12-1-1982

H & V News

Recommended Citation
doi:10.21427/D7KQ60
Available at: https://arrow.dit.ie/bsn/vol21/iss12/1

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IhVex '83 Set for Success

On its own IhVex would indeed be a very worthwhile exhibition of mechanical services equipment as it includes exhibitors from the heating, ventilating, air conditioning, fuel conservation, refrigeration, sanitaryware, plumbing equipment, and other allied professions but the exhibition, which is to be held on the 15th, 16th, and 17th February 1983, will for the second year run concurrently with Ilectra, the electrical engineering exhibition making the entire event the only exhibition of mechanical and electrical building services equipment in Ireland. The Irish Branch of the Chartered Institution of Building Services will add much prestige to the show by holding a conference on "Feedback from Industry on Building Services".

Exhibitors of interest to the mechanical sector who have already booked include Quadrant Engineers, Runtalrad, Walker Air Conditioning, James Gleeson Ltd., Pioneer Radiant Products, DC Compute Air, GKN, Wilo Pumps, Dublin Gas Company, I.S.A.S., Consort Rothenberger, Sairco, E.S.B., Brooks Thomas, Meynell Valves, Michael Vaughan Trading, General Steel Products, KB Combustion, Myson, Thermal Insulation Distributors, Charles Nolan, Champion Fire Defence, Garo Agencies, Master Air, Storage Tanks of Ireland, Casterlough Sheet Metal, G.I.M., Irish Industrial Supplies, Monotherm, F.D.K. Engineering, Oxley Keartland, Tower Hill Silos, OT Energy, Harland & Johnston, Superjet, and Ridge Tools. This is the list of those booked before the end of November and it means that 75% of the floorspace has already been booked with over 2½ months still to go before the show.

Venue — Simmonscourt Exhibition Complex, Royal Dublin Society, Ballsbridge Dublin 4. Dates — February 15, 16, and 17 (Tuesday, Wednesday and Thursday) 1983. Open Time — 11 am to 8 pm Tuesday, Wednesday and Thursday.

IN THIS ISSUE

Newsdesk .................................. page 2
Gas Oil in Winter .......................... page 8
Chaffoteaux Visit .......................... page 9
Energy Report .............................. page 10
Ilac Centre .................................. page 12
Christmas Greetings ....................... page 17
Ulster News ................................ page 25
BTU Golf .................................... page 27
Changes at Multifuel Heaters .............. page 27
Heat Recovery from Domestic Hot Water ... page 28
New Products .............................. page 29
Plumbing Equipment ....................... page 33
Hydraulic Balancing ....................... page 40
Seminar on Natural Gas

The need to enforce strict codes and standards and to gain maximum efficiencies from natural gas in industry through the safe use of gas appliances and installations was highlighted at a seminar organised by Bord Gais Eireann in Cork recently.

The seminar on "Natural Gas in Industry" was attended by 50 invited engineering personnel from industries supplied with natural gas by BGE, consulting engineers, and contractors involved in the installation and utilisation of natural gas.

Speakers at the seminar represented a broad range of high level experience in the natural gas industry in Europe, providing the most up-to-date knowledge on safety standards and gas installation efficiencies.

Mr. Gordon Hopkins, Manager of the School of Fuel Management, British Gas Corporation, outlined the scope of the Codes and standards developed in the UK since the advent of natural gas there. He emphasised those applying to the safety of installations, which determine the security of gas systems in use. These covered pipework systems, and burner design. He also highlighted the need for continual updating of safety standards to match developments in control systems and appliance design.

consequences of failing to apply recognised standards in gas installations were provided by Mr. David Moppett of the British Gas Midlands Research Station. His statistical analysis showed that in the UK, the number and severity of accidents reduced considerably as improved standards have been drafted and applied.

Mr. Michel Robinot, Chief Industrial Engineer, Gaz de France, demonstrated methods of improving natural gas efficiency by applying a set of criteria in selecting from the range of burner options available. Among the most important are profitability (based on energy cost and burner price) and thermal efficiency as related to the intended use. These he applied to the selection of burners for treating liquids, ceramics, metal products, and for incineration. Details of the heat losses that can be minimised by selecting the most efficient processes were also provided.

The considerable advantages of using direct fired natural gas over traditional systems were highlighted by Mr. Ken Smallman, Engineering Manager of John Thurley Ltd., manufacturers of "state of the art" gas appliances. He outlined recent surveys which showed that direct techniques can result in use efficiencies of 80% — 100% compared with maximum efficiencies of 50% in conventional boiler systems. Other advantages include shorter payback periods on investment, evenness of temperature, much reduced maintenance requirements, and the elimination of a centralised heat generating plant.

Mr. Stan Davies and Mr. John Davies of Nordsea Gas Technology outlined the principles of change over to natural gas in industrial installations and the range of standards that need to be applied. They also provided examples of how R&D in the industrial use of natural gas is continuing to improve its efficient use.

Concluding the seminar, Mr. Michael Boyle, Assistant Chief Executive of BGE emphasised the role natural gas can play in energy conservation through carefully considered applications of gas in industry and the application of strict codes and standards to maximise use efficiencies. He said, BGE would be seeking to bring about in all natural gas using plants in Ireland. Referring to the drafting of Irish codes and standards, he said that we were fortunate to be able to draw on the experience of other countries such as France, Holland, the UK and USA in supplying natural gas and applying ever-improving standards.

Award for "Awareness"

Picture of the Managing Director of the Confederation of Irish Industry, pictured left to right: Bro. Felim, Headmaster, Bro. Simeon, President, and Fr. King, Technical Project Leader.
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NEW RAWLPLUG HUNDRED

Published by ARROW@DIT, 1982
SANBRA FYFFE LAUNCHES NEW MARKETING CO.

Sanbra Fyffe Ltd. have been manufacturing Irish Instantor Compression fittings in Dublin for nearly 50 years and are established as the market leaders in this field. Last June they introduced a new range of Plumbers Brassware and as the Eirline name suggests, it is fully manufactured in their Santry factory.

By way of diversification Sanbra Fyffe have formed a new company, Heatech Marketing Ltd., to market and distribute a new range of heating products and accessories. The formation of the new Sanbra Fyffe Company is the result of an introduction made by Mr. Brian Rothery of the I.I.R.S. between Mr. John Darcy, Managing Director of Sanbra Fyffe and Messrs. Jarlath Downes and John Harrington. The latter two are Engineers whose company, Heatech Limited, concentrates on product design and innovation. They can claim to be the creators of the widely successful original fan assisted fire grate. Last year they successfully introduced an improved product of their own design to the Irish market and this product is the Whisperfire Heat Amplifier which can give up to three times the heat from an ordinary open fire.

Heatech Marketing Ltd. includes Messrs. Downes and Harrington as Directors and the Whisperfire is the first product of the new range to be distributed.

In keeping with normal marketing policy the product is available from Builders and Plumbers Merchants throughout the country and include approximately 80 outlets at present.

The Whisperfire was introduced over a month ago and the launch is being backed up by nation wide and local newspaper advertising and the response has been very satisfactory.

The export potential for the product is being investigated and initial reaction from the U.K. is encouraging.

DELP & WALLER MOVE TO NEW H.Q.

Bloomfield House, by Eamonn O’Doherty is the title of this drawing and it is also the new address of Delap and Walker (Mechanical and Electrical), consultant engineers, who have recently moved into the building as their new HQ. The full address is Bloomfield House, Bloomfield Avenue, Dublin 8.

The following students passed the IDHE Associate Membership Examination. Michael Malone, Philip Duffy, Eamonn McGlade, Dominic Emerson, Derek Emerson, Robert Byrne, Gerrard Murray, Karl Kemple and William Wilson.

Students who passed the IDHE examination with distinction were Eamon McGlade, Dominic Emerson, Martin Hogan and Frank Purcell (not included in above picture) with IDHE Chairman Victor Maddigan and founder member and Fellow of the Institute, Hugh Maguire who presented the diplomas.

The following students passed the IDHE membership examination: Frank Bodkin, Gerry Griffin, Martin Hogan, Colm O’Connor, Peter Mahon, Alan McNamera, Morgan Doyle, Paul Stillman and Frank Purcell.
Call for End of VAT at Point of Entry

One of the benefits to Irish industry arising out of the 1965 Anglo Irish Free Trade Agreement and our subsequent entry into the European Economic Community, in 1973, was that industry had no longer to pay duty on its imports of raw materials and components from these countries. This lead, not only to direct financial savings, but also to a reduction in the amount of administrative time devoted by firms to the clearance of goods through customs. The familiar "Customs & Excise Tariff of Ireland" book, which formed the desk of most purchasing personnel gradually disappeared and industry enjoyed some of the benefits arising from an open trading economy.

On the 1st of September 1982, the clock was put back 17 years with the imposition of Value Added Tax at point of entry. A new series of duties of zero — 18% or 30% became applicable to every item imported. A recent publication by the Revenue Commissioners entitled "Guide to tax ratings of imported goods", gives a list of tax ratings according to tariff classification, and must be used in conjunction with "Customs & Excise Tariff of Ireland", to determine the rate of duty applicable to every item in a consignment imported by a firm.

So once again industry, in addition to the financial costs of funding the duty, has also to devote a large amount of administrative time to ensuring that raw materials and components are available on the shop floor to meet production schedules.

