

CABAN

OCTOBER 1951

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THE MAGAZINE OF THE OAKELEY AND VOTTY SLATE QUARRIES

CABAN

THE OAKELEY SLATE QUARRIES CO. LTD.,
THE VOTTY AND BOWYDD SLATE QUARRIES CO. LTD.,
BLAENAU FFESTINIOG, NORTH WALES,
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"CABAN" is the name of the type of mess-room in which the men of Oakeley and Votty meet for their meal-break . . . and which is also the centre of social life and passing of information throughout the quarries, hence the title of this magazine.

Front Cover: Mined water channel at Oakeley.

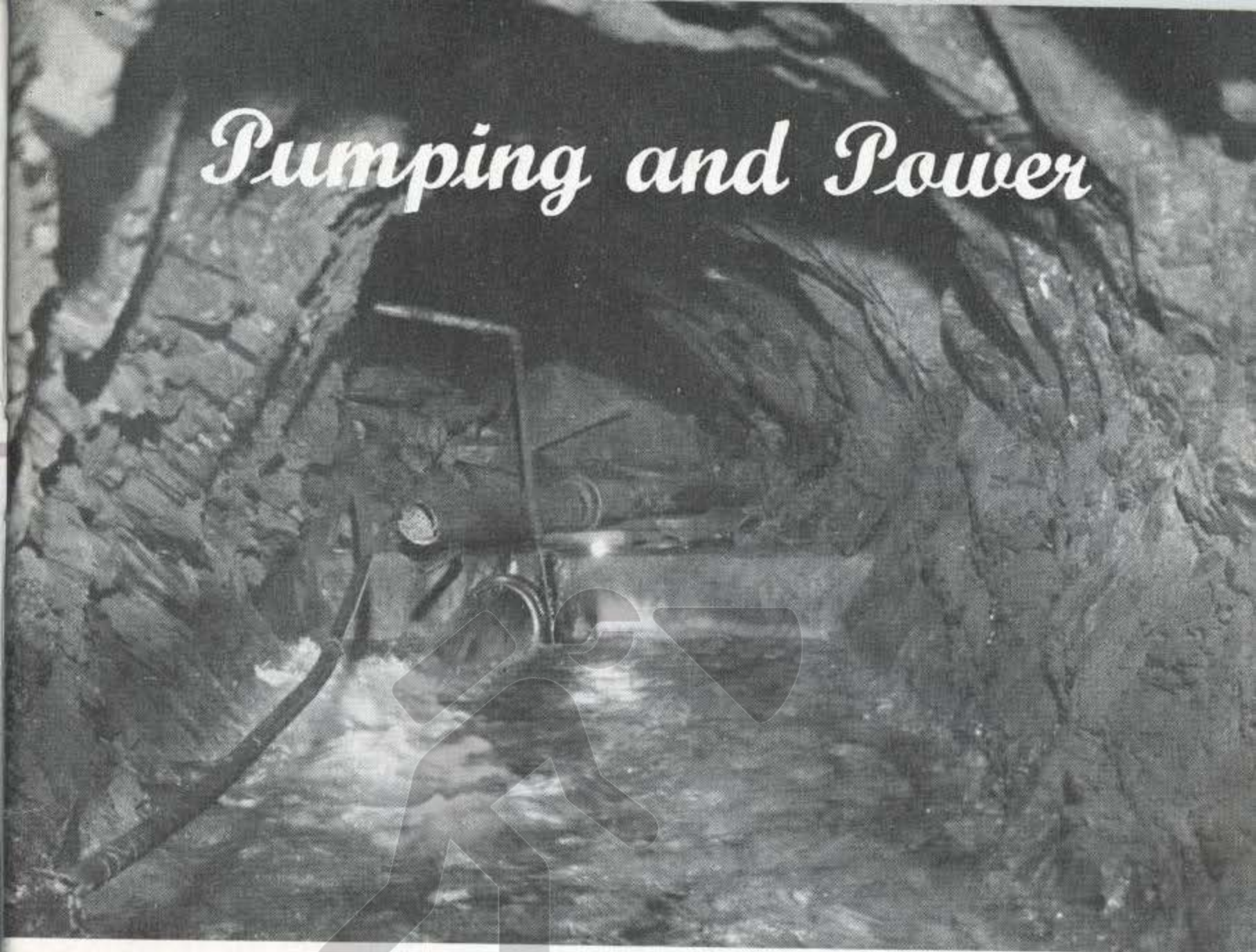
Below: Compressed air power source



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Pumping and Power



HAVING described, in previous issues, the task of winning slate from the underground "chambers" at Oakeley and Votty, and the finishing processes carried out in the mills on top, we now fill in the picture with details of some of the ancillary work—the behind-the-scenes jobs related to the furnishing of power and the maintenance of machinery for the operation of pumps, drills and haulage.

At our Oakeley mine, with its many floors stepping down into the mountain over a depth of over 1,400 feet, and its many working chambers, there are twenty four miles of compressed air lines installed. The lines, fed from seven electrically-driven compressors, are interconnected for maintaining a constant "head" of compressed air to the drills, boring, and channelling machines used by the miners and rockmen in their methodical attack on the surface of the hard blue-grey slate vein plunging deep down inside the mountain.

The gush and hiss of compressed air machines of the various kinds echoing along the tunnelled levels, is a frequent sound and sign of work in the recesses of the cavernous rock chambers. There is the fierce spit of air under pressure being delivered to a power-driven block and tackle for the raising of pillars of slate on to waiting trolleys and with the rhythmic note, further on, of a "tugger," a small haulage winch pulling a train of "empties." The thud of an explosion may mean that miners are at work close at hand. This is confirmed by the unmistakable release of more compressed air, this time to clear away the fumes.

Pumping at 3,200 g.p.m.

When the morning meal break comes round and the underground workers troop off to their cabanau, immediate sounds and signs of work cease; the compressed air is shut off, the echoing clatter is no more. But, presently, the

ear detects a new sound, the swirl of water deep down in the mine and the distant note of pumping.

Pervading the whole full-time job of quarrying, there is the unremitting task of keeping out the rain from the quarry itself. Deep, forbidding-looking sumps located at different levels below ground collect the water draining and seeping into the mine. The water is kept under control by batteries of electric pumps which have a capacity in keeping with the formidable nature of the problem.

There is no necessity to stress here that our work is done in one of the wettest corners of the British Isles. To produce the goods that keep you dry we first must keep ourselves dry; to accomplish that we set out to trap, by means of troughs and ditches on the surface of the mountain, as much water as possible to prevent its passage underground, and collect in pipes, drains and wide open leets every drop that does seep through into the mine.

