
CONTACT
October 1968
Beauty on Parade
(see Page 198)

THE GIRL FROM MANWEB

OUR COVER PICTURE shows some of the young ladies from Head Office who are eligible to enter for our "Girl from MANWEB" Competition. Any one of these could walk off with the **£50** first prize or the **£20** second prize or even the **£10** third prize.

How about the girls in your Area or District? Have you any winners? Please hurry with your entries as time is getting short, even though we have extended the **closing date to November 25th.**

So come on you sponsors, it's up to you—get the pictures and send the entries to *The Editor, "Contact", MANWEB, Head Office, Love Lane, Liverpool L3, 7DE.*

This year, the preliminary judging will be done in the Areas with **TWO** girls being selected from each of our three Areas and **ONE** coming from Head office. The finalists will then come to Liverpool when **"The Girl from MANWEB—1969"** will be chosen. There will of course be the second and third prizewinners and the losing finalists will be presented with beauty boxes as consolation prizes.

Hurry! Hurry!! Hurry!!!

Last date for entries—November 25th.

Girls from Area 1—Mr. Tom Donald of the Meter Test Department at Lister Drive (Tel. 97:705) who is also the Chairman of the MANWEB Photographic Society has offered to take your photographs to enter for the competition. Don't miss this opportunity.

For the rest—if you have any difficulty in getting your picture taken, please contact The Editor at Head Office.

GOES ELECTRIC

Mr. Thomas Dean, aged 36, has recently taken over the post as Assistant Chief Commercial Officer (Marketing Manager) at Head Office.

Born and educated in Gateshead, Mr. Dean began his business career in 1952 in sales and marketing. He has visited overseas markets in Europe and in Africa. He now comes to MANWEB from the Northern Gas Board.

He is married and has a twelve-year-old son. He enjoys yachting as a pastime.

Mr. T. Dean

MANWEB/NORWEB CO-OPERATION

Our Display Department have recently produced a very neat poster strip advertising a Christmas Hamper free gift offer by the North Western Electricity Board.

The man mainly responsible for this excellent work is Mr. Rex Edwards, an assistant silk-screen operator.

WANTED

Boy's Bicycle—suitable for nine-year-old.

Please contact:

Mr. J. Smith, Drawing Office, Hatton Garden, Liverpool.

ENGAGEMENT

Best wishes for the future to Mr. Roger Stewart Glover, a student engineer with the Board, and Miss Jennifer Anne Green, a Drawing Office assistant at Sandiway, who recently announced their engagement.

WEDDINGS

ROBERTS—JONES

Mr. and Mrs. Roberts

We offer our best wishes for the future to Miss Elaine Jones, a clerk in the Meter and Test Dept., at Legacy on the occasion of her recent marriage to Mr. Gerald Roberts of Gwersyllt.

CLAYTON—CALDOW

Congratulations to Mr. Michael Clayton, an assistant consumers' engineer in the Liverpool South District and Miss Judith Caldow, who were married recently at St. Peter's Church, Heswall.

Manweb

THE STAFF MAGAZINE OF THE MERSEYSIDE AND NORTH WALES ELECTRICITY BOARD

CONTACT

Vol. 20 No. 10 OCTOBER 1968

On other pages . . .

Editorial Staff
Keith Baldwin
John F. Perry
Sam Doughty

EDITORIAL

Outlook - Bright!

HEARTENING NEWS and forecast from the Press Conferences at which the Annual Report and Accounts of the Electricity Supply Industry have been presented by Board Chairmen! (The comments of our own Chairman are outlined on page 200).

The situations facing all Boards are not, of course, identical. Factors such as the economic health of the areas in which they operate, the existence of uneconomic rural areas, and even climatic conditions from year to year, all affect the trading results at the year's end.

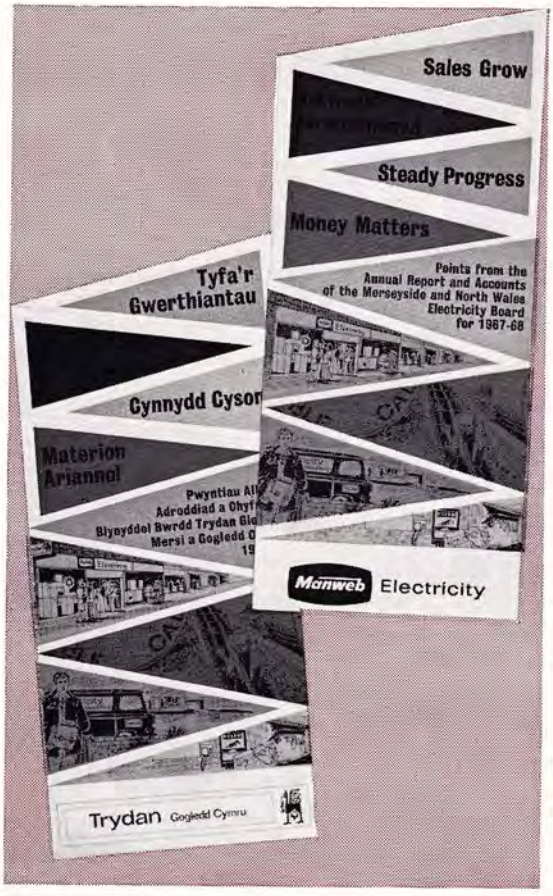
But despite these variations, a clear overall pattern of development can be seen for British electricity. Sales of units show an encouraging revival, though they have not yet regained the surging level of expansion of a few years ago. Appliance sales have reached new peaks which must gladden the hearts of our commercial colleagues. And, perhaps most important of all (a reassuring factor which was badly needed) our generating capacity and transmission and distribution systems are now, for all practical purposes, cast-iron in their reliability.

In forecasting the possibility of cheaper power, our industry's leaders point to various favourable pre-disposing factors. They also outline certain necessary conditions, and probably the most important of these provisos is control of inflation—a problem to which no-one yet seems to have found the answer.

But regardless of whether or not the actual cash price of electricity falls, one thing is certain—in five years' time electricity will be an even better buy, in relation to other goods and services, than it is today, and in this way its real price will have continued to fall.

We should never lose sight of the most important facts of all. In 1957/58 the average price per unit sold by MANWEB was 1.435d. Last year it had risen to only 1.641d. The cost of few, if

(*continued on page 201*)



Illustrated summaries of the Annual Reports and Accounts have been printed in English and Welsh, and copies have been made available to all employees, to members of local Councils and other interested bodies, and to the general public via the Board's shops.

The highlights of the year's working are as follows:—

* Sales of electricity totalled 10,743 million units—an increase of 5.7%.
* Appliance sales rose by 20%, and installation work increased by 10%.
* The total number of customers increased by 13,400 to 1,055,740.
* 525 miles of new distribution mains were commissioned.
* Capital expenditure amounted to £7.63 million—nearly £7 million of which was spent on the distribution system.
* Balance of revenue for the year was £1,505,000.