Today, the need for Irish industry to maintain competitiveness in both home and overseas markets are constantly being stressed. It is pointed out that industry has a major role to play in creating the wealth, necessary for the achievement of our national objectives, including the provision of full employment. However, wealth creation is dependent on growth in exports and the achievements of a higher level of domestic market penetration. It is essential, in order to safeguard employment, that every element contributing to increased unit costs be eliminated.

The Building Services Industry and the Engineering Industry in general, through the Engineering Industry Association, calls on whatever party takes over Government, to support the selective removal of VAT at the point of entry from industrial raw materials, components and capital equipment used for manufacturing purposes so that customs procedures and costs can be reduced and the advantage gained through the Anglo Irish Free Trade agreement and EEC membership for the free movement of goods restored.

IDHE PRESENTATIONS

A presentation of certificates to students who have successfully completed a three year course in Domestic Heating Engineering at the College of Technology, Bolton Street, was made at a special function in the Skylon Hotel, Dublin recently.

The I.D.H.E. (Irish Branch), established in Ireland since 1964, was instrumental in setting up the Bolton Street course for trainee heating engineers in 1967. One objective of the Institute is to continually raise standards in the profession by comprehensive education and training. The function also marked the achievement of autonomy for the I.D.H.E. in Ireland.

Contract for Monarch Oil/Water Separator

AWS Delta Limited, international water and wastewater contractors, have recently been awarded a contract by John Paul Mechanical of Ireland for the supply of a Monarch Oil/Water Separator, for which AWS Delta is the European Licencce. AWS Delta Ltd. are represented in Ireland by John Paul Mechanical Ltd.

The project is for the Dublin Terminal of a major oil company and the value of the contract will be approximately £25,000. The oily water separator consists of a double plate pack in a steel tank and is capable of treating a normal flow of 150 m3/hr and higher flow rates during rainfall conditions.

NEWS

The results were announced in early November and prizes presented to the winners in the Dept. of Energy Industry Save Energy competition and our picture shows from left to right: Mr. Albert, TD, the then Minister for Industry and Energy, presenting a Unidare 3 Star General solid fuel burner to Mr. Thomas Byrne, Tullow Road Carlow. Also pictured is Mr. Jack Simpson, Products Manager Unidare Ltd.
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CIBS NEWS

Over 80 members and guests attended the CIBS meeting on 4th November at the Engineers’ Club where papers on the E.S.B. Low-Energy Project (Cork District Office) were read. In these energy-conscious times much food for thought was presented to the attentive audience.

The papers were given by:
Mr. Denis Kelly, Project Architect, Partners; Kelly, Barry & Associates.
Mr. Steve McGloughlin, Mechanical Consultant, Associate; VMRA.
Mr. Sean Toomey, Lighting Consultant, Senior Lighting Engineer; E.S.B., Cork.

It is hoped to publish the papers in the near future.

The technical session was a prelude to the CIBS visit to the Wilton complex in Cork which took place on Saturday, 6th November.

The evening was sponsored by Armstrong Ceilings Ltd. to whom the CIBS extended their thanks.

The CIBS also thank the three authors for their thought-provoking papers.

The evening concluded, in the traditional fashion, with informal discussions in the club bar.

AAF EXPAND IN MARKET

A new company, AAF Heat Recovery, has been formed following the acquisition in July by AAF Ltd. of a controlling interest in Heat Recovery Ireland Ltd.

This small but expanding organisation founded in 1975, manufacture and market on a four acre site near Macroom in County Cork, a wide range of thermal wheels and plate type exchangers.

Marketing activities throughout Europe will be undertaken principally by the international network of AAF companies, whose reputation and experience will ensure that these heat recovery products have a sound base from which to expand sales.

In the U.K. these items will link up to two existing heat recovery products, the AAF run-around-coils and the EnerCon heat-pump system to make it one of the most comprehensive ranges available from a single manufacturer. This is consistent with the company’s policy of expansion in the energy recovery markets.

AAF-Ltd is an Allis-Chalmers Company.

CENTRAL HEATING EXPORTS

Recent trade figures for central heating equipment being exported from the Republic to the UK shows a remarkable 40% jump to £1.1 million from Dec ’81 to March ’82 (most recent figures available). On the other hand imports from the UK dropped by about 15% to £274,000 in the same period.

It seems that Irish manufacturers are taking full advantage of the difference in the punt and pound sterling but with the recent reduction in difference that market may not be quite so attractive.

F. H. Biddle Ltd., UK based manufacturer of heating, cooling and AC equipment have recently announced the appointment of MCW Ltd., 10 Wynnefield Road, Dublin 6, (Tel: 976729) as distributors.

FINAL PIPELINE WELD

On 28th April last at Brownsbard, Co. Dublin the first weld of the pipeline from Dublin to Cork was made. On the 18th November, barely six months later and some 222 kilometers further south the final weld at Middleton has recently been completed.

This is the kind of success story which speaks for itself. It is the first gas pipeline project of this scale to be carried out in the country and is perhaps the biggest project of its kind since the Shannon Hydro Electric Scheme.

What is most important is that it is a project which is on time and within budget. This achievement is a tribute to the contractors and to all those working on the project. It shows that, in this country, we have the design, engineering and construction skills of the highest standard and an efficient workforce second to none.

Dublin Gas are confident that they can expand the market for gas by about eight times the present level. Supply of gas to the present market alone is expected to save at least £17m on our energy import bill during 1983. This is expected to rise to about £80m in 1982 terms when the full potential of the gas market is exploited. If we take sales of gas to the ESB into account, the aggregate savings on imports from sales of gas by BGE currently add up to about £200m.

The pipeline is the backbone of a national grid which will bring the benefits of natural gas to other areas of the country. It is likely that a supply of gas will go to Limerick and Waterford areas and BGE have necessary approval to proceed with plans to extend supply to these areas. Other towns such as Clonmel, Carlow, Kilkenny and to suitable industries and commercial enterprises in the vicinity of the pipeline grid are all likely recipients. Thus the pipeline project is a national project and not a project for the exclusive benefit of Dublin.
Diesel fuel and gas oil are complex mixtures of hydrocarbons. As they cool down they don't 'freeze' at a single temperature like water; instead one of their essential components tends to form minute wax crystals which remain suspended in the oil. These crystals need not create problems unless they become trapped in the fuel system and form a blockage.

The lower the temperature of the fuel, the greater its tendency to form wax crystals. The limitation on the use of diesel fuel and gas oil at low temperatures therefore depends on the amount of wax present and the fuel system's ability to avoid crystal collection in filters.

Diesel fuel and gas oil are diesel fuel and gas oil at low temperatures therefore provide a means of predicting the fuel's ability to avoid crystal collection in filters, small diameter pipes or water separators.

The Cold Filter Plugging Point

The Cold Filter Plugging Point test provides a means of predicting the behaviour of diesel fuel and gas oil in cold weather. It measures the flow of these fuels through a well-designed system under conditions that simulate actual operation. Blockages can and will occur above minus 9°C the accepted cold filter plugging point, if the fuel system has not been well thought out, adequately protected and properly maintained. This guide provides hints for preventative measures and remedies. Needless to say, prevention is much better than cure.

Wax Prevention

1. Screen the storage tank from the wind to prevent chilling. Cold winds can reduce temperatures dramatically.
2. Insulate all exposed pipework and filters with waterproof lagging, paying particular attention to the filters. Check the line for kinks and other constrictions that would impede the flow of oil.
3. Check that the material in which any pipeline is buried is dry. Ice forming around the pipework will cancel the insulating effect of mortar.
4. Check on the practicality of moving exposed filters to a warmer location.
5. Regular maintenance is essential. Filters, for instance, should be cleared as a matter of routine. Remember, too, that over a period of time some water may have accumulated in the bottom of your tank because of moisture in the air.

Ideally, this water should be drained off before each delivery, but certainly before winter starts, as not to cause icing that could block filters.

To detect the presence of water, draw small samples of fuel from the tank and filter bowl into clean, dry bottles and allow to stand. Any water will tend to separate as a clear layer or small globules at the bottom of the bottles.

Remedies

Once waxing has occurred it can only be eliminated by either physically removing the blockage or warming the fuel to re-dissolve the wax crystals. No suitable solvents or additives are available which will dissolve wax once it is present in the fuel.

First check that the cause of the stoppage isn't ice. Unfortunately, it is very difficult to tell the difference between fine ice crystals and wax, so it is far better to ensure that water isn't present in the first place. Detecting water is described in preventative hint 5.

If waxing has definitely occurred, gentle heat applied the pipework. Hot water, fan heaters, even hair dryers should be adequate.

Under no circumstances must a naked flame be used on any part of the fuel system or storage tank.

Pay particular attention to the oil filter if it is located in an exposed position. If necessary, and as a temporary measure, remove the filter element to clear the fuel lines.

Do not add petrol or kerosene (paraffin) to the fuel. The addition of petrol could be extremely dangerous and the use of kerosene in diesel fuel is illegal. It is also unlikely that either product will dissolve wax after it has formed.

Once the burner is working again, follow the preventative tips to ensure the problem won't recur.

Good design features

KEY

1. Fuel tank sheltered from the effects of wind chill.
2. Fill and vent pipes fitted with caps.
3. Tank top shaped to shed water.
4. Tank sloped away from offtake point (1 in 50 slope) with suitably positioned and accessible sludge cock.
5. Isolating valve insulated. Offtake point well clear of tank bottom.
6. Shortest practicable fuel line with no sharp bends. Located in a sheltered position and insulated with a waterproof material.
7. Filter mounted close to boiler or located in a warm environment.