Having successfully collected it, we store the water in old worked-out chambers which have been dammed. A whole section of old workings has been sealed off and converted into a huge reservoir from which the flow of water to the pumps can be controlled. Water is then pumped up from the various "floors," discharging to the surface at a rate often in excess of 3,200 gallons a minute.

Batteries of Electric Pumps.

To cope with the water clearance at Oakeley we have a battery of electric pumps. An indication of how the problem is tackled at Votty was described in our last issue, with photographs of the largest hydrostat pump in the country. This pump, of course, is supplemented by additional electric pumps on the lower floors.

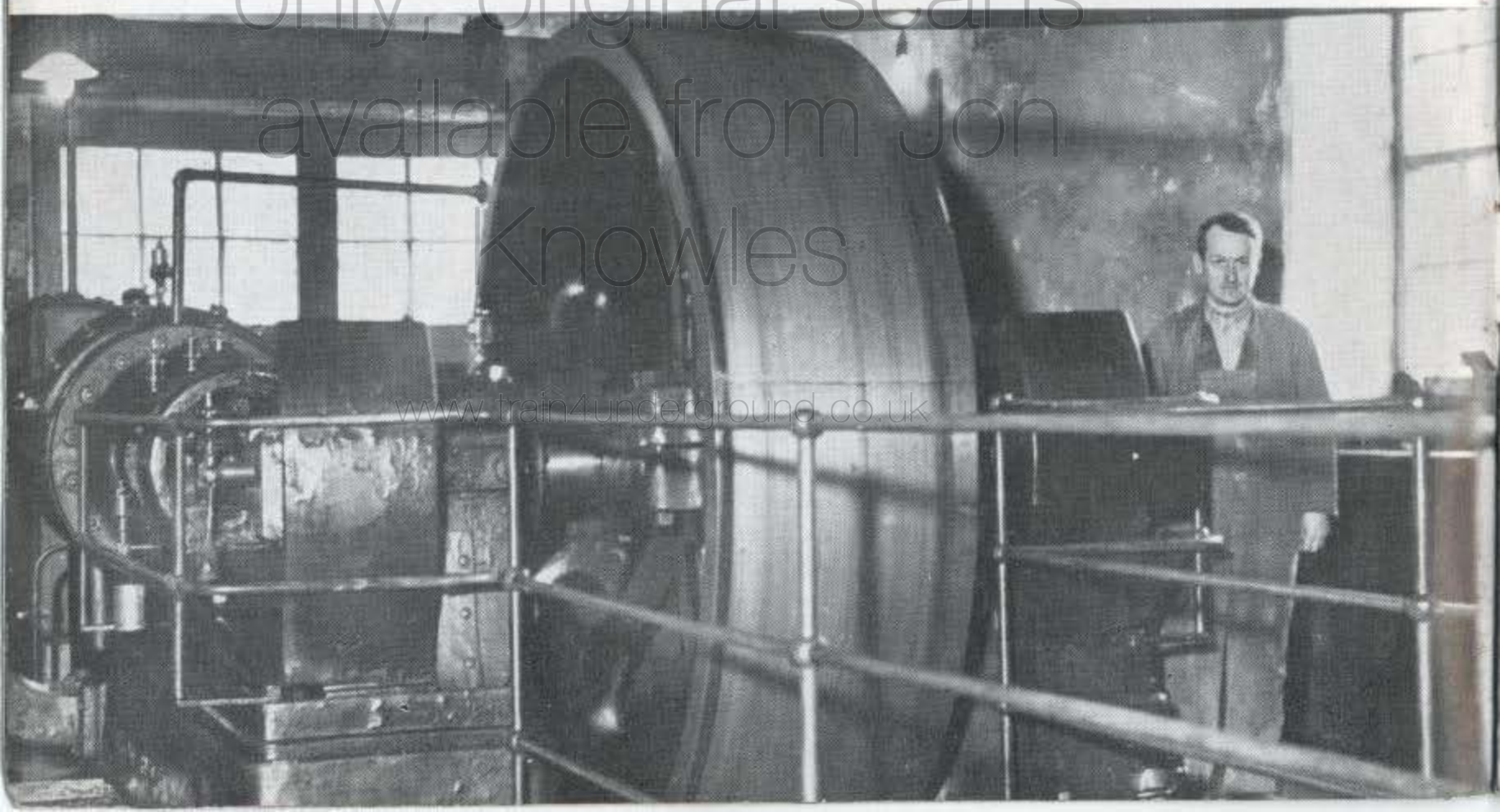
Water, inevitably, is the big problem associated with mining. A visitor to the quarries this summer may have been puzzled by the necessity for hard pumping during what appeared to be a dry spell.

The actual reason for this is locked inside the mountain itself. Engineers and pumpsmen who nowadays have to take into consideration the fickleness of electric power supplies as well as the vagaries of the weather will tell you, however, it may take a long time before the full effect of an early season's flood is noted in the sumps deep down at Oakeley.

In recent years Blaenau Ffestiniog has been unlucky in its weather. There has been more than the expected average rainfall. Pumping has been constant and on occasion pumpsmen have had to return at nights and at week-ends to keep down the level in the dams.

Idris W. Williams, the Oakeley engineer in charge of pumping and all quarry

"C" Floor Compressor Flywheel.



machinery, says that even in the driest weather the discharge of water from the mine is never less than at the rate of 800 gallons a minute. "We have calculated," said the engineer, "that flooding from a heavy rainfall takes about 36 hours to seep through and raise the gauges in the dams."

Eternal Springs

Water clearance, a problem engaging the attention of all concerned, even at holiday times, is, of course, a subject for special study by Idris Williams. "When I look out of the window at the rain my mind's eye sees the measuring stick down on "L" floor. We may have been coping adequately, and with a nice margin, with flooding from a previous storm which would mean that the current rainfall could be handled without much alteration in the set rate of pumping. If, however, and as so often takes place, we are feeling the effects of prolonged rainfall, and that the powerful internal and eternal springs of the mountain are in full spate, I would have to make preparations at once to deal with the rain I had been watching through my window." The engineer explained that this might mean a night trip to the quarry, either to increase the rate of pumping in progress, or to set pumps at work to prepare the sumps for the added infiltration then on its way.

Fairly typical of the elaborate precautions taken both to capture the

unwanted water and to dispose of it are to be seen on "L" floor at Oakeley. An intricate system of mined channels or leets, some of them wide enough and deep enough in which to float a dinghy, worm their way from the reservoir round the chambers, through the giant pillars of rock holding up the roof, under the floors and so to the sump and its throbbing pump.

Regulating the flow.

The flow through this winding water-course is controlled by a series of valves or movable wooden weirs and in such a way that, as Tom Roberts, one of the pumpsmen says, it is possible to relate the flow from the reservoir to the sump and from the sump through the pump with an exactitude which guarantees safety.