Further Outlook— — Promising

The possibility of cheaper electricity by the early nineteen-seventies was forecast by the Chairman of the Board (Mr. D. G. Dodds), when he presented the MANWEB Annual Report and Accounts for 1967-68 to a Press Conference in Liverpool on October 8th.

Outlining the conditions necessary for falling prices, Mr. Dodds said that a cheap energy policy was one of the most important spring-boards for international trade and economic good health.

The first factor which could contribute to cheaper electricity, added the Chairman, was the real advance in nuclear technology. It was proved beyond all reasonable doubt that energy from the advanced gas-cooled reactor was cheaper than that produced from coal.

The second factor arose from the economies which would be secured from the large modern coal-fired stations, with sets of up to 500 mega-watts, now under construction, and the third was the possible use of natural gas as power-station fuel.

Success would depend on a number of factors, added the Chairman. These included freedom for the electricity industry in the choice of power-station fuel, reasonable financial targets set by the Government, the same "ground rules" for electricity and gas (including comparable conditions over fuel oil tax and financial targets) and, finally, reasonable control of inflation.

In answer to questions from press representatives the Chairman said that if the level of prices of other goods and services remained stable, it should be possible to effect actual cash reductions in the price of electricity within five years. He added that he could see no reason for any increases in MANWEB tariffs during the next 12 months.

Mr. Dodds outlined the salient points of the Annual Report, and laid emphasis on the steps which the Board had taken to improve efficiency and increase productivity. He pointed out that even though MANWEB business had continued to expand, the number of employees had fallen for the fifth successive year. In 1963-64 there were 8,806 employees. By 1967-68 the figure had fallen to 7,785.

THE NATIONAL PICTURE

Presenting the Annual Reports of the Electricity Council and the Central Electricity Generating Board, in London, Sir Ronald Edwards, the Council Chairman, and Sir Stanley Brown, Chairman of the CEGB, stressed that the industry as a whole is now in a position to handle any demand likely to be made on it during the coming winter.

Sir Ronald said that generating capacity was sufficient, and that the country's distribution and transmission systems were strong. Sir Stanley added that in average cold weather the generating margin would be rather over 20%, and all demands should be met even in very bad conditions.

The reports show that, nationally, electricity sales rose by 6.4%, that sales of appliances reached record levels, and that the overall national balance of revenue was £55,000,000.

Editorial

(*continued from page 199*)

any, of the necessities of life, can have risen by so small a proportion in ten years.

Those who seek the reasons for their bigger electricity bills can find the main answer in another statistical comparison over the same period of time.

Ten years ago the average home in our Area used 1,625 units. Last year the figure was 3,520—an increase of more than 100%. These are the most conclusive and final answers to the criticisms—some justified, some sincere but misinformed, and some downright malicious—which are, from time to time, levelled at our industry and its workers.

'Contact' Correspondents

Mr. R. Slack	(*Hoylake Traintng Centre*)
Mr. P Collinson	(*Newgate St.*)
AREA 1	
Mr. H. Davies	(*Whitechapel*)
Mr. A. Cassie	(*Hatton Garden*)
Mr. N. B. Kenyon	(*Hatton Garden*)
Mrs. M. Cowle	(*Derby House*)
Mr. D. Patrick	(*Marsh Lane*)
Mr. S. W. Hill	(*Lister Drive*)
Miss V. Roberts	(*Southport*)
AREA 2/3	
Mrs. J. Findlow	(*Sealand Road*)
Mrs. E. Burke	(*Sealand Road*)
Mr. H. Hughes	(*Sealand Road*)
Mr. A. Wadcock	(*Sealand Road*)
Mrs. K. B. Knight	(*Sandiway House*)
Mr. G. E. H. Wheeler	(*Carlton St.*)
Mr. F. Kelly	(*Bridge St.*)
Mr. M. J. Caird	(*Warrington*)
Mr. G. W. Wells	(*Runcorn*)
Mr. C. P. Booth	(*Northwich*)
Mr. L. Sewell	(*New Crane St.*)
Mr. K. Jones	(*Wallasey*)
Mr. F. Gordon	(*Birkenhead*)
AREA 4	
Mr. E. J. Edwards	(*Crewe*)
Mr. W. B. Walker	(*Nantwich*)
Miss G. Baxendale	(*Sandbach*)
Mr. J. W. Forrester	(*Wrexham*)
Mr. E. Jones	(*Wrexham*)
Mr. D. Jones	(*Shotton*)
Mr. K. Heppinstall	(*Oswestry*)
Mr. W. Ll. Williams	(*Newtown*)
Mr. W. D. Morris	(*Welshpool*)
Mr. A. L. Barker	(*Whitchurch*)
Mr. D. Young	(*Prestatyn*)
Mr. I. W. Griffiths	(*Mold*)
Mr. L. Hughes	(*Llandudno*)
Mr. H. Jones	(*Colwyn Bay*)
Mr. E. Roberts	(*Caernarvon*)
Mrs. E. F. Davies	(*Bangor*)
Mr. E. Jones	(*Bethesda*)
Mr. J. B. Williams	(*Pwllheli*)
Mr. L. C. Jones	(*Llangefni*)
Mr. D. G. Thomas	(*Aberystwyth*)
Mr. D. Hughes	(*Barmouth*)
Mr. E. A. Wharton	(*Dolgellau*)

Here we have a model showing how the Board's new Administrative Centre at Sealand Road, Chester, will look when it is completed towards the end of next year. The grey buildings in the right foreground, are the present Area 2/3 Offices, and between there and the "Y"-shaped office block is the new canteen.

New Administrative Centre

Heating system arouses interest

THE construction of the Board's new Administrative Centre at Sealand Road, Chester, first announced eighteen months ago, is now under way. Enquiries from many parts of this country and further afield have shown considerable interest in the application of the principle of heating the building by making use of heat from the office lights, office machinery, and of the office workers themselves.

This building is the first in Britain and one of the first in Europe to incorporate this principle, and its construction should pave the way for widespread developments in this direction.

Conventional heating methods will not be generally employed. Instead a purpose-designed, tried and tested system, incorporating refrigerators, fans and a water circulating system for heat transfer, will use the heat made available from lights, machinery, and human bodies to maintain a comprehensive air conditioning and heating system in operation.

