'WHAT DID I MISS, MISS?'

—Asks the Little Man, who didn't go to the Ball at Runcorn. J. Mollie Bull replies.

I FOUND the Little Man sitting in his usual corner in the local. 'What did I miss, Miss?' he cried, 'By not going to the Ball at Runcorn on 4th November last, when the Mersey Power Recreation Club's annual do was held?'

'You ought to have been there,' I scolded. 'Over 300 people were present, including Mr. J. L. Ashworth, who was once Station Superintendent, and Mr. J. E. Nelson, who has been President of the Recreation Club from the start.'

'A lot of smart people, I expect, Miss?' he said wistfully.

'They were indeed,' I answered. 'Most of the men wore evening dress, as you see in the picture—and don't think that because Mr. Probert's black tie came adrift—as you may notice—that it was a *rough* party—it wasn't . . .'

'That's why I didn't come, Miss,' he said, in a small voice—'Not because it wasn't a rough party, but because my evening dress . . . well, Miss, to tell you the truth . . . the missus swapped it for an aspidistra . . .'

'Well, well,' I answered. 'I expect she had good reason—But you know, you would have liked the supper which miraculously appeared from nowhere. The Runcorn Drill Hall quite took on the air of the Ritz. I think Mr. Probert, the Chairman, and the Committee did marvels.'

'Any prizes?—Bottles of beer, say?'

'There *were* prizes, of course, but not bottles of beer. Mrs. Ashworth presented Miss Youde and Mr. Loundes with two "spot" prizes, and Miss Ledson presented *her* with a bouquet.'

'I'll bet one thing diddled them', laughed the Little Man, with unholy glee, 'They couldn't get home, at two o'clock, with the transporter bridge finished for the night.'

'That,' I answered firmly, 'Is where you show your ignorance. Do you think an excellent occasion like this would be spoiled by a bridge not working? A special trip was arranged. If that hadn't been possible, the Committee would have built one. *Goodnight*!'

BEST BABY IN SOUTHPORT

"NO baby can compare with my Andrew Philip (born 24th October)," said Mrs. Greenall, wife of Charge Engineer Greenall, of Southport Power Station, to Auntie Hepzibah, of GRIDIRON GAZETTE's Children's Corner. "If I say it myself, I'm rather proud of him," she concluded.

* * *

CONGRATULATIONS

WE have pleasure in awarding the Congratulations Medal to Mr. H. L. Cottam, of Percival Lane, who becomes Assistant Station Superintendent. Hoorah!

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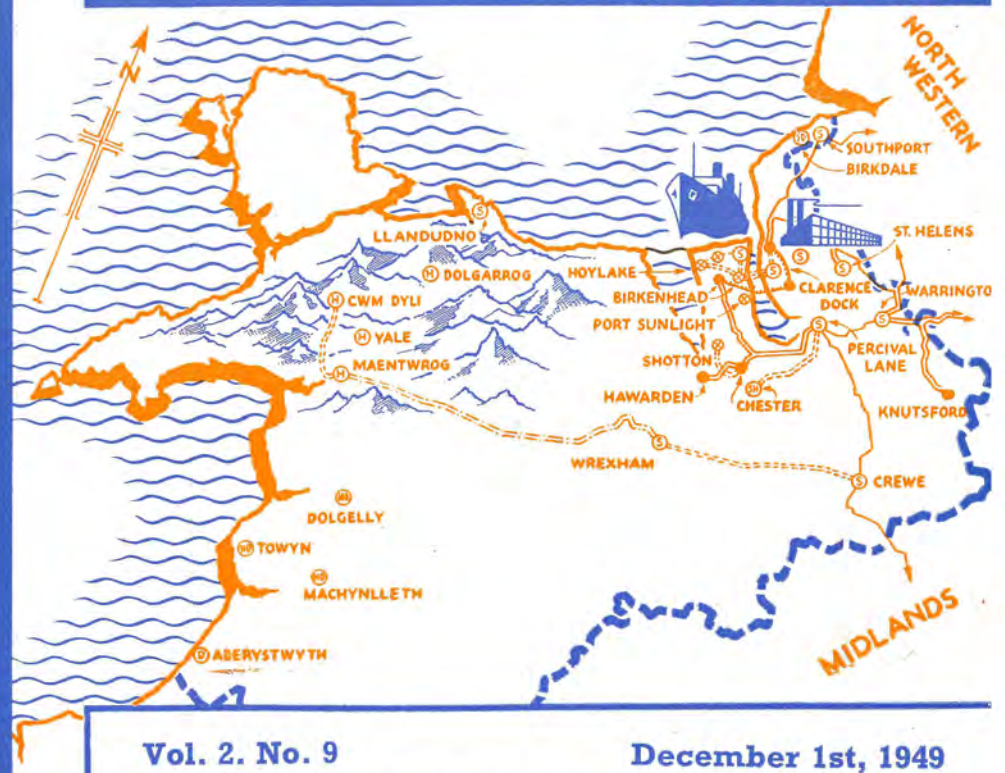
GRIDIRON GAZETTE



