valve is designed to control the flow of low pressure hot water and saturated steam. The unit which is remarkably compact and cheap to install, has a simple on/off action and can be used in pipe systems up to 1½" B.S.P. to control individual radiators or zones.

Full information on both devices (which may, of course, be used independently) is readily available from:

SATCHWELL CONTROL COMPANY LIMITED

SLOUGH · BUCKS · SLOUGH 23961

SATCHWELL —*partners in control*

A MEMBER OF THE ELLIOTT-AUTOMATION GROUP