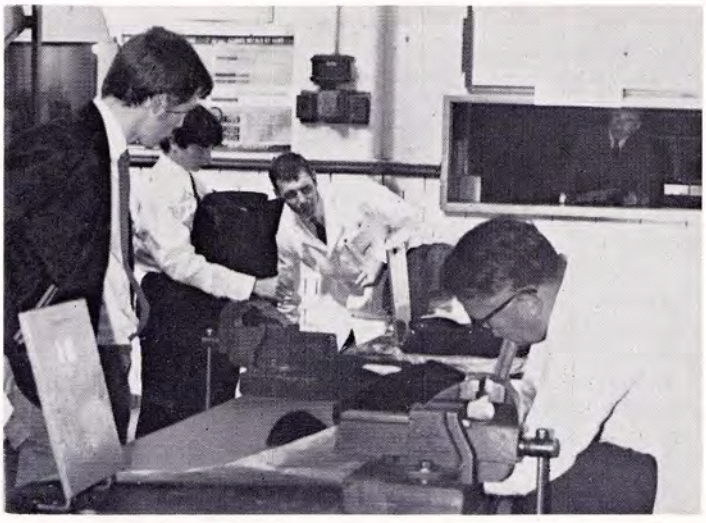
Of the available heat, about 45% will come from the overhead lights—drawn off by the circulating air. Another 40% will be converted from the energy used to operate the refrigerators and office equipment, while the remainder will come from the bodies of the people working in the building. It is planned that this system will maintain a comfort temperature of 70°F in the building while the outside temperature may be as low as seven degrees of frost. Capital costs of this system are comparable with any conventional air conditioning/heating system, while MANWEB expects the running costs to be cheaper than those using any normal fuel for heating purposes.

The removal of surplus heat from the lighting fittings by air circulation results in an increase in the efficiency of light output from the fittings—in this particular case of 13%.

The new building will be of "Y" shaped construction. All windows will be doubled glazed and they will occupy 40% of the total wall area.

Hoylake Apprentice Intake '68

Above: **Interviewing one of this year's 68 young men who recently started their careers at the Hoylake Craft Apprentice Training Centre. *From left to right:* Mr. R. Slack (principal assistant, Education and Training), Mrs. Sheila Hughes (shorthand typist) and apprentice G. V. Bailey.**



Right: **Getting kitted out. *From left to right:* Apprentices D. Hanson and R. Jones with Messrs. R. D. Jones and W. S. Evans (assistant instructors). In the hatchway is Mr. E. Parks (storekeeper).**

Below: **Signing up for the Hoylake Branch of the Y.M.C.A. *Left, from left to right:* Apprentices R. C. Davies, B. R. Holland and K. Tomlinson. *Right, from left to right:* Apprentices D. Forber, L. A. Dowthwaite, R. J. Butters and M. Wright.**

Looking over the plans for Runcorn New Town's Castlefields Housing Project. *From left to right:* **Mr. K. Appleton ("Mr. Co-ordinator"), Mr. W. Bainbridge (Senior Electrical Engineer, Development Corporation), Brigadier R. Trevor (Personal Assistant to the Development Corporation's General Manager), Mr. J. Drewe (Contracting Engineer, MANWEB) and Mr. R. G. Monk (District Commercial Engineer, MANWEB).**

MANWEB at work at Runcorn . . .

MANWEB help to build a new town

THE largest ever single contract of its kind was recently awarded to the Board when they signed for nearly £200,000 worth of electrical installation work on the Castlefields Housing Project at Runcorn New Town.

This follows the acceptance of a competitive tender by the Runcorn Development Corporation from the main contractors, Selleck Nicholls Williams (E.E.C.) Limited, to build 2,202 dwellings to accommodate some 8,000 residents at a cost of over £8 million. This is one of the largest single housing contracts ever to be awarded in Great Britain.

Sir Alfred McAlpine and Son Limited, the erection contractors for the execution of the whole of the works on the site, awarded the electrical contract to the Merseyside and North Wales Electricity Board and soon the Men from MANWEB will be working on the 309 single-storey houses, 1,393 flats in blocks of two and six storeys and 500 two-storey Runcorn-designed houses.

Already in hand, on the same estate, are 40 patio-styled houses which are being built in advance of the main scheme by the Unit Construction Company with the electrical wiring contract being carried out by MANWEB.

These homes will be wired in aluminium cable instead of the traditional copper, an experiment which if successful, should save a lot of money on future house wiring. Although this is not a very new idea, it has been tried out in other parts of the country, it is the first time for the electrical experts in this area who are trying to assess the full value and possibilities for aluminium wiring in domestic premises.

Still with money-saving in mind, the other 2,202 houses in the development will have a harness wiring system installed. This new technique involves all the wiring being pre-cut into set lengths at a factory in Shrewsbury and then packed off to MANWEB in Runcorn all ready for fitting into place in the houses. "*This is yet another way in which the Board are going all out to save time and money and to increase productivity*", said Mr. Roger Monk, MANWEB's District Commercial Engineer in the area.

At the peak of this three year contract, the Men from MANWEB will be wiring about 60 houses every week, and at the same time taking care of the street lighting which is also part of the contract. Again there will be a break with tradition in that in many places the lanterns will be mounted on the sides of the buildings with back reflectors to throw the light directly into the roadway. Where this is found impracticable, the usual street lighting columns will be used.

For the past 18 months, the Board's contracting electricians have been working on many of the advance factories being erected on the Industrial Estates, and up-to-date, contracts worth more than £40,000 have been undertaken. Firms like Irving Air-chutes GB Ltd., Sloan Engineering, Limmer and Trinidad, Sino Engineering, Churchill Machine Tools, LAM Pipework Ltd., Mercia Weavers, Doboy's Ltd. and The Aluminium Tool and Die Co. Ltd. have used the services of MANWEB.

In addition, the Board have provided electricity supplies to all the main contractors, and the

Mr. Mills at the temporary 'wagon' substation.

A GOOD IDEA!

A block of all-electric flats for the Runcorn New Town Development was almost completed when through some planning difficulty it was found that the electricity substation to feed the block would not be ready in time.

Our District Engineer, **Mr. E. Mills** *and section engineer,* **Mr. J. Worth,** *hit on the idea of using a secondhand railway goods wagon (bought for* £25*) to provide a temporary home for the transformer.*

And so, electricity supplies were provided within two days as work on the permanent substation went on. Now the wagon is available for similar types of work on other sites.

internal installation for the treatment sewage works administration block as well as a goodly share of the public lighting in the area.

MANWEB have also supplied, erected and connected "Electricaire" central heating units in 28 all-electric flats and have installed electric floor warming in the Tenant's Centre at nearby Halton Brook.

"THE CO-ORDINATOR"

The special Man from MANWEB in the Runcorn District is **Mr. Kenneth Appleton** who is known as "The Co-ordinator". Ken is the liaison man between the Board, the Development Corporation and the main contractors working on the new town.

He first joined MANWEB in 1957 at Runcorn and later moved to Warrington. He was promoted to Area Office at Sandiway House, Northwich and then to Sealand Road, Chester. At the moment he is back in Runcorn on detached duty.

He is the present Chairman of the North West Regional Group of the Junior Chamber of Commerce and last year was honoured by being elected as Junior Chamber of Commerce International Senator for the outstanding service he had given. The senatorship is the highest honour which members can receive.