Vol. 2. No. 9 **December 1st, 1949**

MONTHLY MAGAZINE OF THE MERSEYSIDE AND NORTH WALES DIVISION OF THE BRITISH ELECTRICITY AUTHORITY . . . Price Threepence

GRIDIRON GUINEA

The two photographs on this page are GRIDIRON GUINEA winners. Above is a very fine study by MR. W. G. PROBERT, the Station Superintendent at Percival Lane. On the left, we see a picture showing Bromborough Power Station under construction, taken by MR. R. PHILIP JONES, Copycat operator at Divisional Headquarters.

Dear Sir, Unless . . .

we have an early order from you for the Christmas GRIDIRON GAZETTE, there is some danger of your missing what will undoubtedly be an unusual number. If we can think of something in time, it might even be *good*. Publication will take place a few days before Christmas, on the assumption that Christmas Day, this year will again be on 25th December; but nobody tells us anything . . .

TECHNICAL QUERY ANSWERED— CAN WASTE HEAT BE USED?

The attached answer to our last Technical Query has been received from Mr. J. Nunn, Assistant Turbine Engineer, Clarence Dock.

HEAT LOST IN COOLING WATER

THE heat that is taken up by the cooling water of a steam plant, although it forms such a large proportion of the total heat supplied, is at a very low temperature.

Since the efficiency of a heat engine depends on the range of temperature through which the working medium passes, it is more economical to keep the final temperature as low as possible.

The temperature of the cooling water leaving the condenser is usually no more than about 20°F to 25°F higher than that of the inlet, which may be taken as the minimum temperature to which the working medium can possibly be reduced. Various proposals have been made for using low temperature sources of heat for producing power.

It has even been suggested that the difference in temperature between the water at the surface of the sea, and at great depths might be used, but none of these schemes has reached the stage of practical application.

Considerable economy is effected by diverting a proportion of the steam from the main flow through the turbine, and using it to raise the temperature of the feed-water returning to the boiler. The heat used for this purpose is not, however, recovered from the cooling water, but is prevented from passing to it, and serves to restore some of the heat lost by the main flow of steam which is allowed to reach the condenser.

In many industrial plants a large amount of heat is required for processes such as factory heating, boiling, drying, distillation, etc., in addition to the production of power for driving machinery.

Steam is generated at high pressure and temperature, and used in the first instance to generate power in back-pressure or pass-out turbines.

The steam exhausted from the turbines is then used for process work, and the heat, which would in other circumstances be lost in the cooling water, serves a useful purpose.

AT present where the production of power is the primary consideration, it is more economical to use the heat supplied, from the initial temperature to the lowest possible limit, for that purpose, resulting in the rejection of large quantities of heat at a temperature too low to be of any practical value.

This heat is likely to remain a total loss, unless some method of utilising very low temperature heat is discovered, or there is a widespread demand for comparatively low-temperature heat, such as district heating, on a scale sufficient to justify an increase in the lower limit temperature of the power plant.

A guinea has been awarded to Mr. Nunn. Further technical queries will be welcomed.

CROSSWORD

Last month's GRIDIRON GAZETTE contained an inserted leaf with a crossword compiled by Mr. H. L. COTTAM, of Percival Lane. A large number of solutions have been received. The first correct one we opened came from Mr. F. H. Williamson, of The Heath Farm, Glossop, Derbyshire, a reader who lives outside the Division.

IT IS REGRETTED THAT CLUE 27 DOWN WAS WRONGLY PRINTED AS 'PLANK' INSTEAD OF 'PLANT.'