Remote Operated Fire Valve

Boiler

This guide was prepared with the assistance of Irish Shell Ltd.
CHAFFOTEAUX SHOWS HOW ITS DONE

With the expected boom in gas boiler sales just around the corner a timely visit was arranged by Taney Distributors Ltd. to the French based boiler manufacturer Chaffoteaux. The offices and factory of the company are sited in the picturesque town of Saint Brieuc in Normandy and the Irish party of 14 flew out in two light aircraft to the local airport in Saint Brieuc.

Chaffoteaux et Maury are the leading French manufacturer of appliances for the instantaneous production of hot water. The company employs 4,000 people, and was established at St. Brieuc in 1919. It has specialised in instantaneous water heating for the last 30 years, and the growth and reputation of the company dates from the end of the Second World War through the large scale production of water heaters, which are now known worldwide.

In 1952, Chaffoteaux et Maury conceived the idea of adapting bath heaters for use as gas fired central heating boilers. It soon became apparent that this concept gave many advantages from the point of view of the size of the appliance, economy of operation and of the resulting standard of comfort.

Copper heat exchangers are very robust, and since copper is in practice the best metallic conductor of heat, the efficiency of the boilers is very high. In addition, since the water content of the boiler is small, their termal inertia is low, resulting in a rapid heat-up of the central heating system.

The Company’s activities are split roughly equally into the production of water heaters and wall-hung boilers. On the mainland of Europe, some 80% of the boiler market is in ‘mixed’ appliances, which operate as central heating boilers and as instantaneous bath heaters. Since in Ireland virtually all installations incorporate a domestic hot water storage cylinder, boilers are produced specially for the market, which are both smaller and simpler than those sold on the Continent. Nevertheless, these boilers are assembled from parts common to the rest of the Chaffoteaux et Maury range, resulting in low costs of production for this type unit.

I’m sure I speak for all those on the visit when I say that it was one of the most enjoyable and educational visits made to any manufacturing plant and thanks to all who made the trip possible especially Pat Gaffney and Andy Kavanagh of Taney Distributors and Norman Walters of Chaffoteaux (UK) Ltd.

EDITOR

Published by ARROW@DIT, 1982
November 11th is the day set aside to mark the end of World War 1 and the great surrender in history. Here in this country 11 November 1982 should be remembered as the day which saw the public announcement of the surrender by the Board of the ESB of the trust placed in it by the people.

The announcement came in a banner headline on the front page of the Irish Press — "Board Blames Government". The article which followed was based on unpublished facts from the 1981/82 Annual Report which the ESB and the Government have kept under lock and key since last July.

Readers of this column will not be surprised to hear that the report refers to "the damage to the ESB by loading it's expensive non-commercial obligations ..." "the artificial depression of growth in demand for electricity as a result of the imposition of extra costs will, in the Board's view, create enormous difficulties for the ESB as regards financing, staffing and the quality of service."

Who blew the gaff? ... why was it done? Well, that's anybody's guess but here are a few facts for you to ponder.

(1) The story broke in Fianna Fail's own paper at the height of the election campaign: was it designed to shift the current leadership?

(2) On the very day of the leak, P J Moriarty had assembled his line managers in a Dublin hotel where they heard a story of hard times ahead and the need for cut-backs in every sector (including staff numbers); was the storm released by the ESB to shock the troops and at the same time to please both the expected Fine-Gael-led Government and a new leadership in Fianna Fail?

In the unlikely event that the Kinsealy wizard manages to pull off one more stroke there will be a few heads rolling in 1983. (Ed note: We went to press before the new Government was announced). Sad fact is that either way the electricity industry will be even worse off as it is being dragged slowly but surely down.

ESB — The Way Forward: The public acknowledgement by the Board of the ESB that the Government has been artificially inflating the price of electricity by £100 million a year through taxes and levies marks the end of an era of speculation, misinformation and intrigue. This state of affairs did not occur overnight. It had small beginnings but without the approval and assistance of the ESB Board it could not have happened as it did.

The magnitude of the ESB's problem has yet to be defined fully but in outline it goes something like this. For the best part of fifty years the ESB grew and prospered under a regime of financial rectitude and was held up as an example to all as a state-sponsored body which paid its way and contributed to national development. Independence from political interference was the fruit of this success and successive politicians sought to bring the ESB to heel. The process began with the appointment of a civil servant as chairman.

With their own man in Fitzwilliam Street things began to change for the politicians as key appointments within the ESB came within their reach for the first time. The mental attitude of those in control slowly changed from what was best for the consumer to what would please the Minister in charge.

The ESB was made to bolster up other ailing semi-state organisations. It was used to subsidise Bord-na-Mona and finance the building of the gas pipeline. At the same time it was forced to keep expensive social projects alive in out-of-the-way places. Politician's used it to build their image. Its funds were served to sponsor conservation campaigns which suited Government objectives but proved suicidal for electricity growth. But as a tax gatherer it has become a true monster of the State and God alone knows where it will all end if something is not done soon.

The point to remember here is that the Board of the ESB has now publically admitted that electricity prices have been artificially inflated. In simple terms this means that jobs, profits, and prospects in the whole electricity industry (perhaps 50,000 including ESB workers, are directly involved) are being deliberately damaged by the action of those holding positions of responsibility (elected and otherwise). Jobs in other industries are also being affected by overpriced electricity and so, too, is the quality of life in the home where electricity has become so crucial to modern living.

The irony of the new situation is that massive public investment in power stations is being taxed onto the scraphead, the present fall-off in growth will shortly see the ESB with double the capacity it needs. At the same time foreign coal, oil and bottled gas go untaxed.

The ESB was made to bolster up other ailing semi-state organisations. It was used to subsidise Bord-na-Mona and finance the building of the gas pipeline. At the same time it was forced to keep expensive social projects alive in out-of-the-way places.
The Way Forward for the electricity industry is a new Board for the ESB (with a representative of the electrical trade) which will fight for the rights of its consumers and articulate the nation's need for a strong and efficient electricity supply industry, unhindered by short-term political objectives.

**Bord-na-Mona in the Red:**
Bord-na-Mona reported a loss of £5 million on sales of £67 million for the year ending 31 March. The loss was due, says the Annual Report, mainly to borrowings which shot up from £6 million to almost £15 million in the year under review.

With falling coal prices it is unlikely that turf will make a big comeback in the current year, especially as the company has announced its intention to raise prices to a "realistic level" in an effort to balance the books.

It will be interesting to see if, at year's end, the ESB will be asked once again to subsidise this ailing fuel producer.

**K.A.M.U.-Time at Dublin Gas:**
As we predicted, the various factions in the Dublin Gas dispute — on the Board level at any rate — have kissed-and-made-up. (It's so silly for big business to be fighting in public when there's money to be made). It has been suggested in some quarters that the marriage came about when it became obvious that public disquiet might well result in a takeover of the firm by the State. Now everybody concerned can quietly get on with the job of making real money out of a huge state investment in the Cork-Dublin pipeline.

First steps will be undoing the damage of the recent squabbles, in and out of the boardroom. The company plans a massive advertising campaign for the new year aimed at establishing confidence and holding out the promise of cheap heating and cooking for city dwellers.

Inside Dublin Gas things are moving apace. Maintenance staff are being trained to handle the new gas, as well as cooking for city dwellers.

Some quarters that the marriage will be adherent in Dublin Corporation. It was outlined at a seminar "Biotecnology and the Environment" organised recently by the National Board of Science and Technology.

At present the Corpo dumps 140,000 tons of sewage annually into the Irish Sea with none-too-pleasant results for the environment. The new proposal is to treat the sewage in a digester and use the resultant methane gas to fuel Corpo vehicles and/or the ESB power station at Poolbeg.

It seems like a great idea. Let's hope that it is not another of those hair-brained schemes that fuel the imagination of politicians and rising executives. A tight rein needs to be kept on the costs involved in such projects with such things as fixed-price contracts for everything from consulting to the last bucket of mortar. Otherwise the Corpo and the taxpayer may end up, once again, in the fertilizer.

**A Barrel of Trouble:**
Mr McMullan said that INPC have been issuing "erroneous and misleading information to the media regarding the level of diseconomy of the INPC's operations". The Corporation had claimed that the spot market petrol price had narrowed to within $27 a tonne of INPC's price. Not so says McMullan "at no stage did the gap reach $40 . . . in fact it widened to $80 in mid-November.

The same situation obtained with central heating oil which could be bought $25 a tonne cheaper. Heavy fuel oil was priced at $164 a tonne on the spot market in mid-November when the INPC product was selling at $185. "The ESB" Mr McMullan claimed "got the oil at a special price" — would you believe $195". The statement was issued on 11 November — a day to remember!
A Case Study on Energy Use Management at the Ilac Centre

by R. Jacob, Robert Jacob and Partners.

The Effect of the Time Scale of the Projection Energy Cost
Our first discussion with the architects regarding the design of services for the Ilac Centre took place as long ago as 1975, when the price of fuel oil as approximately 5p per litre as compared with 22.55p today.

The cost of electricity for motive power was 3.0p/unit at that time as compared with 8.7p today.