Happily married with two sons, Mark, aged three and Nigel, aged six months, Ken now lives at Thelwall, Warrington. He is a keen rugby league fan and his spare time is taken up in the main with Junior Chamber of Commerce work with the odd hour or so as a home handyman.

. . . and at Wrexham

From Merseyside to the North Wales area—to Wrexham in fact where a contract worth over £25,000 has just been awarded to the Board for the supply and installation of 249 electric central heating units in houses on the new Plas Madoc Development in the parish of Ruabon.

In this first phase of the Wrexham Rural District Council's Development plan there will be 559 industrialised houses erected during the next 18 months to two years. The main contractors, Messrs. Holland and Hannon and Cubitts (North West) Limited, have built over 4,000 of this type of dwelling in various parts of the country, but this is the first time that they have had electric central heating installed.

The Wrexham Rural District Council, the largest housing authority in North Wales, previously used only solid fuel in their housing projects since coal mining is one of the basic industries in the area. However, after hearing that this new estate was to be all gas, Mr. Ron Williams, MANWEB's Wrexham District Commercial Engineer, suggested to the Council that by using "Electricaire" central heating they would in fact be using "coal by wire" and so provide continued support for the mining industry. He also pointed out that the electricity supply industry was the National Coal Board's biggest single customer.

On checking the design of all the houses, it was

found that 249 could take the "Electricaire" system and these were contracted to the Board.

And so, work is now due to start and the Men from MANWEB will be getting ready to install the "Selex" eight-kilowatt "Electricaire" units as the homes are completed. The electricity used for this form of heating will of course be at the low-priced 'off-peak' rates.

In addition to the electric central heating units, the Council are having electric water heaters installed in all of the 249 homes, and of course, with freedom of choice throughout the estate, MANWEB is looking forward to installing a great many modern electric cookers, refrigerators and other time and labour saving electrical appliances.

Side by side with this domestic development, MANWEB staff at Wrexham have been busily engaged with work on the two Industrial Estates in the District.

On the Marchweil Trading Estate, work has been going on for a number of years building up an adequate network to meet the supply demand from the industrial customers until today, the estate is unique in that in its 700 acres it has a 132/33 kV Grid substation, four 33,000 volt and twelve 11,000 volt substations and two direct feeds from the 11,000 volt high voltage network. All this adds up to a total capacity of 45 mVA.

As the local collieries close down, new industries are being quickly developed and the Men from MANWEB are always on hand, ready with advice and practical help. On the Marchweil Estate we can find such firms as The British Celanese Group (reputed as having the finest acetate factory in Europe), B.I.C.C., Messrs. Firestones Ltd., Southalls (Birmingham) Ltd., Consolidated Chemicals, a Remploy Factory, Maelor Gas Works and Erie Electronics (Wrexham) Limited.

On the Vauxhall Industrial Estate at Johnstown, which is being developed by the Wrexham Rural District Council, supply has just been connected to the first factory to go into production, Messrs. Muntz & Barwell Ltd. Five more factories are in various stages of construction and further development of the site is still under negotiation. The Wrexham R.D.C. are to provide a site canteen for the estate workers. It is envisaged that the substation capacity on this Estate will be in the region of 2.5 mVA.

"THE CO-ORDINATOR"

Mr. Leonard Davies, the contracting engineer with MANWEB's Wrexham District is "Mr. Co-ordinator" on the Plas Madoc Housing Development for the Wrexham Rural District Council.

Len, who completed forty years of working life last May, worked as an installation inspector with the Hawarden Rural District Council before joining MANWEB in 1948. He was based at Shotton prior to his move to District Office in 1963.

Married, with a thirteen year old daughter, Rona, he lives at Hawarden. He is a very keen golfer and gardener.

With the model of the Plas Madoc Housing Development before them are, *from left to right,* **Mr. D. L. Hook (site agent for Messrs. Cubitts), Mr. Basil Moreton (Chief Architect), Mr. R. A. Williams (District Commercial Engineer, MANWEB) and Mr. L. Davies (Contracting Engineer, MANWEB).**

SPORTS PAGE

Skipper Peter Roylance receives the Red Lion Cup.

FOOTBALL

Top of the league with six matches played and six won, 35 goals for and only 12 against, our Warrington District football team have certainly made a great start to their second season in the Warrington Sunday Premier Amateur League.

This success follows on their fine finish of their first season which ended last April when they carried off the Red Lion Cup. This first season trophy was won when the lads from MANWEB beat the Higher Fold Youth Club by five goals to one.

The game provided plenty of thrills and fine entertainment for the large crowd at the Warrington F.C. ground.

The victorious team was—Keith Roberts; Ron Billing, Barry Inton; Peter Roylance (capt.); Jim Potter, Brian Cartwright; Ian Baird, Tony Whiteman, Keith Robinson, Chris Hayes and Paul Kitchen. Jim Oatway was the substitute, and the scorers were Hayes 2, Kitchen 2, and Robinson 1.

The team manager is Mr. Reg. Bramhall, an installation inspector at Warrington. Reg. became a Justice of the Peace a short time ago.

GOLF

Once again, golfers from Area 4 came out on top in the Autumn Open Meeting, held at the Wrexham Golf Club a short time ago.

High scoring standards were set by many of the forty entrants in the Stableford Competition, which resulted in **Mr. Martin Lloyd** of Wrexham being a worthy winner.

The leading scores were as follows, handicaps in brackets: Messrs. E. M. Lloyd (18)-39 points; F. T. Edwards (11), Wrexham-37; J. Murray (7), Llandudno Junction-37; H. J. Hollywell (24), Newtown-37; K. Williams (13), Area 4 Office-36; S. Pugh (8), Oswestry-36; I. Evans (22), Wrexham-36 and H. B. Parsons (16), Area 2/3 Office-36.

The meeting was organised by Messrs. P. Falcon (Head Office), B. Green (Area 2/3) and K. Williams (Area 4) and proved to be most successful.

We are now looking forward to the next major competition—The Spring Open Meeting.

BOWLS

The finals of the 1968 Bowls Competition organised by the Sandiway House Sports and Social Club were staged a few weeks ago on the "green" at Sandiway House.

Following a delightful tea prepared by Mrs. M. Adams and her staff, the spectators soon settled down, among the many midges, to watch some exciting bowling matches.

First was the Men's Single for the Fareham Cup, and this was won by **Mr. W. R. Copeman** with Mr. G. Haigh as runner-up. Then followed the Ladies' Singles final, an excellent game in which **Mrs. J. Bratt** played well to beat Mrs. J. Milne and win the Henderson Rose Bowl.

The "Doubles" final turned out to be a battle between the Drawing Office and the Building Section. The latter, represented by **Messrs. H. King and J. Swarbrick** ran out winners and received the Harling Shield.