1G	2R	I	3D	I	4R	5O	6N	7G	8A	Z	9E	T	10T	11E
E	A	■	I	■	E	V	E	H	G	■	L	■	O	N
N	N	■	V	■	12T	O	W	E	R	■	E	■	A	G
13E	T	U	I	■	14A	I	S	N	E	■	15C	A	D	I
R	■	■	S	■	I	D	E	T	E	■	T	■	■	N
16A	C	T	I	O	N	■	V	■	17S	C	R	I	B	E
18T	R	O	O	P	■	19T	E	20E	■	21M	I	N	C	E
22I	R	O	N	D	O	O	R	K	N	O	C	K	E	R
23N	E	P	A	L	■	24O	N	E	■	25G	I	G	L	I
26G	O	B	L	E	27T	■	S	■	28K	I	T	T	E	N
C	■	■	O	■	E	29A	C	30B	I	■	Y	■	■	G
31O	32V	E	R	■	33A	C	H	E	S	■	34A	L	35A	S
S	R	■	G	■	36S	T	E	A	M	■	C	■	L	H
T	A	■	A	■	E	O	M	R	E	■	T	■	T	O
37S	I	G	N	A	L	R	E	D	T	O	S	T	O	P

GRIDIRON GAZETTE

VOL. 2 No. 9 DECEMBER 1949

THE MONTHLY MAGAZINE OF THE MERSEYSIDE AND NORTH WALES DIVISION OF THE BRITISH ELECTRICITY AUTHORITY

BRITISH ELECTRICITY HOUSE
CLARKE GARDENS, WOOLTON, LIVERPOOL - - - - GARSTON 4981-4

AMBASSADORS EXTRAORDINARY

FOR many years we have cherished the desire to see, in the flesh, one of H.M.'s "Ambassadors Extraordinary"; we know roughly what an ambassador might look like, but we have perennially wondered how he makes himself "extraordinary". However this feat is accomplished, we certainly know a number of ordinary ambassadors—men who run power stations and maintain the grid towers, and unload coal trucks.

If you have come with us this far, you will ask—"But these are our work mates . . . how can they be ambassadors?" We will enlighten you by means of a parable.

In a small public house in Liverpool, let us suppose that over his evening pint a man remarks, "Our place has got to arrange staggered shifts to keep the load down on the electric . . . Ah! . . . Here's Ted! . . . He works at the power station . . . Now come on, Ted—Tell us why we can't have all the juice we want . . . " Ted tells.

If he tells well, he is a good ambassador for the British Electricity Authority, the Division, and also for his fellow members of the power station staff. He can reassure his little audience (who will assuredly take his words as *ex cathedra* pronouncements, and pass them on, more or less correctly, to their friends) that everything possible is being done; or he can leave them puzzled and muddled.

THE qualifications for an ambassador (ordinary)? First, to keep himself informed so that he knows the facts and can pass them on correctly.

Second, to realise that part of the vital service of providing power to sustain the nation's life is to help—and seek the co-operation of—the layman in understanding the problems which we meet in doing our best to serve the community.

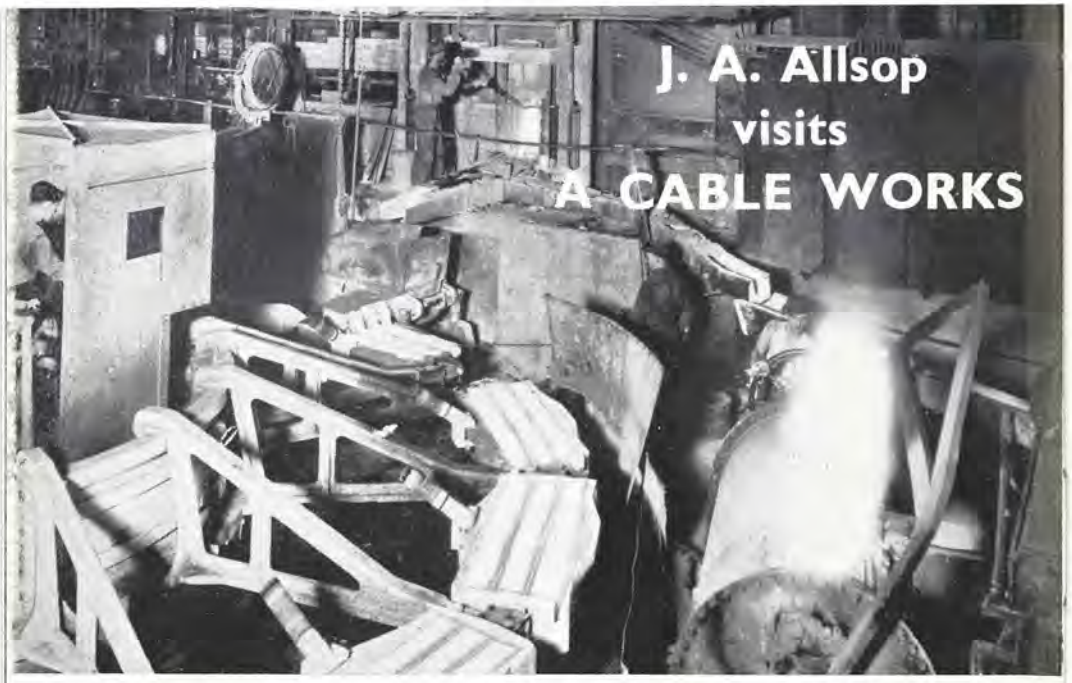
. . . S.