Alternative Air Conditioning Systems Considered
Our original recommendations for air conditioning were based on the use of a system which provided full heating and cooling to all shop units with the facility for utilizing surplus heat from the shop units to warm the malls in winter.

However, the capital cost of this system was considered to be too high in relation to potential savings at the then cost of energy and we were asked to produce an alternative.

The air conditioning system for which tenders were invited was of a very simple design commonly used in many shopping centres in Great Britain. Under this system conditioned air is supplied to the malls only and is extracted through the shop units.

Although such a system has the merit of extreme simplicity and low capital cost it is fundamentally wasteful of energy, since all the heat gains due to lighting and occupancy in the shop units must be rejected through the extract systems, serving these units.

Post Tender Design Progress
The successful bidders for the air conditioning system were Climate Engineering who proceeded to produce working drawings on the
PROJECT REVIEW: ILAC CENTRE

Re-design of System to Minimise Energy Demands

In April 1980 (when construction of the centre was well advanced) our clients invited us to make a fundamental re-appraisal of the basic design of the air conditioning system in the light of the vastly increased costs of energy which had taken place since the original design was prepared.

An essential condition laid down was that no change could be contemplated if this had the effect of delaying the completion date of the project.

The implications on programme of reverting to the original concept of economiser cycle air conditioning of both malls and shop units in summer, combined with heat recovery in winter, were then discussed. It was agreed that every effort should be made to meet the challenge of re-designing the system to minimise energy consumption, and, at the same time to meet the original completion date.

Again, the combined resources of consultants and contractors were brought to bear on what amounted to a complete re-design of a project under construction. Despite the fundamental nature of the re-design process (which involved the rapid production of a new set of builders work drawings as construction proceeded) it was found possible to give the required assurance that original completion date could be met. This was aided by the understanding and co-operation of the architects, structural consultants and the general contractors (John Sisk & Son).

Time permits only a brief description of the more interesting features of the design of the air conditioning system as installed. Further data are included as an appendix to this paper.

Air Conditioning Design of Glass Roofed Malls (Summer)

It was agreed that in the interest of economy full advantage should be taken of the stratification which occurs in any high conditioned space, accentuated in the ILAC Centre by the high proportion of summer heat gain contributed by solar radiation.

In the case of the Central mall,
maximum instantaneous solar gain was estimated to be 224 Kw. It was agreed, on an empirical basis, that the under-glass temperature could be permitted to rise to 40°C.

On this basis, the total calculated cooling load could be substantially reduced:

a) By conduction of heat outwards through the glass and roof structures to the ambient design temperature of 24°C (reducing the theoretical gain by 77 Kw).

b) By introducing cooled air at a comparatively low level (approx. 4m) above Mall floor level, thus minimising the mixing of hot and cooled air and allowing the Mall floor level to be treated as a separate zone.

c) The effect of a permitted temperature rise to 40°C on air quantities and fan horsepower was very great. In fact the required air volumes are determined by heating rather than cooling loads.

The application of the design principles described above reduced the demand for refrigeration to 84 Kw when catering for a calculated maximum instantaneous gain of 248 Kw, in the case of the Central mall.

**Air Conditioning of Glass-Roofed Malls — Winter**

The calculated heat loss of the Central mall in winter is estimated to be 195 Kw. A substantial contribution to the daytime heat requirement will be made by spilled air from the individually air conditioning shop units described later.

An unusual requirement in the Ilac Centre is the maintenance of minimum temperatures in the malls of 24 hours per day during the winter months to safeguard the ornamental trees and plantings which are a feature of the centre.

All air conditioning plants served the malls are designed for economiser cycle working summer and winter. This allows maximum use (by full recirculation) of surplus heat from the shop units during normal working hours. All air handling units are fitted with two speed motors to minimise power consumption during periods of minimum heating or cooling demand.

**General Principles**

The distribution system was required to cater for widely differing heating and cooling requirements as between shop units.

The varying factors included the thermal properties of tenants decorative linings, heat gains from lighting, occupancy and special equipment.

**Design of Distribution System**

As a principle of design it was agreed to size the chilled water system on the basis of mean heat losses of approximately 51 watts/sq m of shop space and mean heat gains of 65 watts/sq m from lighting, occupancy and equipment. It was recognised that variations of up to 3:1 might occur in heating or cooling demands as between individual units and that such diversity should be catered for by both chilled and hot water systems.

It was decided that a reversed system of distribution should be used for the distribution of both hot and chilled water giving an equal pressure difference between all...
consumers connections throughout the system, thus facilitating balancing.

It was agreed that in order to take full advance of diversity in demand between Shop Units, control of the individual heating and cooling batteries should be by two port modulating valves. By this system each unit only draws the quantity of water required for heating or cooling from the flow, and discharges the same quantity to the return main.

If three port valves had been used advantage of diversity would have been lost since each consumer would then draw water at constant volume, returning the same constant volume to the mains regardless of load.

In order to maintain a constant temperature in the mains the first and last units on each ring incorporate three port valves. In addition pressure differential detectors have been installed at the extremities of each ring main, from which the lower of two signals is transmitted to a three port control valve (installed as a divertor) which only allows the quantity of water actually required by the shop units to enter the system. The surplus is diverted back through the primary side of the system. In this way a constant differential pressure is maintained at each consumer's connections, irrespective or load variation.

Microcomputer Control of Plant & Other Energy Consuming Services

Description of Systems Considered

Micro computers can be applied to building management systems in two ways. These alternatives both involve a console connected to a number of outstations with a telephone type cable. The main difference is the location of the computing power and memory.

a) Centralised Intelligence:

This system locates a mini or micro computer at the console which interrogates the outstations. These outstations are passive, that is they are not capable of any action on their own, but are designed to operate only under the dictates of the console. Information associated with all functions must be transmitted to the console regularly every few seconds.

b) Distributed Intelligence:

This system involves a micro computer at the console but also includes micro computers at each outstation. The outstation monitors and controls its own functions independently of the console with information being passed to the console only on exception or if information is requested by the console. The console signals the outstation only when a change is manually initiated or if information is required.

There are several advantages in adopting a distributed intelligence system, the major advantages being:

a) The quantity of data transmitted over the trunk cable is substantially reduced. The transmission speed of the communication system is relatively slow which allows a lower standard trunk cable to be used.

b) The memory store at the console of a distributed intelligence system does not have to be sized to cater for all future extensions. As functions are added, involving extra outstations, the memory computing power within the outstation caters for the additional functions.

c) When the console of a centralised system fails, when the power to the central console fails, or when the trunk cable connection to an outstation is interrupted, no further controlling action can be carried out by the outstation. The distributed intelligence system has sufficient computing power at each outstation to allow it to continue controlling its associated functions. Hence services can be maintained irrespective of the state of console or trunk cable.

Type of System Selected

The Satchwell type B.A.S. 700 system has been installed. This is a distributed intelligence system utilising a central micro computer and 11 outstations covering 300 separate functions. Our requirement was to control or monitor the following functions.
Description of Functions of Selected System

a) Plant operation on/off.
b) Temperature monitoring and recording.
c) Optimisation of plant in response to temperature readings.
d) Recording of energy consumption (oil and electricity).
e) Control of maximum demand.
f) Operation of lighting.
g) Indication of burglar alarm.
h) Indication that shop units A/C plants are operating.

There are a number of spare circuits still available on outstations to cater for any foreseeable requirement. In the event of another plant being added to the system it will be a simple matter to add an outstation and connect it to the central computer using one twin twisted cable.

It is possible by utilising a telephone line to connect outlying buildings to the system and to monitor these buildings using the same central system. The operator is able to perform specific tasks using the master keyboard on the central console.

a) Request status of each plant.
b) Manually control operation of plant.
c) Request information regarding energy use.
d) Reprogramme the outstation.

Information is automatically printed out so that a record of operation is available to the operator. In the event that experience shows that the parameters for control of plant need revision, this can be done from the central console by operation of the master keyboard.

Maximum Demand
The penalty for allowing maximum demand to rise above its limit is well known.

The ESB fitted at our request apparatus to allow digital signals to be transmitted to the computer for the measurement of Kw hr consumption and maximum demand. In the event of the maximum demand approaching a pre-set level, items of non-essential plant are switched off in a pre-determined sequence.

Power Failure
A standby generator is installed for the maintenance of essential services such as lighting in public areas controlled by the landlord, security alarms, sprinklers, lifts, etc.

In the event of power failure the load cycling operation will again operate to ensure that only essential services are connected to the generator.

Projected Savings in Running Cost Resulting from Re-design
On the basis of energy costs prevailing in 1980 (when the decision to re-design the air conditioning systems in the manner described was made) it was estimated that savings in the order of 50% in energy consumption should be achieved, reducing the projected annual energy cost from £88,000 to £43,000. The additional cost of the modified air conditioning system was approximately £130,000.

Appendix (a)

General Description of Major Plant

Boilers
Three cast iron sectional boilers are installed each rated at 880 Kw and fired with Riello 4N burners, using 200-second fuel oil.

Refrigeration Plant
The refrigeration plant consists of two no. Westinghouse centrifugal chillers each rated at 1,336 Kw (380 tons) of refrigeration, and 2 no. Westinghouse cooling towers to cater for chiller condenser load.

Pump Duties
Landlord Heating 17 kg/s @ 17 mtr. head.
Shop Heating 12 kg/s @ 24 mtr. head.
Chilled Water 65 kg/s @ 33 mtr. head.
Condenser 75 kg/s @ 25 mtr. head. All pumps duplicated.