All the awards were presented by Mr. J. Fareham (Engineer, Area 2/3) and the successful evening ended with some celebrating at the 'local", while others bathed their midge bites with T.C.P.!

Messrs. King and Swarbrick in high spirits after winning the Harling Shield.

Some of the Trainees who attended the recent course at Wallasey Training Centre. *From left to right:* **Messrs. P. L. Wade, R. A. Burt, M. Williamson, K. R. Roughley, P. Baker, R. Burrows, R. Pickard and A. Bratt. Standing behind the group is Mr. W. G. D. Hood (senior assistant engineer, Head Office) who gave one of the lectures.**

Trainees "Teach-in"

A special One Week Course was held a short time ago at Wallasey when 16 trainee engineers gathered to hear a number of lectures given by members of the Board's staff. Many interesting discussions followed the lectures.

The wide range of subjects covered the operation and control of existing networks; the work of the Technical Section; the design of distribution networks in urban areas; low and medium voltage supplies and maintaining satisfactory supply conditions; purchasing procedures; the safety aspects, both electrical and mechanical; engineering management; training and supervision; transport and finally personnel and conditions of work.

An Open Forum panel comprising of Messrs. F. J. Brown (Chief Engineer), J. S. Ekbery (Assistant Chief Engineer), L. J. Scudamore (Southport District Manager) and K. L. Edmundson (Senior Assistant Engineer), brought the week to a successful conclusion.

Another group of Trainees take a break while having their photographs taken. They are, *from left to right:* **Messrs. R. Pendleton, J. M. Kelley, R. Dawson, R. C. Austin, S. J. Hargreave, C. A. Warbis, F. H. Roberts and D. Jones. Standing behind is Mr. L. T. Broughton (senior assistant, Education & Training), who helped to organise and administer the Course.**

All good men, showing keen interest," commented Mr. G. Parry, senior instructor in the cable jointing school at Hoylake on the completion of the 33-kV phase of the Student Engineers' jointing course. In our picture are some of the young men referred to—

(*left to right*)

Messrs. T. Keenan (Liverpool North),

R. A. Kelly (Runcorn),

G. Ravenscroft (Warrington),

P. D. Moray (North Wirral)

and R. Maddaford (Chester).

Student Engineers' Course

Jointing at Hoylake

"One of the best joints done by students in a long time," was the verdict of Mr. Parry after inspecting this job which was done by

(*left to right*)

Messrs. R. Appleton (Warrington),

J. E. Ashton (St. Helens),

B. B. Coyne (Liverpool North)

and P. Milne (Liverpool North).

Rhostyllen Treasure Hunters

Members and friends associated with the Area 4 Sports and Social Club gathered at Area Office a few weeks ago prior to setting off on the trail of hidden clues in an exciting treasure hunt.

The route taken covered about 20 miles of lovely local countryside and the 87 clues, cleverly devised by Messrs. D. Jones, J. A. Humphries and H. Phillips, had to be worked out.

The 23 cars eventually arrived at a hotel in Worthenbury, and the competitor occupants, carefully guarding their four packets of peanuts and the one pickled egg, went in to enjoy a well-earned supper of chicken and chips.

Later, the results were declared and the prizes presented to the following teams:

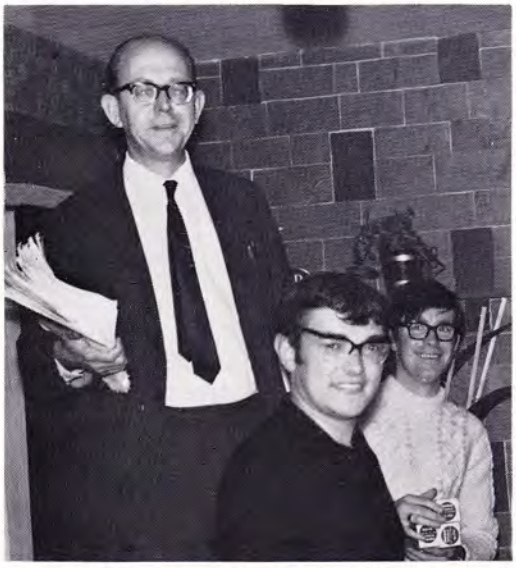
1st prize: An auto-defroster and road maps won by **Mr. Emyr Davies,** and for his companions, **Mrs. M. Davies, Miss C. M. Jones** and **Miss J. Mackie,** a set of six glasses and a torch.

2nd prize: A racing mirror, won by **Mr. E. Morris,** and a set of ash trays for his crew, **Mrs. M. Morris, Mrs. S. Owen** and **Mr. F. Owen.**

3rd prize: Torches won by **Mr. D. Ellis** (Chester), **Mrs. P. Ellis, Mr. W. Griffiths, Mrs. R. Griffiths** and **Mr. R. Williams.**

The Booby prize, which was of course a road map, went to **Mr. M. Evans** and **Mr. N. Jones,** both from Vauxhall.

Mrs. J. J. Myers, who made the presentations, was in turn presented with a bottle of sherry by Mr. J. A. Humphreys on behalf of the Sports and Social Club.



Left: **Two of the organisers, Mr. D. Jones,** *left,* **and Mr. J. A. Humphries,** *right,* **with one of the prizewinners, Mr. D. Ellis,** *centre.*
Right: **After collecting the road maps, we see Mr. M. Evans,** *left,* **and Mr. N. Jones.**

Mrs. J. J. Myers, *left,* **presenting the prizes to the winners of the Treasure Hunt, who were,** *from left to right,* **Mr. Emyr Davies, Mrs. M. Davies, Miss C. M. Jones and Miss J. Mackie.**

Visit to Brittany
Tour of Tidal Power Station

by Mr. E. BELL
District Senior Clerk
Liverpool North

EACH YEAR my wife and I, with two friends, usually rent a flat on the continent for two weeks, and as we share all costs, including car expenses a reasonably cheap holiday can be enjoyed, especially as we do our own catering. We take sufficient tea, coffee, sealed packets of bacon and ham, tins of meat, sugar, butter and margarine and other odd items of provisions and necessities to last the fortnight. We ensure that the flat is equipped with a refrigerator. It is necessary of course to purchase bread, milk, eggs, vegetables and fruit abroad but generally these items are comparatively cheap.

This year we decided we would spend our holiday in Brittany. I therefore wrote to an agency in London and on receipt of their brochure we spent many hours of deliberation before finally deciding to apply for the tenancy of a bungalow in St. Malo, which admirably suited our requirements in all respects.

St. Malo is on the Brittany coast at the mouth of the River Rance, on the other side of which is Dinard a very fashionable resort. A tidal power station has been built across the River Rance below these towns and I decided to try and obtain permission to visit the site.