"When we open the sluices in the dam the controlled flow released to the sumps takes half an hour to reach the pumps," he explained while our pictures were being taken.

"We know very closely how we stand; how much is coming into the dam, how much room we have to spare there, and how much reserve we hold in the sump. Our job is to equalise the situation, bearing in mind always the weather forecast up above in daylight, and to set the pumps working accordingly."

"Experience of dealing with all known possibilities lying between droughts and

spates has reduced this job to a mere

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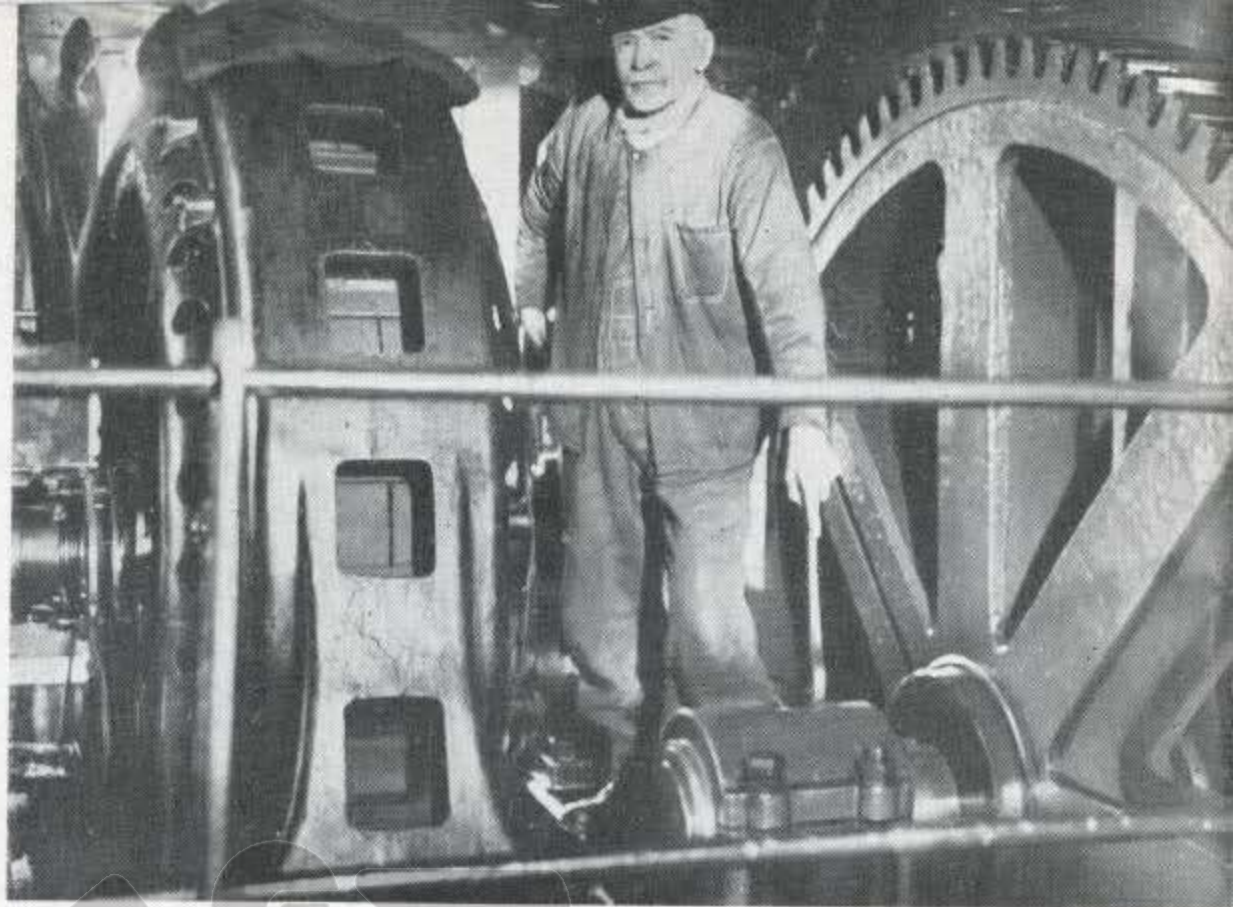
question of gallons per minute. Setting the pump at 800 gallons a minute (as on this day in early August) and regulating the flow accordingly, we know," said Tom Roberts, "we are keeping comfortably ahead of the water situation, and that we are increasing the reserve, both in the reservoir and in the sump, so that when we leave after the shift there is a margin for any eventuality which may overtake us during the night."

Over 100 ins. of Rain

Idris Williams followed up the point with the remark that while water is a "bugbear" of mining development modern methods of de-watering, such as those employed at Oakeley, are readily capable of mastering the situation. At Oakeley, where the rainfall averages over 100 inches a year (with as much as 20 inches in one month last year), he and his staff have gained plenty of experience in that particular field of their work.

"We have two big electric pumps on 'L' floor each capable of pumping 1,200 gallons a minute to the surface," said the engineer. There is another

Typical Electric Pumping Unit.



Middle Quarry Haulage Gear, with veteran R. J. Davies.

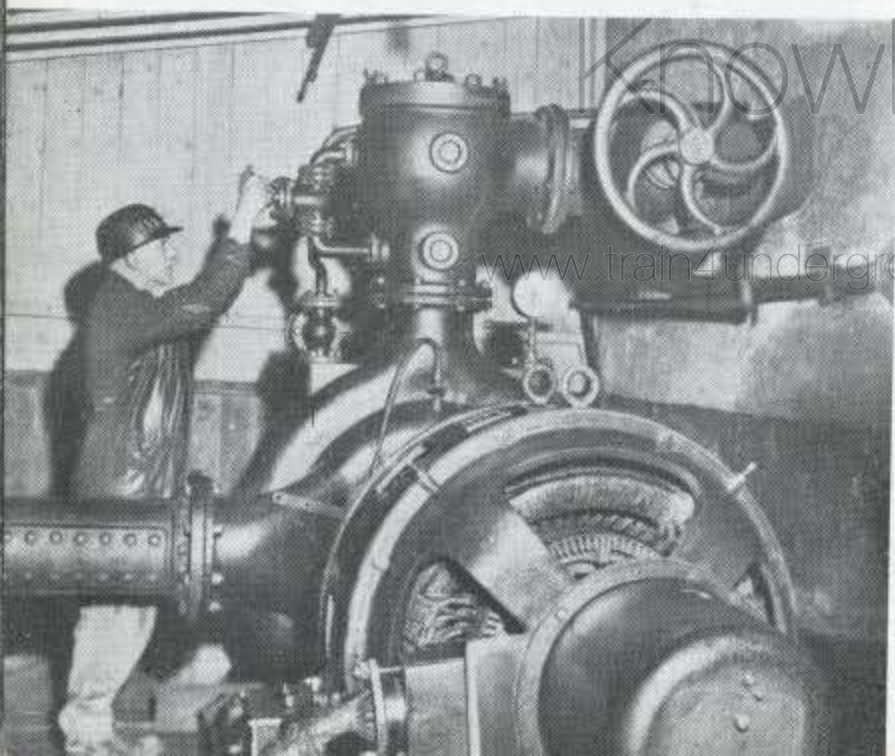
which can be brought into action during heavy flood increasing the discharge to over 3,200 gallons a minute. In addition we maintain five other auxiliary pumps, with capacities of between 120 and 500 gallons a minute, sited on different floors to the bottom of the mine. The auxiliaries pump up to the main storage, in the pipelines from which we have a 20-inch valve regulating the flow into the sumps."