Air Handling Plants

Malls
Parnell Mall 1 no. AHU rated at 4.72 Admin. Area 1 no. AHU rated at 1.652 cu.m/s
Mary St. Solid Mall 1 no. AHU rated at 2.832 cu.m/s
Central Plaza 2 no. AHU rated at 4.248 cu.m/s each
Moore St. Glass Mall 2 no. AHU rated at 3.776 cu.m/s each
Mary St. Glass Mall 2 no. AHU rated at 5.664 cu.m/s each

Total volume flow rate = 27.612 cu.m/s

Shop Units
48 no shop units Average of 0.684 cu.m/s each
Total volume flow rate = 48 x 0.684 = 32.85 cu.m/s
Seasons Greetings

The Directors and Staff of

H&V News

Wish Seasons Greetings
and a Prosperous New Year
to our Readers
A Bangor, Co. Down firm Themomax has received recognition for its work in the field of solar energy with the winning of an award from a West German magazine. The company headed by Dr. F. Mahdjuri, has been established in Bangor for about a year where research and market potential has been evaluated.

A number of enquiries and orders have been received from various parts of the world and at the moment the results of displaying the equipment at various international exhibitions are being processed.

President of the National Association of Plumbing for the next year is to be Edwin Press, Senior Lecturer in the Building Trades Dept. of the Belfast College Technology.

Mr. Press is the first President of the Association to be chosen outside England.

His many friends in Northern Ireland will wish to congratulate Mr. Ed Martin on being appointed Sales Manager for Thorn EMI Heating being responsible for boiler and radiator sales.

Previously Northern Area Manager, Ed looked after the Northern Ireland area and was a frequent visitor to the Province.

Mr. R. E. Lintott, Executive Director was the speaker of a Belfast luncheon for leading industrialists hosted by the Esso Petroleum Co. Ltd. Mr. Lintott spoke of the difficulties facing the oil industry at the present time, laying stress on the competitive nature of the business.

I.E.S. Industrial (Ireland) Ltd. of 21 Station Street Belfast, Northern Ireland distributor for Drayton Controls Ltd. will be stocking the new room thermostat developed by that company.

The new thermostat the RTE is a mains voltage unit with change over switching and accelerator heater with a temp. range of 5°C to 30°C.

Plastic pipe for gas supply has been issued for the first time in Northern Ireland. Coleraine Gas Co. have used Wavin Gas 63 millimeter plastic pipe to provide a supply at the New University Coleraine.

The Housing Executive have appointed the New University of Ulster to design and manufacture solar assisted heat pumps for a Londonderry development.

In a statement issued by the Blue Circle Group is was announced that they were carrying out a review of the groups activities. As a result of this review it has been decided to put up for sale their builders merchants activities of McNaughton Blair of Northern Ireland and the Scottish based Johnston & Paton. The Blue Circle Group have controlled McNaughton Blair for some 30 years during which period they have built up the company to be possibly the largest merchant in Ulster with large distribution depots and showrooms in Belfast & Craigavon.

The facilities, reputation and many excellent agencies on the widest possible base should make the acquisition attractive to one of the larger groups.

Fuel Services (N.I.) Ltd. sole distributors of Shell U.K. oil has appointed Mr. D. Scollan as depot manager and local sales representative in Enniskillen.
Mr. F. R. McBride, M.B.E., Chairman Northern Ireland Energy Managers Group presents the Special Merit Certificate to Mr. A. Robinson, B.P. Refinery (N.I.) Ltd. which he won in the recent National Energy Managed Competition.

Potter Cowan & Co (Belfast) Ltd. 18/20 Duncrue Street, Belfast, continued the expansion of their new distribution depot with the opening of a new electoral trade centre.

Agents and distributors for a wide range of domestic cookers and equipment including such household names as Belling, Expelair, Haig Tweeny, Counter Part, together with a lighting and wiring division representing Compton, the new department has been laid out with customer convenience in mind. ****

A most successful promotion has been carried out by the Coal Advisory Services covering the whole of Northern Ireland.

Under the scheme a consumer who replaces a gas fired unit either with a coal fired boiler or warm air unit, received a substantial grant up to as much as £300 for installing a solid fuel fired unit. The size of the grant depending on the size of the installation.

The scheme which operates for a limited period has not only proved attractive to customers but also to many approved contractors as can a additional source of work where payment is practically guaranteed. ****

The death has taken place of Mr. Des Blaney, a Director of Aerocowl Marketing Ltd.

Mr. Blaney died when the plane he was piloting crashed in the Isle of Man. Mr. Blaney was well known to many in the heating trade particularly the domestic side, with which he was previously connected before joining Aerocowl. ****

A lightweight and completely portable free-standing universal vice, with the vice itself having a gripping pressure adjustable from a feather-light touch up to 4000 p.s.i., has been designed and manufactured by S.P.A. Manufacturing Works, 72 Dunmore Road, Ballynahinch, Co. Down, Northern Ireland (Tel: 0238 562423). The vice has a 10in. jaw opening to accommodate large workpieces.

After pre-setting the gripping pressure by means of a tension control knob, the moveable vice jaw is positioned by hand to grip the workpiece loosely. The vice is then tensioned and locked positively in position by means of a foot-operated lever, thus leaving both hands completely free to hold and align workpiece correctly. A particular advantage of the pre-set tension control is that, once set correctly for any material, gripping pressure remains constant throughout a series of repetitive operations.

A further advantage of the unit is that, being free-standing and completely self-contained, it affords all-round accessibility to the workpiece to perform welding or other operations.

The S.P.A. universal vice is supplied as standard with 5in. jaws, suitable for use with most workpieces. These standard jaws are fully interchangeable with larger jaws or other types offered by the manufacturers for specialist applications — for example, the holding of pipes, conduits, etc. An extension worktable and a tool tray are also available as optional extras, enabling the unit to be converted into a complete workbench.

Of rugged all-steel construction, yet weighing only approximately 25-kg., the S.P.A. universal vice is designed to break down to an overall size of 29½in. x 9in. x 10in. to facilitate transportation.
SUCCESSFUL BTU TURKEY NIGHT

The BTU Golfing Society season closed in Hermitage recently with a very successful and well supported turkey outing followed by a social evening. The main prizes were sponsored by BP Ireland Ltd. and were divided as follows:

1st: Mick Devoy (Hermitage) 6, 32 pts. 2nd: Eamon McGrattan (Clontarf) 10, 32 pts; 3rd: Liam Hurley (Hermitage) 10, 31 pts; Tony Gillan (Rush) 12, 30 pts; John Loughlin (Newlands) 17, 29 pts; Peter Johnston (Newlands) 6, 29 pts; Aubrey Moriarty.

A further 30 consolation prizes were awarded.

- Eamon McGrattan, Vice Captain; Tony Gillan, Captain; Tony Delaney, Winner, G.O.Y.; and Eddie Egan, Hon. Sec.

- Cathleen and Sean Smith, Lillian and Gerry Baker, Emily and John Eanis.

- Audrey Karsten, Mick Karsten, Jean Sheehan, Brendan Sheehan, and Michael and Nora McDonagh.

Change in Multifuel Heaters Shareholdings

The fortunes of Multifuel Heaters took a further turn for the better with the acquisition by Keenan Brothers of Bagnalstown of a shareholding in the company. Keenans have at their disposal one of the top manufacturing facilities in Ireland for general engineering and buying into Multifuel. The change in shareholding does not change the standing of Michael Walsh, Bob Couchman and Derek Morris, all will retain a shareholding in the company and will remain directors.

Multifuel Heaters are one of the current success stories on the Irish central heating manufacturing scene and as sales continue to increase against a recessionary background it makes the company stand out all the more. Added to success on the home market Multifuel Heaters export side is looking to the UK and the Continent where early indications are that exports will be yet another success story.

Published by ARROW@DIT, 1982
Heat recovery from domestic hot water

By Peter Warren, Building Research Establishment

At least half of the heat delivered to domestic hot water taps is lost to the drain. A heat-pump based system for recovering some of this has given encouraging results in initial trials.

Domestic consumption of hot water clearly depends on factors such as the household and composition, but on average it is approximately 120 litres a day, delivered at 55°C. This gives an annual consumption per household of approximately 9 GJ per annum at the tap. As noted in the preceding article on the efficiency of summertime hot water production (page 2), the consumption of delivered and primary energy will depend on the fuel used, and on the characteristics, including the insulation, of the water heating system. For a reasonably well-insulated system annual average primary energy consumption is between 20 and 45 GJ per household.

A proportion of the heat delivered in the water to the point of use is eventually lost to the drains. The actual heat content of dumped water will vary for the type of use, ie high for clothes washing and dish-washing machines, but probably lower for baths and wash basins. It is reasonable, however, to assume that at least half of the heat delivered at the tap eventually finds its way to the drains and presents a possible field for heat recovery.

Two types of method may be employed – a passive method using a heat exchanger and an active method using a heat pump. In the former the outgoing hot water is passed through a heat exchanger and transfers heat to the water supplying the hot water cylinder. Work is being carried out on this system in conjunction with research on water economy, but this article deals with the system based on the use of a heat pump.