A number of years ago I had the pleasure of meeting Monsieur Le Nestour of the Electricité de France at Liverpool North District, when he spent a day with me examining the administrative operation of the District.

I took advantage of the acquaintance and wrote to him at the Paris headquarters of the Electricité de France about six weeks before I was due to start my holiday and I was very disappointed when I did not receive a reply to my letter. However two days before I was due to depart my telephone rang in the office and a young lady who was obviously French by her accent said the Electricité de France in Paris was calling me. Ultimately it was arranged that I and my party should visit the Rance Dam Power Station, when a guide would be in attendance.

I appreciated that a reply to my letter had been delayed probably due to the industrial and student unrest France was experiencing at that time and I was very grateful indeed for the trouble that had been taken over the matter.

I won't bore you with a description of the journey to St. Malo except to state we travelled to Dover overnight, arrived at Boulogne about 11.30 a.m. passed through Abbeville and stayed overnight at Rouen where we spent an extremely interesting evening in that busy and beautiful city on the River Seine. The next morning we travelled on through Liseaux, Caen, Avranches and on to St. Malo.

On the day of our appointment we arrived at the Dam and there met Commander Georges. He escorted us throughout the whole of the installation and was an excellent guide being expert at giving lucid descriptions and explanations to our many questions and two hours later on departure we thanked him for his kind attention to us.

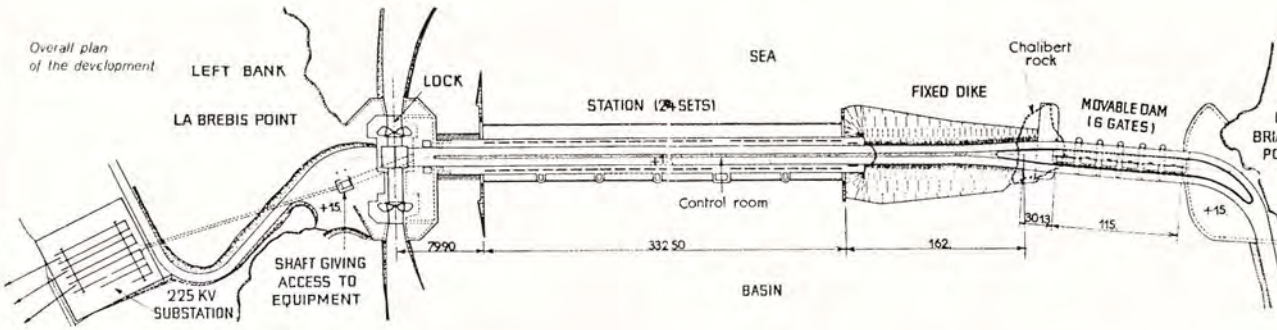
Tide Waves

The Brittany coast on the English Channel has tides which are amongst the strongest in the world. This is doubtless due in part to the barrier formed by the Contentin peninsula to the tide wave sweeping in from the Atlantic. On the River Rance estuary the difference between the level of consecutive high and low water may be as much as 55 ft. There are two high water and two low water periods in just over 24 hours and the maximum flow or ebb produces a tremendous tidal energy.

Work was commenced in 1961 to build a tidal power station, the first of its kind in the world, on the River Rance between Dinard and Saint Servan, a suburb of St. Malo, the distance across being approximately 825 yards. Most of the work was completed by 1967 and the station was commissioned in that year. A road on which the public may travel was built over the tidal station.

The first stage preparatory to constructing the dam, on which the power station was to be sited, was to erect two enclosures one at each bank of the river permitting the construction of a lock on one side for the passage of small craft, mainly sailing boats, and a movable dam on the other side. Reinforced concrete caissons (watertight cases used in laying foundations under water) were then implanted which ultimately formed a large central enclosure with the progressive closure of the spaces between the caissons. A storage reservoir was created by erecting a lock near Dinan some twelve miles up the river.

(*continued overleaf*)



Overall plan of the development:

Starting from the left bank the structures comprise a 225 kV substation which feeds on to the Grid; the lock—it is situated in the deep part of the River Rance, and is opened on the hour should traffic require to pass through; the power station (inside are installed 24 bulb sets of 10 MW the bulb sets are described later—3 transformers of 80 MVA (225 kV) and 4 travelling cranes. Each transformer, situated in a bay especially enlarged on the side towards the sea, is fed by a battery of 2 x 4 sets, 225 kV oil-insulated cables connect the transformers to the outgoing station situated on the left bank, access to the power station is by a shaft situated on the left bank and a gallery passing under the lock, and a TV. screen is installed in the Control Room to warn of approaching craft.

Next comes the fixed dike, which inter-connects the eastern end of the power station with the Chalibert rock, and finally the movable dam which is situated between the Chalibert rock and the right bank, and has six fixed roller gates.

The Bulb Sets

The Bulb Sets, as they are termed, 24 of which are installed, are composed of a metal ogee shell containing the A.C. generator and a water turbine.

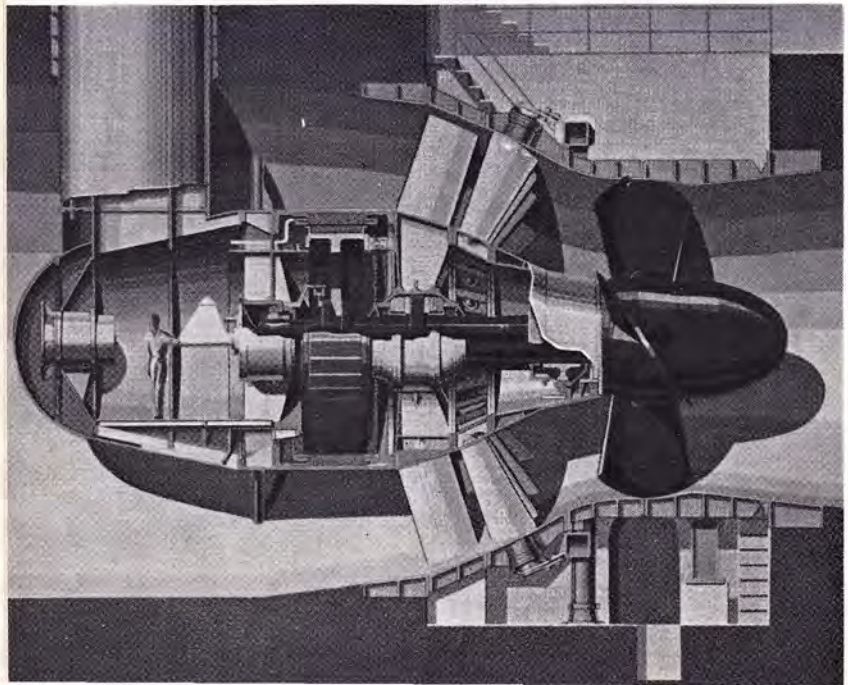
The assembly is placed in a horizontal duct, the fixed guide vanes serve as a support, and a shaft leading to the machine room gives access to the shell.