Working Places Kept Dry.

During heavy floods it was possible he said, to retain a large volume of the water behind the dams, keeping it there under control for pumping at a more convenient date—usually in dry weather. Very often, however, it was necessary to exert the maximum effort to ensure that the margin of reserve between intake and output was not drastically reduced. Once or twice a year abnormal pumping was called for, and in 1921 the flooding was such that we had to keep the pumps going continuously for three weeks.

In spite of all this evidence and emphasis on the mechanical control of flooding it is a notable and surprising feature of the actual working conditions, even in the bottommost parts of the mine, that the floors of the chambers, the levels approaching them, and the walls of the tunnels around are dry.

The mountain may hold its secrets, but in that part of the mountain occupied by the slate mine there is little that is not



known. The quarry courses of the subterranean waterways are an "open book." The water traps and dams have been set accordingly and, of course, with the double purpose of expeditious control with the minimum of interference or discomfort in the working conditions. The water collected, stored, and expelled from Oakeley finally finds its way to Cardigan Bay via the River Barlwyd at Blaenau Ffestiniog. At the surface of the mine the pumped water enters an adit which empties into the Barlwyd, a stream which is regarded with some knowledge and affection by an Oakeley pumpsman, a man who knows that a considerable part of last night's rainfall will soon be in his keeping to discharge at will, and at some future date, into the tumbling stream.

Fifty Electric Motors.

To make the wheels go round at Oakeley requires a total of 3,200 horse power, provided by fifty electric motors. Operation and maintenance is the concern of the engineering department. Many years ago steam power was abandoned in favour of electricity produced then, as now, by hydro-electric undertakings in the immediate neighbourhood.

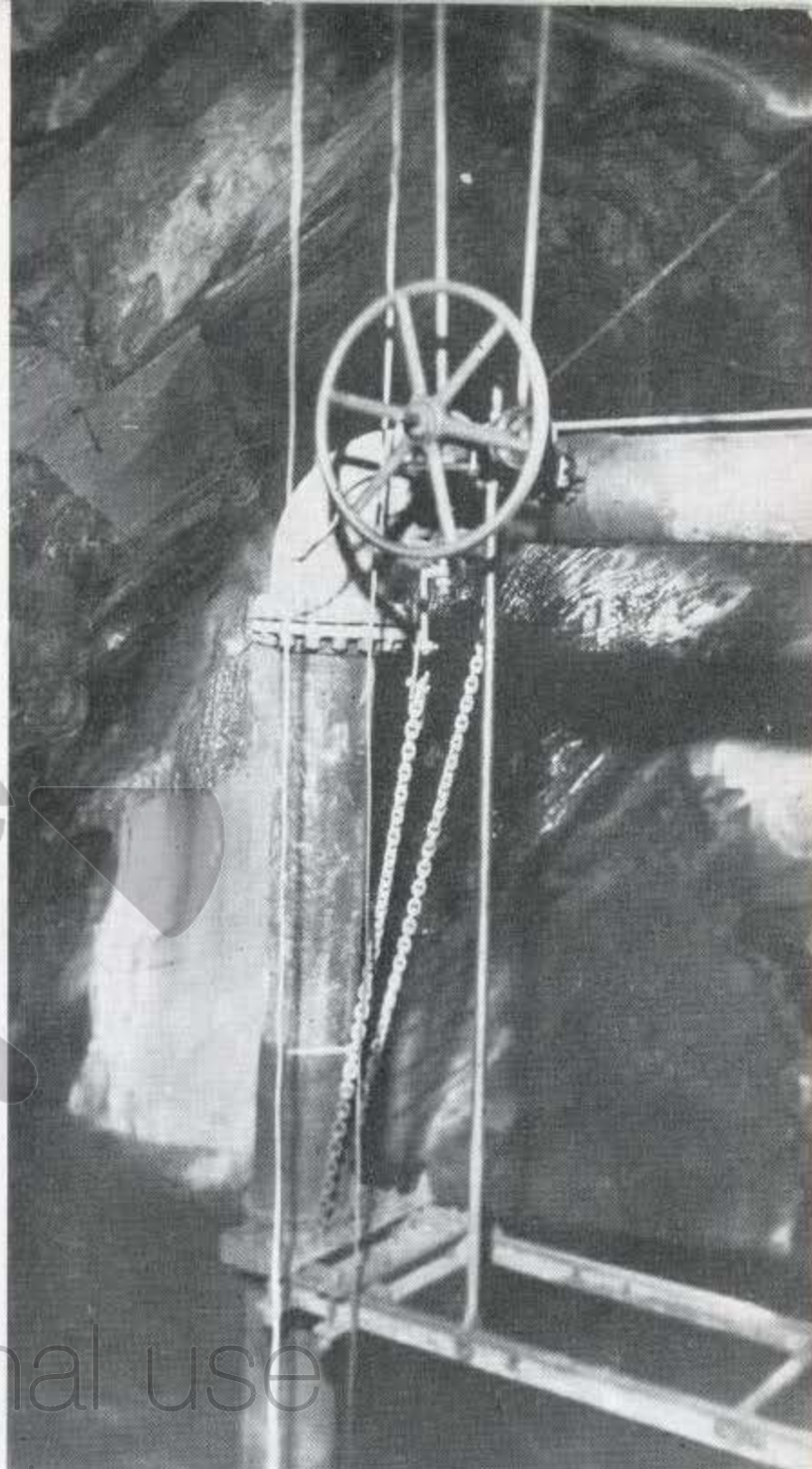
We have in winter to "stagger" the load to an extent which, in our case, leaves 500 horse power idle each working day. Relating the power requirements is another job for Idris Williams. "We have to ring the changes between air compressor and haulage, working up to an agreed load on a time-table basis," he said.

Bulk power supplied at 10,000 volts is transformed to medium voltage for motors, and again to 110 volts for lighting and heating in the mine and mills.