System arrangement

Figure 1 shows the general layout of the system. After use, waste hot water, instead of being transferred direct to the drain, is temporarily collected in an insulated tank. This contains the evaporator coil of a heat pump. The compressor and condenser coil are mounted in the conventional hot water cylinder, which also contains a conventional method of water heating, probably an immersion heater or a calorifier coil from the central heating system. The system is controlled by two thermostats, situated in the storage cylinder and the collector tank. If the hot water cylinder thermostat calls for heat, this is preferentially supplied by operation of the heat pump transferring heat from the collector tank. This continues until either the cylinder thermostat is satisfied, or the thermostat in the collector tank indicates that the temperature of the collector tank has been reduced to a preset level. This level is necessary to prevent freezing of the water and will depend on the characteristics of the heat pump and its operating refrigerant.

System performance

The performance of the system will depend on a large number of variables:

a) heat pump coefficient of performance (COP); compressor rating; operating temperatures

b) cylinder and collector tank sizes and standing losses

c) pattern of hot water consumption; heat lost at point of use and in pipes to collector tank.

In order to examine the sensitivity to these variables of both energy consumption and the ability to meet the demand, a theoretical model is being set up, complemented by laboratory measurements on real systems.

To assess its feasibility in a complete system this method of waste water heat recovery has been installed in the BRE low energy house laboratories. Because the compressor heat losses are retained in the storage cylinder, overall performance of the heat pump shows high COPs, reaching values over 4.0 for small differences in temperature between cylinder and collector tank. Figure 2 shows the results of initial trials obtained by maintaining average temperatures in each tank at a constant value. Preliminary simulation results using these values as a basis for the heat pump performance indicate overall savings in primary energy consumption of between 30 and 40 per cent with ancillary heating by electricity, and 70 to 80 per cent with ancillary heating by gas.

Research is continuing with the aim of optimizing the system, and solving practical problems associated with development, including possible fouling of the heat exchanger by waste material contained in the water. Complementary work will be carried out on the stratification of water in both the cylinder and collector tank in order to reduce the average temperature across which the heat pump operates.


Figure 1 Schematic arrangement of heat-pump based system for heat recovery from domestic hot water

Figure 2 Overall performance of the heat pump in initial trials of the system

Table 1

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<th>Difference in temperature between cylinder and collector tank, °C</th>
<th>Overall coefficient of performance</th>
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<tr>
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<td>6</td>
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Figure 2 Overall performance of the heat pump in initial trials of the system
Long Nose Pliers from Vise-Grip

Petersen Manufacturing Co. Inc. USA announce the introduction of the 9LN longer and stronger long nose locking pliers. Like its sister the 6LN launched in 1980, the 9LN (9” overall length) will fit into a large number of tight, seemingly inaccessible places, but this latest tool will bring more muscle to the heavy duty task. Jaw will accommodate up to 3” at tip and 1 3/4” at base. Made from heat-treated high carbon and alloy steel, the tool is designed for years of trouble free service. For further information contact Vincent Maher of Pace Marketing Ltd., 1 Belvedere Court, Dublin 1, (Tel: 01-749010).

Irish Designed Heat Pump from GSP

A new Irish designed heating system, which has the potential to achieve significant savings in energy usage in business and domestic application, was recently launched on the Irish market following the conclusion of more than eighteen months research and development by a Co. Monaghan company.

In line with its policy of diversification and consolidation of business, General Steel Products Ltd. of Carrickmacross, a member of the Kingscourt Construction Group, last year undertook the development and commercialisation of heat pumps for domestic and industrial use. The development, which was supported by the IDA, has already resulted in the creation of jobs for six people.

The General Steel heat pump, which is sold under the brand name ‘Thermalec’, is the first domestic heat pump to be manufactured in Ireland. It is based on the principle of extracting heat from a low temperature source and upgrading it to a high temperature. This heat is then usefully employed in a radiator type heating system. This technology has been applied for a number of years in the US for air conditioning and water heating purposes. Recent developments in the technology related to these

ITT Regions Integrated Control Panel

Ease of installation and operation are the key advantages associated with ITT Reznor’s new single heater control panel. The Reznor Remote Control Panel brings together individual Reznor controls, such as time switch, room thermostat and night setback stat, all of which have been available as separate units for some time.

The new panel is attractively designed, and can be wired up and ready to operate within minutes. It’s 150mm width allows it to be mounted vertically on an RSJ without overhang, a long-awaited design feature in control panels.

A ‘summer setting’ ventilation switch isolates the gas control system, allowing air circulation without heat. The fan is controlled by the time switch, ensuring that energy is not wasted when the building is not occupied. The thermostat is tamper-proof, unless the cover is removed, and normal temperature response is ensured by adequate ventilation at the higher temperatures. To guard against frost damage, a night setback thermostat is incorporated, which will override the time switch if temperatures drop below a pre-set level, the minimum setting being 0 degrees centigrade. There is also provision for wiring a remote frost thermostat if required.

The General Steel Products new heat pump, the Thermalec.
NEW PRODUCTS

systems have come from Germany.

The 'Thermalec' heat pump incorporates some unique features which have been patented and which lead to greater efficiency and economy, thereby making the system suitable for domestic heating purposes. While the purchase cost of a unit suitable for a modern three bedroom house (at about £1,500 per unit) is comparable with an oil fired system, the 'Thermalec' heat pump produces, on average, the heat equivalent of 2.5 Kilowatts for each 1 Kilowatt of electrical power used. The system is also particularly economical when applied to heating large quantities of water on an overnight basis as, for example, in swimming pools, hotels and other catering establishments, making it a worthwhile system to investigate for installation in many businesses.

General Steel Products Ltd. was formed in 1976 and is a wholly owned subsidiary of the Kingscourt Construction Group. It employs 75 people in Carrickmacross. The successful addition of the heat pump to the company's products is the fifth successful development project undertaken by General Steel.

Strinex Heat Siphon

A new product in the growing energy saving and conservation market has been announced by C & F Ltd of Glenside Industrial Estate, Palmestown. Called Strinex, it claims to be the most effective method of reducing heating overheads with a saving of 20% and more when one installs a Strinex Heat Siphon.

Manufactured by Telford Tools and Equipment Ltd of Shropshire, the Strinex heat siphon uses the proven Destratification method, whereby the warm air is redirected to floor level, where it is more efficiently used and temperatures are significantly reduced, giving a reduction of 2 F which equates to anything up to 4% in energy saving.

In a typical industrial or commercial building the temperature at ceiling level is 15 to 20 F higher than at ground level. Some 75% of the heat loss in such a building occurs at ceiling level and the higher the temperature of the air, the greater the loss.

Consequently, the Strinex Heat Siphon returns the warm air from ceiling to floor level, thus creating a natural convection flow. Hence floor to ceiling temperature differentials can be cut by 10 to 15 F to give the 20% saving in overall heating costs as previously mentioned.

Sizeable Cost Savings:

This re-cycling of warm air can save a company as much as 20% in its annual heating bills. However the actual saving would depend upon size of plant, window space, location plus other variables.

Strinex is most economical to install, it is inexpensive to run and maintain, in fact, it only costs rather less than a normal 75 watt light bulb to operate. The secret to the principle of Strinex is its continual operation.

Mather & Platt Launch New Unit Heater

Mather + Platt have now successfully launched the new Thermolier unit heater, embodying all the famous Thermolier features plus increased output due to improved aerodynamics making them better value than ever before.

The new attractive red casing is enhanced by black trim and the Strinex heat exchangers and a range of specially designed Offshore heaters. A free design service is offered.

Mather & Platt (Ireland) Ltd, Stillorgan Industrial Park, Stillorgan, Co. Dublin, (Tel: Dublin 952301/952041/952078).

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A practical and realistic illustration of the Strinex Heat Siphon is that in most installations this unit will de-stratify some 2,000 sq. ft. of floor space. To achieve maximum efficiency the Heat Siphons are positioned at equidistant points throughout the building.

Full technical information plus literature are readily available from C & F Ltd, Glenside Industrial Estate, Palmerstown, to contact please phone 264898 or 264917.

**AAF Modular Air Handling System**

The talents of engineers throughout Europe and the United States have combined to achieve one of the best air handling systems in the world.

The new system, from one of the leading manufacturers, is to be known as the AAF Easdale Air Handling System. Developed in modular form at Cramlington, Northumberland, the smooth clean lines and an energy efficient specification are forecast to meet the needs of the UK, European and Middle East markets for the next 10 years.

Each module features a corrosion resistant finish and double skinned panel with a rigid insulation permanently bonded to the inside of the two sheet steel skins. A choice of either forward or backward curved aerofoil fan is available to suit static pressures up to 2500 Pa. Internally located motor and drive components are a standard feature, but external mounting is available as an option for hospitals, laboratories and other similar applications.

Fourteen sizes ranging from 0.3 to 39 cubic metres per second air volume are available at competitive prices for air conditioning, heating and ventilation. The format and construction of the all-welded penta post frame modules enables the different components such as dampers, coils, humidifiers and filters to be quickly assembled and arranged to make the most of limited plant room space without restricting access for inspection and servicing.

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**NEW PRODUCTS**

A mixing box, panel filters, heating and cooling coils and fan section are included in the new size 5 AAF Easdale air handling system.