UNDER the Electricity Act, 1947, the British Electricity Authority and fourteen Area Boards took over the whole of the public supply of electricity in Great Britain (except in the North of Scotland).

The Central Authority has Generating Divisions whose boundaries coincide with each Area Board's territory, but whose organisation is separate. The Area Boards have the duty of distributing electrical energy to the Consumers; the Divisional Controllers and their staffs have the duty of operating and maintaining the generating plant and main transmission lines.

men at work . . . 9

Richard Jones knows the land, the sea and the air. During the late war he was engaged in diving, he is now a stoker at Clarence Dock, and in his spare time is a parachute jumper. So far he has made nine jumps, some during the night. He is married with two daughters and enjoys gardening.



J. A. Allsop visits A CABLE WORKS

The Copper Refinery at The British Insulated Callenders Cable Works at Prescot

WHEN I visited the British Insulated Callenders Cable Works at Prescot, my first place of call was the Copper Refinery, and here blister copper was brought in by road from Liverpool, after preparation in the copper mines in Northern Rhodesia. The furnaces were charged up with about 180 tons of these blister copper cakes which were melted down in some 10–12 hours. The main impurities in the copper were traces of iron and sulphur and to rid it of these, air was blown into the now melted mixture, and the oxygen in the air combined with the iron to form iron silicate slag. This slag collected on the surface of the metal. It was skimmed off and the waste taken away and made into copper sulphate for use in the garden. The copper was now free from any iron and sulphate, but had an excess of oxygen in it; to free the copper of this oxygen, green wood in the form of tree trunks, was lowered into the molten charge and as it burned away it removed the oxygen from the copper. These two operations may seem very elementary but I was assured that the mixture was now 99.95 per cent pure copper.

The mixture was then poured away into standard size moulds, approximately 4ft. 6ins. long by 4ins. square; the cross section of the mould was very important as oversize bars would not fit the first pass in the rolling mill. For this reason the moulds were made of copper so that when the tolerances were exceeded they could be melted down and used again. This was the refinery, and I have only described the one process because I was only interested in wire for power cables. In passing I should like to mention the small portable type furnaces where different alloys were mixed with the copper; cadmium for trolley wires giving extra strength, and beryllium for the making of cutting tools which are as hard as steel with the addition of only 1 to 2 per cent of beryllium.

LET us now follow the standard bar of copper through the processes of rolling and drawing. It was first re-heated to rolling temperature and fed into roughing rollers. It was amazing to see the transformation that followed as here, in a series of passes, the bar was reduced from its original shape into a long oval rod. It was then directed into a series of finishing trains which reduced the cross-section still further and at each stage the rod whipped out of the rollers and travelled across the floor in snake-like fashion, only to be greedily picked up again and fed into the next roller, until eventually it finished up as a rod ¼in. diameter.

At last I could see a resemblance to the wire I was familiar with, but in shape only, as with the heating and cooling which had taken place during the previous operation, a black film of oxide had formed over the wire. To remove this, the wire, now coiled up, was immersed in a solution of sulphuric acid and subsequently washed under high pressure water jets: it came out gleaming like only new copper can gleam.

At this stage my mind wandered off the power cable I had visualised as I saw the wire drawn into sizes for all commercial uses. First through a succession of tungsten dies, and then, for below a certain diameter, through diamond dies. Each machine was complete in itself. It would draw the wire out to the diameter specified, coil it on a reel and label it, the smallest diameter drawn out being 0.001in. To me this seemed a great achievement, considering we had started with a copper ingot 4in. square.

IN the stranding shop, I got the impression of a weaving mill, but instead of cotton threads it was copper strands they were weaving. It was a pattern known to many of us—one centre wire, six around that, and so on.