More and more electric power is being used or required. Charging apparatus for the electric cap lamps now in general use by miners at Oakeley and Votty, and the installation of dust extraction plants being among latest additions to the "load."

Haulage and Compressors.

Up on the Middle Quarry haulage incline Idris Williams introduced the



Rising Main from another "L" Floor Sump.

oldest member of his department—R. J. Davies—who, in 1906, switched over from steam to haul up the first load by electricity.

Hailing from Maentwrog, one of the biggest North Wales centres of hydro-electric power, R. J. Davies vividly recalls the first venture with electric power. "It was a big day; we had the directors here, and the motor ran as sweetly then as this one does to-day."

R. J. Davies has handled the brakes on several inclines, including the main haulage from the mine, all of which he has worked without serious mishap.

On the Middle Quarry, also, is located one of the biggest compressors, driven by a 200 H.P. motor. This power unit

incorporating double stage action, compresses 1,050 cubic feet of air a minute. The storage is the reinforced original boiler component of the former steam-unit.

In charge of this and the air-operated ship's siren blowing the start, the finish and the interval for meals, is William J. Williams, who, readers of *Caban* will recall, is by way of being an expert in model engineering. The electric chronometer by which he times the echoing blasts on the siren is home-made and to his own design. The electric batteries on which the clock depends for movement are charged by a motor built by our versatile compressor motor-man.

Completing the ingenious scheme of things is a hot-air motor, also designed and built by William J. Williams, which he uses to drive the electric charging generator. W. J. Williams lives at the quarry not far from his work and model engineering is his winter hobby.

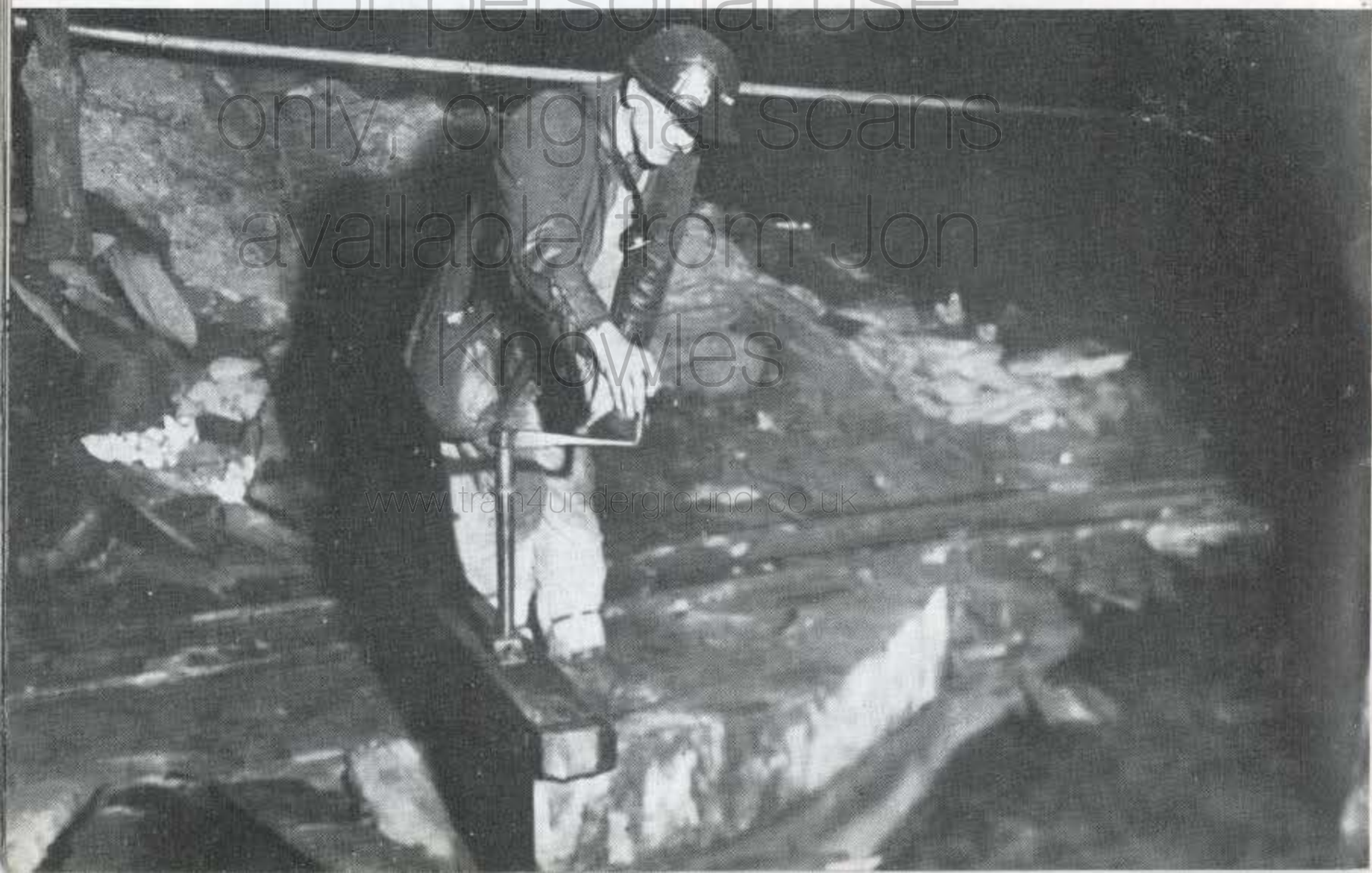
24 Miles of Piped Power.

On "C" Bank is the oldest compressor. It has been operating without break or

major breakdown since 1908 and is still capable of a steady 800 cubic feet a minute. There are five others at work at various points with capacities of 350 cubic feet upwards, and all feeding into the 24 miles of piped power, drawn on by numerous rock-drills, heavy channeling machines, air winches, and other compressed air gear.

Part and parcel of the job of providing compressed air is the laying, fitting and maintenance of the six-inch mains and subsidiary compressed air piping, and the maintenance of all mechanical aids. Idris Williams has various tradesmen in his department; electricians, welders, fitters, and millwrights, as well as the drivers on haulages, compressors and pumps. Their job takes them to all parts of the quarry; an expert and efficient group whose work is apt, by most of us, to be taken for granted, a failing which incidentally Idris Williams regards as a compliment for it means, he says, that the wheels of our industry are not only going round, they are so well greased as not to be noticed.

Controlling flow to Sumps.



Tocyn Pymtheg Swllt

gan RILEY*

MEDDYLIAIS LAWER cyn y gwyliau am godi tocyn pymtheg swllt eleni a chrwydro dipyn ar hyd a lled yr ychydig o Ogledd Cymru a ganiatai y tocyn hwnnw.