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IRISH INSTANTOR® – Full range of over 300 Couplings for connecting copper and polythene tubes. Made in Ireland since 1934. Solid, reliable and backed by first class service. New bright and shining finish, easy to identify as the market leader. The Irish Instantor® range complies with the Irish Standard Specification for Compression fittings issued by the Institute for Industrial Research & Standards I.S. 239: 1980. We are the Top Brass. Irish Instantor® – Meigiri na hÉireann.

Sanbra Fyffe

Everything On Tap For Plumbers.
Hot Water Systems for Bungalows

For general use the normal cylinder system provides satisfactory results and is free from danger. Its installation in the average two-storied dwellinghouse presents little difficulty as it is usual to put the cylinder on the upper floor, thereby having a straight run for the circulation pipes from the boiler on the ground floor.

When, however, we come to the bungalow we have to meet a totally different situation. Here may have the boiler grate in the livingroom and across the hall way or corridor the bathroom with its cylinder. The problem then arises as to how we will run the flow and return pipes from boiler to cylinder so that satisfactory circulation will take place. There are several ways of overcoming this difficulty, but the design illustrated in Fig. 1 will give very good results.

When installing this system, and indeed all bungalow systems, the first point to keep in mind is to try and increase the static head. This is usually done by raising the store tank as high as possible in the roof space. A point to watch here is that a normal tank of, say, 50 gallons capacity, will weigh when filled about 500 lbs. — nearly 1/4 ton — so that substantial support must be provided, otherwise trouble can be expected!

The next point to watch, and it is of primary importance, is to keep the centre line of the cylinder at least 2 ft. higher than the boiler centre line, otherwise poor circulation will result.

It will be seen from the sketch that the circulation pipes rise from the boiler into the roof space and are fitted with open vents on each pipe. From the tee connections (sweep tees) the pipes will continue in a gradual fall and then drop to the cylinder.

It is recommended that these circulation pipes be not less than 1 in. diameter so as to reduce friction loss to a minimum. The vents, if desired, can be reduced to 3/4 in. bore.

With this system it is very important to insulate all pipes in the roof space, otherwise heat-loss will be very high. This may be done by wrapping with sectional or wrap insulation taking particular care that no gaps are left, especially at bends, etc.

In a job of this type, where static head is low, another very important point arises with the provision of draw-offs to fittings. Due to the low pressure involved, the main draw-off pipe should always be taken from the vent pipe at a point as close to the crown of the cylinder as possible, even if it should mean that the draw-off has to be raised to a higher level further on.

On the other hand, should the branch be taken off near ceiling level it will be found that the flow from the hot taps will be very erratic — mainly consisting of a mixture of water and air bubbles. The lower draw-off connection will prevent this sucking in of air from the open expansion pipe.

This design has proved very satisfactory in many jobs, and where installed properly with correct pipe sizes as recommended, will give a 40°F temperature drop between flow and return, so ensuring brisk circulation.

Another variation of the cylinder system for bungalow installation is shown in Fig. 2. Here we have the flow pipe rising into the roof space and vented over the store tank. It then drops and connects to the cylinder at the crown. From the lower connection on the cylinder the return drops below
PRODUCT REVIEW: PLUMBING EQUIPMENT

floor level and then gradually rises to the boiler.

Draw-off branches will also be taken off as near the
crown of the cylinder
as possible in order to give
a good flow of water from the
hot taps.

As in the previous
system, 1 in. diameter flow
return and cold feed pipes are
necessary for satisfactory
results. Pipes under the floor and in the
roof space should be
insulated as already
mentioned.

A problem which
occasionally arises with
this type of design is for
reverse circulation to take
place, particularly when
the water is just beginning
to heat. This defect may
rectify itself when the
water becomes warmer or
when someone opens a hot
water tap, the change of
circulation being
accompanied sometimes by
a loud rumbling noise, but
is not, however,
dangerous.

The reason why this
reversal of circulation may
occur is due to the fact
that the heated water in
the boiler tends to take
the shortest route to the
cylinder, and in a
bungalow layout of this
type mentioned, this may
well prove to be the return
pipe under the floor.

Some contractors
attempt to prevent or
rectify this by fitting a
non-return or one-way
valve on the pipe going to
the boiler, but this should
always be avoided as it
may become jammed with
dirt, etc., and so prove
dangerous.

A much better plan is to
arrange the pipe layout so
that the flow pipe is, if
anything, slightly shorter
than the return and that all
bends on it are of easy
sweep.

In a system such as Fig.
2 this shortening of the
flow pipe may be done by
raising the cylinder to a
higher level.

In the systems already
described it was assumed
that the bungalow dwelling
had a pitched roof, so
allowing for easy installation of the storage
tank and circulation pipes,
but what if the dwelling
has a flat roof, and the
cylinder is in a bathroom
on the opposite side of a
hallway from the boiler.

This is a most difficult
installation from any point
of view. The tank could,
by course, be placed on the
flat roof, but this is not
good practice as it is out in
the open and even if well
insulated, may in time,
through neglect, become a
potential frost victim.

From the architectural
viewpoint it is also a bad
job as the tank on the roof
makes the building look
unsightly.

It is usual, in most
cases, to put the tank
inside and as close to the
ceiling as possible
(allowing for ball-cock
repairs).

The cylinder will have
to be placed near to it in
as Fig. 3. The circulation
pipes cannot be run at
celling level as they would
be over the water line in
the tank, so we have no
alternative but to run them
under the floor.

From the drawing it will
be seen that this leads to a
trapped circulation, and so
provision must be made
for air release from the
boiler. If at all possible,
this should be an open
vent of ½ in. bore running
up to project over the
roof, but if this is not
possible, an air release
valve such as made
by Spirax etc., must be
used.

It is also advisable to fit
a good quality safety or
pressure-relief valve on the
flow pipe as near the
boiler as possible.

As the head pressure in
this job will be very low,
and as circulation will tend
to be sluggish, especially
when the fire is started in
the morning, it is strongly
recommended that ¼ in.
diameter pipes be installed
for the flow and return
circuits and 1 in. for the
cold feed from the store
tank.

As in previous systems,
the draw-off to the
hot-water taps need special
attention so that prevent
air being drawn in when
the taps are opened.

Again, the connection
should be taken from the
outlet at the crown of the
cylinder, or in this
particular case, it would be
even better to take it at a
point about 6 in. down
from the top rim of the
cylinder, using, if
necessary, a Coleman’s
connection if a boss is not
already fitted.

With a system of this
type it is sometimes
suggested that a pump be
fitted on the return pipe to
assist circulation. This is
quite feasible and the pipe
size could then be reduced
by ½ in. or even less, but
should pump failure occur,
it would be necessary to
draw the fire as gravity
circulation would be very
poor or even non-existent.

It is recommended,
however, that a pump be
only installed if all other
means of obtaining
circulation have proved
useless.

The following notes are
based on material submitted
by the companies concerned.

Manning &
Usher

The bi-annual M & U
exhibitions were held in
the Burlington Hotel
Dublin and Jury’s Hotel,
Cork, on October 4th and
6th respectively.

The show was designed to
show the vast range of
Peglers brassware products
and Royal Doulton
bathrooms: the motto of
Peglers was area sales
manager Michael Cutler
and Fireclay manager
Tony Fish. It was good to
see Harold Manning back in
form again too.

Manning & Usher were
delighted with both
attendance and outcome of
the shows. “The costs
have certainly jumped over
two years ago” said Mike
Usher, “but we have made
a commitment to be
present in the trade and the
turnover and orders
taken have justified the
show. Despite cutbacks
and recessions we have
shown our customers that
we are ready and able to
supply quality products
quickly and efficiently. In
these times these are the
very important business
criteria. The poster at the
door said — Peglers and
Doultons for quality —
Manning & Usher for
service. We intended to
keep it that way.”

Sanbra Fyffe

Sanbra Fyffe introduced
“Eirline” to the building
merchants last year. This is
a range of chromium
plated plumbers brassware
Faster assembly with fewer fittings and less wastage. That's what Terrain plastics soil, waste and trap systems offer.

With Terrain, you can build a complete soil stack with as few as six fittings, saving you time and effort. While our prefabricated stacks go up even faster. Thanks to Terrain solvent weld, joints are clean and strong. They stay that way, too.

Terrain also saves on breakages with easy-stacking plain ended pipes. And you can use the off cuts.

So if you're looking for soil and waste systems that give you all the advantages, choose ours. They're every bit as good as Terrain rainwater and underground systems.

Unidare Limited, Finglas, Dublin 11.
Telephone 771801 for technical advice

UNIDARE TERRAIN
SOIL WASTE RAINWATER UNDERGROUND
Systems for Professionals.

Published by ARROW@DIT, 1982
including basin and bath sink taps and bath showers and sink mixers. The fittings are manufactured in accordance with BS 5412 and in view of this the quality and durability of the chromium plating is the best obtainable. The range is also guaranteed for a long life of trouble free service. The "Eirline" range is moderately priced and competes in every way with imported fittings.

Irish Instantor Compression Couplings which are manufactured by Sanbra Fyffe in Santry were first introduced to Ireland nearly 50 years ago and down through the years they have fulfilled the exacting requirements of the plumbing and heating industries. They are manufactured strictly in accordance with I.S. 239 1980 which is the standard laid down by the Institute for Industrial Research & Standards. As well as this the Institute's scheme of inspection and control Sanbra Fyffe have been issued with a licence to use the standard mark on the fittings as well as literature and this will be a further assurance that the couplings are guaranteed and are the best available. Also comparing the ease of Irish Instantor joint making with solder joints no special preparation of pipework is necessary. They are simple to install, no blow lamps, solder, flux etc. needed, only two spanners and finally there is no risk of toxicity, a problem which has been well covered in the U.K. trade papers where solder joints are very common, as the Irish Instantor is a mechanical joint.