We now drop the term "Coil of wire" and use conductor instead, because we had now one conductor, or one phase of our cable-to-be. The next operation was to put the paper insulation on to this conductor and for this, pure wood pulp was used, somewhat like the paper used for putting on the windows during the war to stop the shattering, but without the adhesive and very much stronger. The strength of the paper was very important, as the outside diameter of the insulated conductor depended upon the tight wrapping of the paper.

The bare conductor was fed into the end of the next machine, traversed along at a uniform rate, and coiled on to a wooden drum at the other end, during which time layer after layer of paper was wrapped on, depending on the working voltage required. The top layer was coloured for identification purposes, and last of all a layer of metallised paper was wrapped on this, forming one core of a Höchstadster type cable. By having this earthed metallised screen around each core of the cable, you get a more evenly balanced electrostatic stress, thus reducing faults due to phase to phase, or core to core breakdowns.

THREE conductors were then brought together to form the three phases of the cable, with each conductor wound on a separate drum. Also, with these were four drums of what the cable-maker calls fillers, which is really the same type of paper used to cover the conductors, but spiralled together to form a length of hard compact paper about ¾in. diameter, used for filling the interstices of the cable. The next machine was a huge affair, and it performed this filling and a little more. It spiralled the conductors and fillers together, and also wrapped around them all a linen tape into which was interwoven fine copper threads. These copper threads ensured that a good electrical contact would take place between each metallised conductor and the lead sheath which would be fitted on later to fit over all the cores of the cable.

The next process consisted of driving the moisture out of the paper wrappings around the conductors. The drum of cable was lowered into a large cylindrical tank, the top securely fastened down, and the air completely exhausted. This vacuum was released after about three hours, and then re-created again for another four hours, the interjection of the air being required to

The Power Cables Department. Top left—Paper wrapping machines. Centre—The three conductors being spiralled together.

J. A. Allsop continues the story of cable making

stir up any air pockets that may still have existed in the paper wrappings. The air drawn away from the cable was condensed, and more than twenty gallons of water was collected. This seemed a very remarkable figure indeed. To me the paper seemed quite dry before this operation, but I was assured that this figure was authentic and that during the summer months the figure dropped to seventeen gallons owing to the dryer atmosphere in the shops. The drum of cable was left in this tank, and the tank was filled up with impregnating oil. It was kept at a pressure of 30 lb./sq. in. and the oil impregnation kept up for forty-five hours.

AFTER this, the lead covering was comparatively easy, the lead sleeve being extruded on to the cable *via* a hydraulic press, and the nearly completed cable was ready for its electrical tests. The tests were carried out at this stage so that, in the case of failure, the steel armouring and the process involved would not be sacrificed. Resistance, capacitance, etc., were checked, and for this 30 kV cable I had followed through, a pressure test of 90 kV was needed, this being applied behind brick walls for safety reasons.

The next and final operation was the steel armouring, and to apply this the cable was slowly drawn off its drum, wrapped around with three layers of bitumen impregnated cloth and two layers of steel armouring, and whilst this was being performed, hot bitumen was liberally poured over it all. The armouring used in this case was steel tape, but it is quite usual to use steel wire. The choice between steel tape and steel wire armouring depends upon the conditions under which the cable is to be installed and operated. The last covering of all for the cable was a layer of bituminised cloth, provided to protect the steel armouring from rust; sprinkled over which was a white chalky powder to stop the cable from sticking as it was wound on to the drum.

I should like to conclude by thanking the British Insulated Callender's Cable Works for their generosity in allowing our party to visit their works, and for the hospitality shown to all of us by each one of their staff.

J. A. ALLSOP *(Divisional Headquarters).*

The Rolling Mill

CALIFORNIA, HERE HE COMES!—Our Mr. Brown tours U.S.A.

Mr. F. H. S. Brown, B.Sc., A.M.I.Mech.E., A.M.I.E.E., has two claims to be in the news. He has been appointed Chief Generation Engineer (Construction) for the Division; and he was selected to join the team of electrical engineers who are at the present time touring the U.S.A. under the auspices of the Anglo-American Productivity Committee. After graduating with first class honours from Birmingham University, Mr. Brown gained experience first with Birmingham Corporation Electricity Supply Department and later with the West Midlands' J.E.A., subsequently joining the Liverpool Corporation as Chief Technical Engineer. Golf, gardening and shooting occupy his leisure time. **He promises to write an account of his experiences in America for GRIDIRON GAZETTE.**

ECHOES OF M. STEVENIN'S VISIT

The following letter has been received by Mr. G. R. Peterson, the British Electricity Authority's Overseas Liaison Officer.