Dydd Llun.—Am yr orsaf yn gynnar a chychwyn am y Rhyl. Yr oedd gennyf dri o fechgyn ar draws yr unarbymtheg oed o dan fy ngofal. O dan fy ngofal ddywedais ynte! Tybed nad y fi oedd o dan eu gofal hwy, gan mai felly y trodd pethau allan yn gynnar iawn ar y daith. Cefais fy hysbysu a'm cyfarwyddo sut yr oedd pethau i fod. Pa le yr oeddwn i giniawa a chael tē, a pha le yr oeddwn i dreulio y rhan fwyaf o ddydd Llun.

Cerddwyd fi yn ddidrugaredd trwy y bore ar hyd yr heolydd, o un masnachdy i'r llall, gan brynu "y pethau rhyfeddaf a fu" fel y dywed Crwys yn "Ellis Edwards o'r Bala." Awgrymais yn gynil mai camgymeriad o'r mwyaf oedd gwario mor gynnar ar yr wythnos, ond i ddim pwrpas, a chefais y "final" mai yn y dechreu yr oedd yr amser goreu i brynu anrhegion cyn dechreu gwario yr arian ar "enjoyments y Marine Lake." Ac erbyn meddwl, a gweld hefyd ymhellach ymlaen, yr oedd hynny yn rhesymeg, yn wir, oherwydd ar ôl cinio aethom i'r paradwys hwnnw y gŵyr y plantos mor dda am dano. Yno fe wariais fel yn-fytyn. 'Roedd yn rhaid mynd ar y "Big Dipper" neu'r "Figure Eight" cyn dechreu gweld unpeth, a chyn i mi gael fy ngwynt ar ôl y rhythr chwrl-gwgan gwthiwyd fi dros y ffordd i'r ffair arall, ac ar rhyw "Moon Rocket." Dyma brofiad hallt. Yr oedd hwn yn trafaelio ddeng milltir a phedwar ugain yr awr mewn cylch o rhyw bymtheg llath, ac yn fuan iawn yr oeddwn yn difaru i mi erioed gymeryd fy mherswadio gan yr un llefnyn unarbymtheg oed i giniawa ar

"fish and chips," gan fod perigl i'r cyfan fynd yn ofer. Bu raid i mi adael y llanciau i'w helynt a mynd am wynt y môr neu gymeryd y canlyniadau.

Ond dyma hwyl a gawsom ar ol tē. Yr oeddwn yn teimlo yn llawer gwell eto erbyn hyn ac effeithiau y "Moon Rocket" yn gwisgo i ffwrdd yn araf deg. Aethom i droio ein llaw ar y "Kentucky Derby." Rhyw fath ar rās ceffylau oedd honno, a gwae imi erioed weld rās geffylau gyffelyb, oherwydd pan aethom oddi yno yr oeddwn bron yn "stone-broke," a hithau yn ddim ond dydd Llun cyntaf y gwyliau. Yr oeddwn wedi blino yn arswydus erbyn cyrraedd adref.

Dydd Mawrth.—Cychwyn drachefn ac un yn llai o'r llafnau di-brofiad i'm canlyn, ond yr oedd gennyf gyfaill at fy oed y dydd yma, ynghyd a'i eneth fach ddeg oed. Y Rhyl drachefn, ond nid i wario y tro yma, ond i fwynhau fy hunan. Cefais ddiwrnod dipyn esmwythach, ond wrth gwrs 'roedd yn rhaid mynd ar rai o'r "amusements" gyda'r eneth fach, a chyn dod oddiyno aethom ar y "Big Wheel," a dyna olygfa a gawsom o ben honno. Yr oedd yr hwrli-bwrli i gyd ymhell oddi tanom, a swm y canu o'r gwahanol beirianau yn esgyn yn esmwyth ar y clyw fel miwsig o wlad "hud a hedrith."

Dydd Mercher.—Penderfynwyd dydd Mercher fynd i Fae Colwyn gyda dau deulu cymdogol. Dyma ddiwrnod hapus dros ben, a'r haul yn tywynnu o ddifrif am y tro cyntaf o'r wythnos. Yr oedd dau o blant yn y cwmni y tro hwn. Yr eneth fach a'i chefnider, plant y cymydogion wrth gwrs. Ar y tywod wrth lan y môr y bu mi trwy y bore yn helpu'r plant i chwareu yn y tywod, ac yn teimlo mor ieuanc a'r un o honynt. O! diwrnod i'w

gofio oedd hwn; gofidiwn na bawn ugain mlynedd beth bynnag yn ieuengach. Yr oeddwn ar binacl hapusrwydd serch hynny. Ni wyddwn o'r blaen fod yn bosibl i neb deimlo mor ddedwydd. Dim ond swm y môr a lleisiau plant yn chwareu. Fel y daeth y llanw i mewn daeth cawod drom o wlaw i'w ganlyn, a rhaid oedd gadael glan y môr, ac aethom i fyny i Eirias Park i chwareu "see-saw" ac ar y "swing" gyda'r plant, a dyna hwyl a gawsai y pethau bach, a minnau hefyd, o ran hynny. Buom yno trwy'r prynhawn. Cawsom dê ar y fangre ac ychydig "swings" drachefn, yna i lawr tua'r dre ac adre yn gynnar; a gellid dweud am danaf ar ddiwedd y dydd Mercher hwnnw "Little man you've had a busy day."

Dydd Iau.—Newid cwmni eto, yn ôl at y llanciau direidus, a'i chychwyn hi am Gaergybi. Diwrnod braf eto, a llawer o hwyl a gawsom yno. Aethom i weld y "Mail Boats," y goleudai a llawer o bethau diddorol eraill. Diwrnod addysgiadol a fu hwn ar y cyfan, a dyna olygfa a geir wrth groesi ar draws hên ynys Goronwy a'r Morusiaid enwog, a daeth cadwyn o englynion o eiddo'r Parch. William Morris i'm côf, a gofidiaf nad oes le na chyfle i'w hysgrifennu yn y dyddlyfr yma. Ar y ffordd gartref galwasom yn Llanrwst i weled rhyw ychydig ar yr Eisteddfod Genedlaethol a'i miri, a'r hyn a'm synodd fwyaf oedd clywed Cymry glân gloew yn clebran siarad Saesneg a'u gilydd wrth y fynedfa i faes yr eisteddfod. Rhag cywilydd i unrhyw Gymro a fradycha iaith ei fam. Gwell clywed Sais yn siarad yn ei iaith ei hun na Chymro heb iaith o gwbl.