**Unidare**

The Unidare-Terrain soil system has stress-free solvent-welded joints to give an strong, stable structure requiring less supports than other systems. Seal-ring joints are only used to accommodate normal expansion, thus resulting in fewer joints and fittings. Both these advantages mean faster and easier installation. A close coupling bend makes the system ideal for installations where space is at a premium, and Unidare-Terrain can supply either components for site assembly or prefabricate purpose-built stacks in the factory. Further details from Unidare Ltd., Finglas, Dublin 11, (Tel: 771801).

**Hevac**

Since Hevac Ltd., in conjunction with M/S. Triflow Ltd., Redditch, introduced solder ring capillary fittings suitable for Irish copper sizes they have proved to be of tremendous benefit to the heating and plumbing trade in this country. Capillary fittings have, of course, been used in Britain and most other countries for many years, in fact in Britain five capillary fittings are sold for every one Compression fitting. Prior to the availability of this particular fitting the only possibility to use capillary fittings in Ireland necessitated that imported UK metric size tubes had to be used.

During this current recession when Government bodies and the building trade in particular are searching for ways to reduce the cost of construction without a resultant drop in quality, the use of capillary fittings would appear to provide the ideal answer.

By providing fittings suitable for Irish copper sizes Hevac have given the heating and plumbing trade an opportunity to purchase copper of Irish manufacture and still use capillary fittings. The fittings have been tested and approved some nine months ago by the IIRS as being suitable for use with Irish size copper tube (IS 238:1980).

Further information from: Hevac Ltd., Lister Complex, Ballymount Road, Co. Dublin, Telephone 519411 or our Cork warehouse and office at 021-500166.

**Marley Plumbing**

Following the successful launch of their Irish designed and manufactured Universal Gully, Marley Plumbing have now perfected an integral "O"-ring socketed PVC sewer and soil pipe. By eliminating the need for a separate coupler the new Marley pipe is quicker and easier to install and therefore more economical in use. Lengths of the integral socketed Marley pipe are simply and permanently connected to each other with the aid of a rubber "O"-ring seal built into the cleverly designed coupling end of each section.

The 110mm (4") diameter pipe is made in 6m lengths for sewer systems and in 2½m, 3m and 4m lengths for soil systems. Developed by Marley, the new pipe is being manufactured at the company's extensive plant in Lucan, Co. Dublin.

Marley customers can make further savings by using some of the new fittings which have been added to the already extensive range. These include single and double "O"-ring 135° bends for soil and sewer systems and off-set bends for external soil stack installations. These new additions complement the existing range of PVC fittings.
Capillary Fittings
for Irish Copper Sizes

Full range of Triflow solder ring fittings from ½" to 1" manufactured specially for Irish copper tube. Available through most merchanting outlets on a country wide basis.

Metric Fittings
Also available from Hevac Ltd. is the full range of end-feed and solder-ring metric fittings for use with copper tube to BS 2871 and stainless steel tube to BS 4127. Manufactured to BS 864 part II in a range of sizes from 6mm to 54mm.

Extensive stocks held at our Dublin and Cork Warehouses.

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Cork: Tel: 021-500166.
PRODUCT REVIEW: PLUMBING EQUIPMENT

available from Marley. A new size in cable ducting, 100mm, will also reduce cost to the consumer by about 10%. This is further evidence of Marley enterprise at a time of rising material and other costs.

Ever conscious of the demand for maintenance free building products, Marley have added a new dry verge system to their existing PVC facia, soffit and bargeboard system. An illustrated brochure covering the new products, folded in A4 size, which will form a useful 17” x 23” wall chart when opened out, is available from Marley Flooring & Pluming Ltd., Laraghcon, Lucan, Co. Dublin.

IMI Yorkshire Imperial

All the Yorkshire range of copper tube products carry a rose symbol on the packaging, from the polythene sheathed Kuterlex and Kuterlex Plus varieties, to the uncoated traditional types. Kuterlex plain sheathed tube is available in colours to identify drinking water (green), hot water (white), or gas service pipes (yellow ochre), whilst Kuterlex Plus is the newest development featuring an internally crenellated polythene sheath. Manufactured only in white finish, the sheathing on Kuterlex Plus effectively cushions tube against bumps and protects the copper from any aggressive elements present when pipework is installed underground or under concrete screed. When so buried, the improved insulation properties of Kuterlex Plus are significant.

Kuterlex products offer several advantages in new building or home improvement work, greatly reducing condensation problems on exposed pipework and providing a maintenance free finish which required no decoration. Making joints is simply achieved, by stripping back the sheathing to expose the copper, using a fitting in the normal manner and then unfurling the sheathing and taping over it.

The system of classifying tube types in “Tables” facilitates selection of the correct tube specification to meet the application. Here is a quick guide to “Yorkshire” plain unsheathed products under these headings; full technical details are available direct from the company. Kuterlex versions of all classifications except Table “Z” are available.

Table W — covers microbore/minibore small diameter tubing which is specifically designed to cope with the high water speed of central heating systems. It also gives plumbers greater flexibility in concealing pipes between radiators. Microbore/minibore is available in soft temper coils of 6mm, 8mm and 10mm diameter. Microbore/minibore tube of 12mm diameter can be obtained under Table “Y” classification.

Table X - the most popular and versatile of the copper tubes — is rigid, yet light and malleable, and suitable for all above ground installations, ranging from hot and cold water, gas sanitation and heating tasks to numerous general engineering applications.

Table Y — a thicker gauge available in half hard or, more commonly, the annealed soft state — an ideal tubing for underground hot and cold water services, gas sanitation, radiant and underfloor heating systems. Fifty metre coils are available to aid rapid and economic installation of lengthy underground runs. IMI Yorkshire Imperial’s Kuterlon is widely used for this type of work. Microbore/minibore tube of 12mm diameter is also within the Table Y classification.

Table Z — tubing is hard drawn and will not bend which makes it an ideal choice for above ground installation, such as long straight runs in multi-storey buildings.

More economical than Table X and Y tubing because of its thinner walls, it is suitable for central heating and domestic water supply systems above ground.

IMI Yorkshire Imperial products are widely available in Ireland.
HYDRAULIC BALANCING

Balancing a multi-circuit hot water heating system or chilled water distribution system can be a costly and time-consuming exercise if the commissioning engineers responsible continue to use the old method of applying heat and attempting to regulate the various sub-circuits of a system until all the return temperatures are equalised.

Far better to adopt the hydraulic balancing system, developed by the UK Department of the Environment, and to introduce orifice valves and double regulating valves. The method is based on the principle that heat output can be related to the volume of water flowing in a circuit and so be regulated without using heat. The valves are used to measure and regulate the mass flow of water in each circuit, thus saving a great deal of time and thermal energy by not having to wait until return temperatures stabilise following each adjustment of the regulating valve.

The hydraulic balancing method

In a multi-circuit water distribution system the valves normally used for isolating purposes become the calibrating units. The isolating valves normally fitted in the flow line is used as a fixed orifice valve for measuring purposes and the isolating valve in the return line becomes the regulator. IMI Bailey Birkett Limited, specialists in valves for heating systems, manufacture a wide range of orifice and double regulating valves which are ideal for calibrating purposes. The orifice valve is fitted with suitable pressure plugs to which a portable manometer is attached. The pressure drop measured across the valve can be converted into mass flow rate by reference to suitable flow charts. It is important that the pressure drop is sufficient to register a measurable reading, but is not so large as to create any marked resistance to flow.

Having established the desired mass flow, the required pressure drop across the orifice valve can be adjusted by means of the double regulating valve fitted in the return circuit. The double regulating valve is then locked at the set point by means of the locking device. This allows the valve to be closed for isolating purposes and restored to its original setting when re-opened.

The orifice valve is normally used in the fully open position but can also be used for isolating purposes. To reduce the effect of turbulence on the pressure signals to the manometer both valves should be installed in a straight length of pipe equal to a minimum of ten pipe diameters upstream and five pipe diameters downstream of each valve.
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Et al.: H & V News

Published by ARROW@DIT, 1982
The Z-lock of Crown Pipe Insulation proves yet again that the best always has a distinction that sets it apart from the ordinary—because this unique heat-saving joint gives the Fibreglass product a better performance than any comparable pipe insulation. Thermographic photographs demonstrate the superiority of the interlocking closure—cut with a surgeon’s precision through wall thicknesses of 50 mm to 100 mm—over the usual straight edges.

And yet even if Crown Pipe Insulation did not have the Z-lock it would still stand out from the crowd. Smooth, firm surfaces; easy to cut and fit; a shot-free finish; 1200 mm lengths; snap-on fitting; plain, canvas or Class ‘O’ facings; the choice of 263 sizes—all these combine to give Fibreglass Crown Pipe Insulation the edge over all other lagging. Which insulation specifiers haven’t been slow to recognise.

In its first few months Crown Pipe Insulation was used on 1,000 miles of pipes. Which is a very practical way of supporting the claim that Crown Pipe Insulation is—and has—a cut above the rest.

Fibreglass Limited,
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A cut above the rest.

CROWN PIPE INSULATION