ÉLECTRICITÉ DE FRANCE

47 rue Boissière,
Paris, 16e.
13th October, 1949.

Dear Mr. Peterson,

I have just seen the articles published in GRIDIRON GAZETTE concerning the recent visit of one of our engineers, M. Stevenin, to the Merseyside and North Wales Division of the B.E.A.

I have noticed with great pleasure that the realisation of the idea which was mentioned to me at the beginning of this year has met with a complete success, and I am very glad to congratulate its promoters as well as its executors.

I am happy to see that the bonds of friendship between our two great national electricity organisations grow closer every day, and I am sure that the personal contacts of this kind are the most profitable.

On behalf of the Électricité de France, as well as in my own name, I thank you for the charming and cordial welcome you extended to M. Stevenin during his stay in England, and I would ask you to forward my very sincere thanks also to all who took part in organising the visit, and in particular to Mr. A. R. Cooper and to the Editor of GRIDIRON GAZETTE.

Yours sincerely,
A. ANTOINE,
Inspector-General,
Électricité de France.

The Editor adds: We visited Paris at the beginning of November, and M. Stevenin—who has been indisposed, or would have written earlier—sent his warmest greetings to those whom he had the pleasure of meeting in the Division. His parents entertained the Editor and his daughter to a meal which lasted for three hours!

* * *

NON-DEGREE STALWARTS COMPLAIN

A READER, who wishes to remain anonymous, has sent us a long letter dealing with promotion. He thinks there should be more opportunities for men who have not achieved Technical Degrees, and who are rather over the student age, to rise to the higher positions. He says that many sound engineers, who have a wealth of both practical experience and initiative, are passed over in favour of young men straight from college, who do not know how to handle men.

We feel sure that merit is not overlooked, especially in these days when every man's best effort is needed. Perhaps the Divisional Controller would like to let us have a few words on the points raised by our Correspondent?

NEW READERS START HERE

(or anywhere else: we don't mind)

PASTEL POWER PLANT

THE power stations in this Division are in the process of trying out a new colour scheme: the turbines and boilers are being painted in pastel and cream shades. When first hearing of this, *writes J. Mollie Bull*, I could not quite imagine how such a scheme would work out in practice, but I was amazed when I saw the transformation. The whole appearance is lighter, and so far spotlessly clean. The colours are not put on haphazardly, but are there for a purpose, each colour representing something; for instance, the handrails and mobile plant are painted orange, thus making for safety.

The former dingy colours harboured dust, dirt and germs, but people are taking an interest in the new colours and are keeping them as clean as when they were first painted.

It is too early yet of course to notice any results, but I shall not be surprised to learn that the employees will be healthier, there will be less eyestrain, and a reduced number of accidents.

AT Wallasey the men are very proud of the fact that they are painting the station with their own labour. This power station received two or three direct hits during the bombing and the Station Superintendent mentioned that everyone had worked extremely hard during the last twelve months to get things running well and smoothly again. Mr. Bell, incidentally, said he had the best gang of men a Station Superintendent could wish for. Some of the men have been there for as long as twenty-five years.

* * *

WILL LOOK AFTER YOU

MR. H. H. BROWN has recently been appointed Welfare Officer to the Division.

* * *

'BE PREPARED'—say Mr. J. Bell and Mrs. Truscott

THESE two Divisional Stalwarts of Warrington (*writes Don Green*) know that a Christmas Party for the Staff can't be vamped up in a jiffy. Right now they prepare to surpass last year's gargantuan effort. Will they invite us, ask the Editorial Staff? If they do, we shall come . . .

NEW NEWSHAWKS

St. Helens: Mr. G. Watkinson is now our Ace Reporter.

Birkdale: Mr. A. Goulder smells out news for GRIDIRON GAZETTE from now on.

Queensferry: See Mr. T. Jones when you want world publicity for your news item.

* * *

BY THE WAY

(By Presscomber)

"REFLECTOR", in the *Electrical Review* of 4th November last, says—"It was not very nice of the *Electrical Review's* sprightly little contemporary the GRIDIRON (magazine of the Merseyside and North Wales Division, B.E.A.) to say in its November issue: '*Not all the people in the Stations have an opportunity to see the technical journals, and if they do, it is not always possible to find time to sift the wheat from the chaff.*' I think that practically everything in most of these journals is grist for somebody's mill. What is aimed at is to give a general picture of the industry served, so that those in particular branches may learn what those in other sections are doing and thus give them that wider view which is so desirable."