Dydd Gwener.—Fe hudwyd fi dydd Gwener gan fy nghyfaill drachefn, a'r tro hwn i'r eisteddfod, ac yn wir cawsom ddiwrnod braf a mwynhau ein hunain yn gampus. Yr oedd miloedd yn gorwedd ar y llechweddau o amgylch y Pafiliwn. Nid oeddwn yn difaru mynd yno, oherwydd fe gyfarfyddais a llawer hen ffrynd yn ystod y dydd. Ar ôl tê aethom i'r arddangosfa celf a chreffit, a gallaf ddywedyd mai da oedd i ni fod yno. Yn Dolwyddelan ar y ffordd gartref trosglwyddwyd y tocyn pymtheg swllt yn ôl

i'r porter, a dyna ddiwedd yr helynt i gyd.

Pe gofynai rhywun i mi a awn eto gyda'r un cyfleusterau, atebwn: Na, dim diolch yn fawr. Wythnos (neu fwy) i mi y tro nesaf ar lan y môr, lle y caf orffwyso a meddwl. Ni chefais amser i feddwl y tro hwn.

Pe gofynai rhywun i mi pa ddiwrnod y bu i mi fwynhau fy hun fwyaf o'r wythnos, atebwn dydd Mercher, heb os nag onibae, a'r rheswm yw, feallai fod henaint yn dod ar fy ngwarthaf yn araf deg, a bod y "teenagers" yn rhy gyflym i mi erbyn hyn.

Feallai fod "dwywaith yn blentyn" yn ffaith yn fy hanes erbyn hyn, gan fod awydd chwareu ar lan y môr mor gryf ynof. Feallai fod rheswm arall yn ffaith na hoffwn ei groniclo mewn dyddlyfr.



*"Riley," the writer of our prize essay, is Harry Hughes, rockman at "Q" 11, Oakeley, and well-known compere of Parti'r Bryniau, popular exponents of "noson lawen" variety. His theme is the modern "magic carpet"—the fifteen shillings railway "roundabout" season ticket, with a day-to-day diary of the delights so secured. Below is a picture of our winner.



H.R.H. The Duchess of Kent sees Slate-making at Oakeley



Using Slatemaker's Chisels

IN HER CAPACITY as Lady Supt-in-Chief of the Order of St. John for Wales, H.R.H. the Duchess of Kent paid a memorable two days visit of inspection to Merioneth and West Wales on July 11 and 12, and to the Oakeley Slate Quarries went the distinction of being the first place of call on the long drive from Snowdonia to Cardigan Bay.

Graced by good weather, in which the famed Merioneth vistas showed up to fine advantage, the tour officially began at the Oakeley Quarry, actually at the entrance to our Bonc Coedan mill where, later, our distinguished visitor not only watched the work of slatemaking, but was persuaded to try her hand at producing a standard "duchess" slate.

Awaiting her Royal Highness at Bonc Coedan were Lord Harlech (Lord Lieut-

enant) and Lady Harlech, with Mr. Hugh J. Owen (Clerk to the Lieutenancy), Sir Charles Oakeley, Bart., chairman of our Board of Directors, Mrs. M. C. Inge, of Plas Tanybwllch, a former director and an active member of St. John Ambulance ;

Greeting Veteran Evan Edward Jones





MARLBOROUGH HOUSE, S.W.

13th July, 1951.

Dear Sir Charles Oakeley,

The Duchess of Kent has asked me to write to you and tell you how pleased she was with her visit to the Oakeley quarries on Wednesday. Her Royal Highness was sorry that the visit was necessarily only a brief one, but it gave her time to see something of the kind of work which is done there, and to be much impressed by what she saw.

The Duchess of Kent would be grateful if you would let it be known to all who were concerned in this visit how pleased she was with the warm welcome which was given her there, and especially by the magnificent salute of rock cannon which marked her departure.

Yours sincerely,

Sir Charles Oakeley, St.,
The Oakeley Slate Quarries, Ltd.,
Blaenau Ffestiniog,
N. Wales.

Philip Hay

Mr. Harry Cutts (general manager, Oakeley and Votty), Mr. Gwilym Humphreys (Oakeley quarry manager), and Mr. Evan Edward Jones, veteran slatemaker at Oakeley. Representing the St. John Ambulance Brigade, a local detachment of which formed a Guard of Honour, were Brigadier C. H. V. Pritchard, some amusement, that part of the production that morning was actually the preparation of our 24 x 12 "duchess" slates. "Splitting" and "dressing" "duchesses" at the point where her Royal Highness stopped for a closer examination were slatemakers William Parry Hughes and Ieuan Thomas.

Facsimile of letter from Mr. Philip Hay, private secretary to the Duchess of Kent.

Bottom left: Inspecting quarrymen's gift of a slate fan.

Bottom right: Oakeley quarrymen await our Royal visitor.

D.S.O. (County Commandant) and Mr. F. Lloyd Jones (Divisional Superintendent). A large company of officials and quarrymen were also in attendance when the Duchess of Kent, smiling a greeting, stepped from her car to be received by Lord Harlech, who made the formal presentations.

Accompanied by the Lord Lieutenant, Lady Rachael Davidson (lady-in-waiting) Mr. Philip Hay (private secretary), and with Sir Charles Oakeley as her guide, the Duchess passed through a guard of honour of Blaenau Ffestiniog members of St. John Ambulance and entered the mill.

Having inspected the sawing machines, the Duchess learned with interest, and

The Duchess of Kent listens to an explanation of the cleavage.



The Duchess of Kent stood by fascinated by the deftness with which the slatemaker unerringly split the slab into the requisite number of thicknesses. She watched closely the work of Ieuan Thomas, who stood before a revolving knife trimming the slates.

No less intrigued than any other stranger to the craft of slatemaking, our Royal visitor listened with keen interest to an explanation of the "mysteries" of the cleavage, and the functions of the splitting and gauge chisels given by William Parry Hughes. She was invited to "split a duchess or two" for herself, and with the guidance of our quarry manager and slatemaker two unblemished "24 x 12's" obediently parted before the Duchess's chisels.

The visit to Oakeley was necessarily brief, but, as the Duchess herself has expressed, through her private secretary in the letter to Sir Charles Oakeley that we have reproduced, the visit had some lasting impressions—not the least being one of our special "rock cannon" salutes,

fired in train as the Royal car left the quarry precincts to continue the drive down the Pass to Blaenau Ffestiniog. The rolling cannonade of 700 sticks of gelignite exploded along a train of gunpowder reverberated and echoed for a full three minutes, carrying with it the signal to the waiting crowds in beflagged Blaenau that the Duchess, having visited the quarrymen at their work, was now to see their town and home folk.

The Duchess chatted with retired former quarrymen assembled with the large admiring crowd in the main street, and before leaving for Harlech and the long journey to Aberystwyth, she accepted as a memento of the visit to our quarrying community the gift of a slate fan, fashioned of finely split slips of slate by Mr. E. R. Ellis, and presented to her by Mr. William Rowlands, of Votty, on behalf of all the quarrymen of the district.