The sets are operated through sluices by the tide either as turbines or as pumps in both directions of flux.

The A.C. generator is directly coupled to the turbine which has a wheel with 4 adjustable blades and guide vanes. It has a capacity of 10 M.W. and a speed of 94 r.p.m. and runaway speed of 380 r.p.m.

Twelve bulb sets have been fitted with stainless steel blades and the other twelve with aluminium blades. It is intended to compare both types of blades in four years time for durability.

Apart from a sealer for the blade shaft, which was supplied by Morgan Refractories Ltd., Neston, Wirral, all the materials used and the entire structural, engineering and electrical work is completely French in origin and design.



A cross-section of one of the Bulb Sets in position.

OPERATION

Single way operation on emptying

On the rising tide the basin (reservoir) is filled by opening the sluices. When the tide is at full the sluices are closed and the basin is not emptied through the turbines until the ebb has created an adequate head.

This cycle can be improved by using energy available on the network during slack hours to pump sea water into the basin to raise the level and increase the volume of water available for the turbines.

Single way operation on filling

Energy is produced by passing the water through the turbines on the rising tide from the sea to the basin.

Double way operation

This is a combination of the two preceding cycles. Energy is produced during both filling and emptying of the basin.

Three/Two operation

This cycle consists of making use of two successive spring tides to pass the water three times through the turbines with two intermediate pumpings.

A selection is made of one of the four cycles best adapted to the tidal range and the amount of energy at various times of the day.

The most favourable cycle in the following circumstances is:

for small tides —repeated single way operation with pumping.
for medium tides —repeated double way operation with pumping.
for strong tides —3/2 operation with pumping.
for exceptional tides—double way operation without pumping.

We were tremendously impressed with the wonderful job that has been completed. This was vividly brought home to us when during our tour with Commander Georges we entered the equivalent of a Power Station Turbine Room. All we saw were four overhead travelling cranes—no boilers turbines or generators, and it was then we most of all appreciated how unique the project was and that the bulb sets beneath us in the River Rance were helping to produce electricity by harnessing the force created by the ebb and flow of the tides. France can justifiably feel proud of her achievement.

CEGB News

£2 million Liverpool Sub-station

The new £2 million Central Electricity Generating Board 275,000-volt indoor substation at Lister Drive, Liverpool, was commissioned a short time ago.

Work began on the new substation in 1966. It has been built in the grounds of the CEGB's Lister Drive power station alongside an existing 132,000-volt substation.

The substation is part of an £18½ million scheme to provide Greater Merseyside with a 275,000-volt "ring" and it has been engineered by the North Western Region for the CEGB's transmission project group at Guildford.

A team of engineers from the CEGB's North Mersey electrical district is now conducting installation and commissioning tests at the substation.

Mr. Norman Williams, District Electrical Engineer at North Mersey, said: "*This year has probably been the busiest for construction work we have ever had in this area. The key to all this has been Lister Drive.*

"*Changes have been made at other Merseyside substations to cater for the inclusion of Lister Drive and the result will be more secure Grid supplies in the Liverpool and Birkenhead areas.*"

There is now an enormous concentration of power at the Lister Drive site added Mr. Williams.

Links with Lister Drive

The 275,000 Kirkby substation has been connected to Lister Drive via 6¼ miles of underground cables. The other link with Lister Drive is 9½ miles of underground cable connected to Birkenhead 275kV substation, of which 2½ miles run through the lower part of the Mersey tunnel.

Power is fed into the Merseyside ring from the nuclear power stations in North Wales, the large power stations in Yorkshire, and ultimately the two million kilowatt power station at Fiddler's Ferry, near Warrington.

Two 240,000 kilowatt supergrid transformers step down the power to 132,000-volts. This electricity is then fed into the Liverpool system for transmission to the Merseyside and North Wales Electricity Board for distribution to homes and industries.

A word from installation inspector Cladge Parry, *holding papers*, **can always bring some ready wit from Fred Lloyd,** *centre foreground*, **with mains foreman Wilf Taylor,** *fourth from left*, **quick to see the humour.**
Visitor from Canada, Richard Hardy can just be seen between Fred and Cladge.

Retirements

from Mold . . .

Mr. F. LLOYD

Retiring from his job as an electrician at the Board's Mold Office was Mr. Fred Lloyd who, judging by the number of people present, was a most popular member of the staff.

Among those who had gone along to say their farewells was Richard Hardy, one of Fred's 'boys' who emigrated to Canada a couple of years ago. He was back here on holiday and heard that a *shindig* was being arranged for Fred and quite naturally, he wanted to be present. Another visitor was Eric Jones, another of the 'boys' who was on leave from Zambia.

Incidentally, both Richard and Eric say that they get "Contact" regularly and read it from cover to cover.

On behalf of these many friends, Fred was presented with a parting gift by Mr. A. T. Snook (assistant consumer's engineer).

In his retirement, Fred will be spending most of his time in the greenhouse and garden of his neat little bungalow in Mold. He will also be working in his "shed" where he has brought life to many ailing appliances for his pensioner friends.

Mr. H. BLACKWELL

A labourer in the engineer's section at Mold, Mr. Hywel Blackwell retired recently and was presented with a cheque on behalf of his friends and workmates by Mr. Keith Hackney (section engineer).

A strong contingent of our Mold staff gather outside the sub-District office to see Mr. Hackney, *centre right*, **on their behalf, present Mr. Blackwell with a parting gift. The very young lady in the picture is not on our staff, she is in fact Mr. Hackney's daughter.**

MANWEB RETIRED MEMBERS' ASSOCIATION

Outing to Southport

Over sixty members and their wives were present at the Annual General Meeting of the MANWEB Retired Members Association (Wrexham District) which was held earlier this year. During the Meeting, the following new Committee was formed:

Chairman—**Mr. H. G.** (*Buckley*) **Jones.**

Secretary—**Mr. G. O. Wynne.**

Treasurer—**Mr. John J. Myers.**

Committee—

Miss H. M. Stephens (*Vice Chairman*)—**Messrs. J. Ellis, J.** (*Meter*) **Jones, W. Thomas, E. Williams and M. Williams.**

Day Trippers

A few weeks ago, two coaches carrying 81 people, started from Wrexham early one morning to journey to Southport where a very pleasant day was spent.

All the day trippers on this occasion were from the MANWEB Retired Members Association who were joined by their families and friends.

A good time was had by all, thanks to the organisers and to the co-operation of members of our Southport District Office staff.

●

Our pictures were taken at a Southport restaurant where members of the MANWEB Retired Members' Association sat down to an enjoyable tea.

◀ *Here is a reproduction, on a smaller scale, of one of the Board's advertisements which will soon be appearing in the local newspapers.*

Sales of electric fires are booming and many of our customers are going for the "furniture finish" fires.