The Editor remarks: We are honoured by our less sprightly contemporary's notice; we should be even more honoured if he printed our name correctly.

We waited some eight days to see whether "Reflector's" grist (roughage?) had penetrated to a representative six of our friends in the Supply industry, in and out of the Division. Only one had chanced to intercept the reflected ray from the *Review*. Can it be that the other five had found they had not time to sift the wheat and find "Reflector's" chaff?

* * *

CRANE-DRIVES NO MORE

THERE will be a lonely crane at St. Helens Power Station this month. It will pine for Mr. J. Wilson, who for twenty-eight and a half years has guided it through thick and thin. Now, he retires, carrying with him the best wishes of his workmates—and the crane.

SOUTH of the BORDER —we find JAMES WALLACE ANDERSON; the Scot who soothes the Sassenachs.

Photo—Courtesy Scottish Co-operative Wholesale Society Ltd.

IF it be true to say that the work of a Labour Relations Officer is judged on smooth running, and not on the number of disputes he has settled, then Mr. James Wallace Anderson has been very successful, for he has only dealt with one minor dispute in the last eighteen months.

After the National negotiating machinery has made decisions for the whole of the Industry, Mr. Anderson, one of the District Labour Relations Officers, has the task of guiding both the Division and the Area Board on questions arising from these decisions. One of his main objects and ambitions is to keep peace in the industry. If a dispute arises from the interpretation of some decision, then the Labour Relations Officer advises the Division or Board as to what action should be taken with a view to solving the problem, but does not negotiate with the Trades Unions.

In answer to the question as to where he came from, Mr. Anderson's reply was—"My father told me never to boast!"; but even had I needed confirmation that he was a Scotsman, this was supplied by the fact that he has changed the name of his assistant from Knight to MacKnight.

Trades Unionism has been Mr. Anderson's work and hobby all his life. He was Scottish organiser of the National Union of General Municipal Workers; joint secretary of the three district Joint Industrial Councils in Scotland; and before nationalisation, secretary of the old District Joint Industrial Council covering the whole of Scotland; and has been responsible for roughly ten thousand members covering all grades of employment spread over thirty-four branches and stretching from Stranraer to the Orkneys. He once stood for Glasgow Town Council.

He is married and has one son, aged 17, in the Junior Training Corps, who is both taller and heavier than his father, though his father is no dwarf.

ROUND THE WORLD

Some time ago Mr. Anderson decided to travel, with two main objects in view—to study Trades Unionism in other countries, and to see something of the world. So keen was he that he worked his way in a boat, and some of the places he saw were New York, Philadelphia, Los Angeles, Honolulu, Yokohama, Shanghai, Hong Kong, Canton . . .

J. Mollie Bull.

HE FOLLOWS HORSES

AN epic story of intrepid horsemanship comes from our Southport correspondent, W. M. Gore, who always has his ear to the ground (even if horses have passed by a moment before).

It is an evening in Tulketh Street (*commences his dramatic narrative*). Mr. George Hind, a Southport Power Station Turbine Driver, ambulates in his automobile. *Hola!*—An incident arises . . . a magnificent black horse, attached to a cart, comes foaming down this most respectable thoroughfare. He is out of control . . . his equine forefathers call from the jungle .. . *Ah!—See how narrowly he escapes that conveyance!* . . . Mr. Hind, leaping from his machine, runs with incredible agility to the flying mane of the proud beast . . . Its rolling eye he fixes with his own calm orb . . . The noble animal decelerates . . . Mr. Hind whispers words of calmness . . . The steed, panting but subdued, listens intently . . . Peace reigns—but where is the legitimate charioteer? . . . Blown by his exertions, he emerges from a long way off . . . "Sir," he says to George, "From the bottom of my cart, I thank you!" But he speaks to the empty air. Modest George has vanished.

"It is the duty of the Authority to make provision for advancing the skill of persons employed by them . . . "

UNDER Section 2 of the Electricity Act, 1947, "it is the duty of the Authority to make provision for advancing the skill of persons employed by them, and for improving the efficiency of their equipment and the manner in which that equipment is to be used, including provision by them and the assistance of the provision by others of facilities for training and education."

Most Education Authorities have facilities available for young men and women who desire to improve their knowledge beyond that obtainable from the work they do each day. This Division of the Authority will endeavour to assist everyone who wishes to take advantage of the existing facilities for further education in the technical aspects of mechanical and electrical engineering, accountancy and secretarial practice.

BRIEFLY, the following are the schemes available for those already employed in the industry.