Clean Air Grant

Hard on the heels of this renewed popularity for electric fires, comes the news that certain models will now be eligible for a grant in smoke control areas.

Grants for electric fires were withdrawn in December, 1964 because it was feared that their use would encourage the demand for electricity at peak times when there was a shortage of capacity. Now there is ample capacity to meet all loads and the Ministry of Housing and Local Government say they are satisfied that this class of appliance no longer imposes strain on the country's electricity supply system.

Electric storage radiators using off-peak electricity have always been included in the list of appliances eligible for grant under the Clean Air Act and they will, of course, continue to do so.

Grants for direct electric space heaters up to £18 may now be approved under the Clean Air Act. In addition 'reasonably necessary' costs of removing the coal-burning appliance and installing the electric appliance qualify for grant in the usual way. Seven-tenths of the cost of the work approved by the local authority is repayable to the householder.

MANWEB GAZETTE

Welcome to . . . the following employees:

Head Office: Mrs. I. Cummings (canteen attendant), Mrs. E. Green (cleaner), Mrs. V. G. Proctor (shorthand typist), Mrs. M. Smith (cleaner), Messrs. G. T. Davies, K. Lewis (assistant storekeepers—Queensferry) and S. Taylor (junior clerk).

Area 1 Office: Miss N. Bates and Miss S. Bott (machine operators), Miss S. Godden, Miss H. Kendrick, Miss M. Lezemore, Miss G. Moon, Miss S. E. Morris, Miss B. Travis, Mrs. G. Austin, Mrs. M. Jones and Mrs. F. Laverty (clerks), R. W. Jones (clerk) and A. Rigby (telephone operator). *Central District:* Mrs. O. M. Jones (saleswoman) and Mr. R. P. Glover (clerk). *North District:* Mrs. M. L. Langford (saleswoman). *South District:* Mrs. M. Edwards (cleaner). *Southport District:* Mr. I. D. Ledson (foreman electrician).

Area 2/3 Office: Miss W. M. Davies, Miss M. Johnson, and Miss S. Jones (clerks), Mrs. J. Hulse (canteen attendant—Sandiway), and Mrs. O. A. Smith (clerk), Messrs. B. Evans and A. J. Nicholls (clerks). *St. Helens District:* Mrs. J. Leavett (Shorthand typist) and Mr. D. Barlow (clerk). *Runcorn District:* Miss L. P. Cooney (clerk). *Chester District:* Miss C. R. Lally, Miss S. Mather, and Miss R. Williams (clerks). *North Wirral District:* Mrs. I. M. Cliffe (saleswoman) Mrs. J. D. Hughes (typist), Messrs. D. J. Jump (drawing office assistant), M. R. Lysaght and K. L. T. Pratt (clerks).

Area 4 Office: Miss C. P. Griffiths, Miss H. M. Moulsdale (clerks) Miss J. E. Sankey (junior clerk), Mrs. J. M. Jones and Mr. J. C. S. Pritchard (clerks). *Wrexham District:* Miss J. A. Blezard (trainee sales demonstrator) and Mrs. J. Worth (clerk). *Clwyd District:* Miss M. E. Day (clerk), Miss C. M. Maxwell (junior typist), Miss K. W. Platt (trainee sales demonstrator) and Mrs. W. Dean (audio typist). *Conway Valley District:* Mr. P. D. Ryan (clerk). *Caernarvon District:* Miss A. W. Jones (clerk), Messrs G. Roberts (clerk) and D. A. Williams (junior clerk). *Anglesey District:* Miss E. M. Jones (audio typist) and R. W. Yeardsley, (junior clerk).

Congratulations to . . . the following employees on their promotions:

Head Office: Messrs G. Harrison, F. Owen (secretarial trainee—Legal) and D. A. Platt (principal assistant—Internal Audit).

Area 1 *Central District:* T. M. Burgum, W. Nancollis (electricians) and R. R. Rodaway (E.H.T. jointer).

Area 2/3 *St. Helens District:* Messrs J. Canning and J. Ellis (electricians). *Northwich District:* Mr. J. A. Davies (public lighting attendant). *Runcorn District:* D. W. Barnes (assistant consumers' engineer), F. D. Bedford (electrician), R. J. Cartwright (E. H. V. jointer) and A. J. Houghton (electrician).

Area 4 *Caernarvon District:* Mr. W. J. Jones (meter reader).

Farewell to . . . the following employees who have now left the service of the Board:

Head Office: Mrs. M. D. Blake (secretary/shorthand typist), Messrs. E. Hillidge (senior assistant display) E. G. Jones (principal assistant—Management Services), B. D. Little (senior assistant—Legal) F. D. Murtagh (drawing office clerk) and E. L. Weeks (trainee analyst/programmer).

Area 1 Office: Miss T. Langan (clerk) Messrs. W. H. Kirkham (electrician) and J. McGee (labourer). *Central District:* Mr. J. O'Flaherty (labourer). *North District:* Mr. M. B. Edge (clerk). *South District:* Mr. G. Bulmer (District Commercial Engineer).

Area 2/3 Office: Mr. A. Greenhalgh (assistant stores). *Northwich District:* Mr. L. Yould (assistant section engineer), *Warrington District:* Mr. A. Leah (labourer). *North Wirral District:* Mr. E. Harris (switchboard operator).

Area 4 Office: Messrs A. Burchinshaw (assistant stores), G. H. Jones (labourer) and A. Redmond (meter repairer). *Conway Valley District:* Mr. G. A. Brown (linesman). *Caernarvon District:* Miss D. Edwards (clerical assistant). *Anglesey District:* Mr. S. T. Williams (District Commercial Engineer).

OBITUARY

It is with deep regret that we report the deaths of some of our former colleagues, and we extend our sincere sympathy to the members of their families.

Four members of our Area 1 staff, Mr. J. J. Brady, a labourer from South District, Mr. F. B. Hayes, a labourer from Pumpfields, Mr. W. B. Hughes an electrician and Mr. C. W. Logan an electrical fitter, Liverpool Central District.

From Area 2/3 was Mr. G. Banks, a transport foreman based at North Wirral, Mr. J. A. Birchall a foreman electrician at St. Helens and Mr. H. Rowlands, a labourer in the North Wirral District.

In Area 4—Mr. D. Jones, a clerk at Area Office, Rhostyllen, Mr. D. Williams, a meter fixer at Aberystwyth and Mr. I. Williams, a section engineer at Legacy.

We have also been informed of the deaths of four of our retired employees, Mr. T. Brooks, who was a labourer in Area 4, Mr. H. Dangerfield, a former senior clerk in Area 1, Mr. T. Hubbard, a retired assistant consumers' engineer from Rhuddlan and Mr. T. W. Hutchinson, who was a foreman at Legacy.

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