The Authority assists those employees under 21 years of age who are studying their jobs as follows: All such young people whether technical or administrative and clerical are given the opportunity to attend day continuation classes in addition to evening classes, by the granting of one day per week leave of absence with pay to attend a recognised course of instruction; the repayment of all fees if a satisfactory report is received from the school; and time off, with pay, to take the examination. The above also applies in certain cases to ex-servicemen over 21 years of age, e.g., those returning under the Interrupted Apprenticeship Scheme, or those who require a refresher course.

EMPLOYEES over 21 years of age are assisted in gaining a better knowledge of their work by the following methods. At the Stations, during the winter months, lectures will be given on the various aspects of Station working. Residential Courses will also be held, and the training on these courses enables the student to relate his work and that of the Industry to that of other industries and organisations. Election to these courses has, up to now, been by Ballot, but in future nominations will be undertaken by Local Advisory Committees.

Both the people under 21 and those over that age have the opportunity, providing they have the necessary basic qualifications, to become graduate trainees; particulars of this scheme are indicated below.

Training of People who Wish to Enter the Industry

THE Electric Supply Industry is essentialy technical. Thus, to meet the needs of the future the Authority invites youth to take up a career in its service by two schemes for (*a*) Apprentices and; (*b*) Graduate Trainees. It is intended to give assistance in their technical education, to meet the demand for both Craftsmen and Engineers.

Every apprentice joining the Authority will have the opportunity of proceeding by way of examination, the Student Apprentice Scheme, and the Graduate Training Scheme, to membership of either the Institution of Mechanical Engineers or the Institution of Electrical Engineers.

The ordinary Apprentice will become the Craftsman the Autnority needs, when he has served his time, but boys who show marked ability in both practical work and technical studies may be offered a Student Apprenticeship, which when rounded off by possession of the Higher National Certificate, will be related to the Graduate Training Scheme for a further year's training.

Graduate Trainees

APPLICANTS for training under the Graduate Training Scheme whether from inside or outside the Industry, should possess an engineering degree of a United Kingdom University; or Higher National Diploma in Engineering or its equivalent; or Higher National Certificate in Engineering; or pass the Associate Membership Examination of either the Institution of Electrical Engineers or the Institution of Mechanical Engineers. An exception is made in the case of ex-servicemen engaged on the Intensive Higher National Certificate Course, and here they are engaged on probation after having obtained their National Certificate. The training period is normally one of two years duration, of which six months will be spent at a manufacturer's works and the rest of the period in the Division.

Students will work to a time-table which consists of:—

Four months—basic training at a special power station. *Three months*—intermediate training at a Power Station of under 100 MW capacity. *One month*—Control Room, Didsbury. *One month*—Transmission work. *One month*—Records, and with the Efficiency Engineer. *Four months*—Advanced training at a Power Station of over 100 MW Capacity. *Six months*—Manufacturer's works. *Three months* — Semi-specialisation period. *Two holiday periods each year make up the twenty-four months.*

Trainees wishing to specialise on the Transmission Course will be trained in the various sections of the Transmission Department. The salary is £285 p.a. for the first year, and £300 p.a. for the second year.

Training During University Holidays

In order to encourage University Students, and to give them a practical insight into the working of a power station, arrangements have been made for this type of student to be engaged during the summer vacation at a wage of £3 10s. 0d. per week, for a maximum period of eight weeks.

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MANY education authorities assist towards the cost of travelling to day and evening schools, and students should not fail to put in their claims for this assistance. Application for deferment from National Service is the responsibility of the individual. There is, as a rule, no difficulty in obtaining deferment for the Engineering Apprentice who is satisfactorily progressing with his studies. It has been established with the Ministry of Labour that a clerical worker at 18 years of age can be classed as a "learner", and if pursuing a recognised course of study may reasonably expect deferment, if application is made immediately following registration.

THIS Bulletin is only meant to give an indication of the way the Authority intends to carry out the obligations laid down in the Act, but it should be emphasised that Education and Training Schemes can only succeed in their purpose when the individual who receives assistance under a scheme, is prepared to assist also, by taking his other studies seriously, in other words **the Authority is prepared to help those who help themselves.**

Further information will be issued from time to time. Should more detailed information be required on any particular aspect, please write to Mr. L. G. Rowlands, Training Liaison Officer, Divisional Headquarters, Clarke Gardens, Woolton, Liverpool. You can forward your letter through your Station Superintendent.

'It's the first rung that counts' says The Little Man, with his birth certificate in