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Oakeley from the Air
(see page 18)

The Origin of Slate—3

The last of the series based on "The Slates of Wales," by permission of the author, Dr. F. J. North, Keeper of the Department of Geology in the National Museum of Wales.

WE have now had the general outline of the formation of slate. Let us conclude by referring more particularly to Wales and the slates of Blaenau Ffestiniog.

In the very remote past, in the geologists' "Cambrian" period, most of the region that is now North Wales lay beneath a sea, and layers of mud, sand and pebbles accumulated on its floor to a thickness of about 5,000 feet in Caernarvonshire and 13,000 feet in Merionethshire. In using the present-day names to indicate these localities it must be remembered that they did not exist in their present form when the rocks of which they now consist were being formed. Only in a comparatively recent age did the British Isles acquire the shape and surface features—such as Snowdon—with which we are familiar. It is believed that the ancient land mass lay to the east.

Volcanic Dust

In North Wales the accumulation of marine deposits continued into the next, the Ordovician, period. Volcanoes arose locally on the floor of the sea. It was during this period that the deposits destined to form the slates of Blaenau Ffestiniog were laid down. It is thought probable that these particular deposits were among those that originated from exceedingly fine volcanic dust.

The accumulation in the sea of so great a thickness of sedimentary and volcanic material implies a sea-floor that was slowly sinking—otherwise the basin would have been completely filled up.

As a result of this long-continued subsidence and deposition the fine-grained muds formed during the Cambrian Period and the early part of the Ordovician Period were deeply buried beneath strata that accumulated during later periods.

Ancient Sediments

It is to this subsidence that the existence of the present slate regions in North Wales is primarily due. Thick accumulations of sediment tend to fill hollows in the earth's crust that are being produced as the result of earth-movement. The formation of such depressions is usually the precursor of the crustal movements that give rise to mountain chains. As a result of this sequence of processes it frequently happens that the areas in which geological formations have now their most important outcrops are those in which they were originally deposited in greatest thickness.

The accumulations of ancient sediments in North Wales must have continued until those which are now slate were buried to a depth of at least 25,000 feet, and were subjected to enormous pressure due to the weight of material upon them as well as to considerable heat.

North Wales Sea

There had been from time to time a tendency for the rocks to be laterally compressed and by folding to accommodate themselves to a smaller horizontal space, but at the close of the Silurian Period (which followed the Ordovician)* and during the succeeding Devonian

Period this part of the earth's crust passed into a state of violent unrest and the rocks which had already been formed were intensely squeezed. The period during which the movements took place was a long one, for such earth-movements neither begin nor end abruptly; they increase in intensity for a considerable time and then gradually die away.

As a result of the pressure the rocks which had accumulated in the sea that covered the site of what is now North Wales were folded and built up into mountains which were part of a great chain extending in a direction approximately north-east—south-west. The mountains of Scandinavia and of the north-west Highlands of Scotland, as well as those of North Wales, are worn-down relics of that ancient range.

Producing the Cleavage

In North Wales these earth movements laid the foundation of the present geographical pattern of the country, sub-

sequently emphasised by differential erosion of the harder and softer rocks.

Since the trend of the folds into which rocks are thrown during periods of earth movement must be more or less at right angles to the direction of the pressure which produces them the north-easterly/north-westerly trend of the folds and the cleavage in North Wales indicates that the pressure must have come from the north-west or the south-east, but there have been differences of opinion as to which.

In any case, it was the pressure exerted by these earth movements that produced, by the processes explained in the previous issue, the cleavage in suitable rocks and resulted in the slates of North Wales.

Illustrations

Figure 4 shews the relation of the slate regions of North Wales to the geological structure of the district. (The section indicates only the general character of

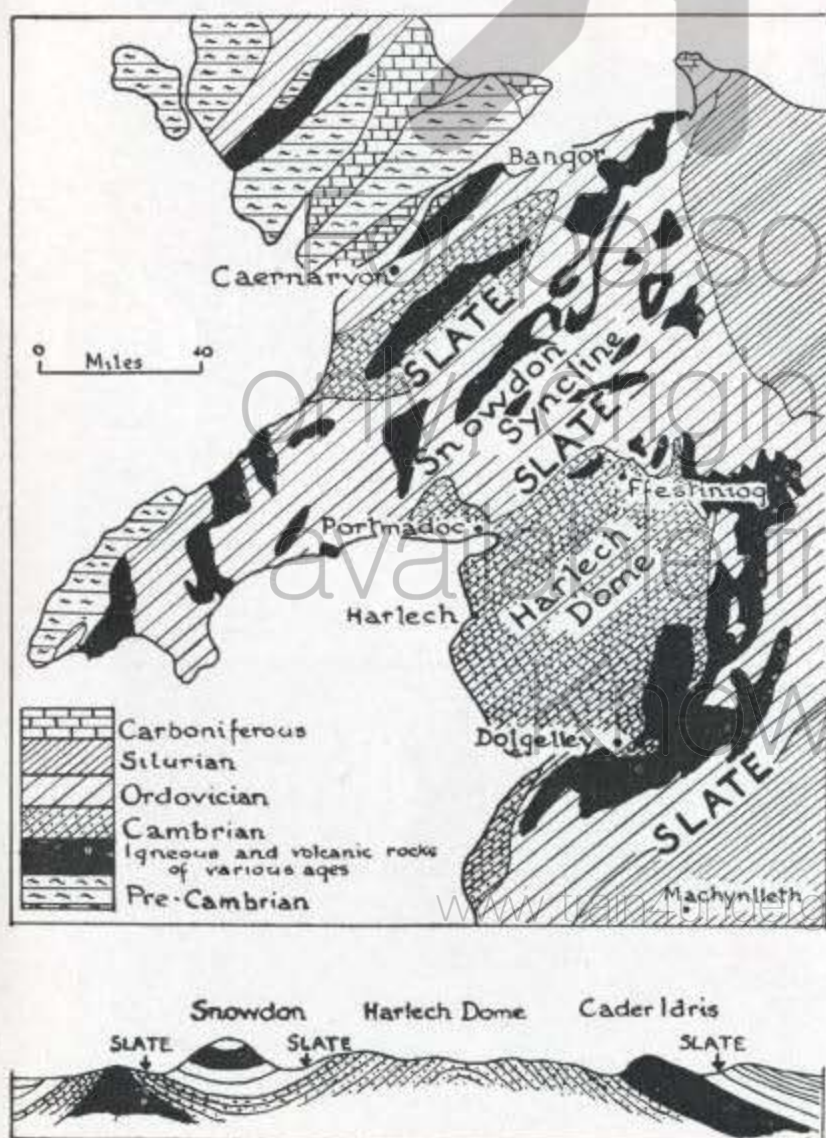


Fig. 4.

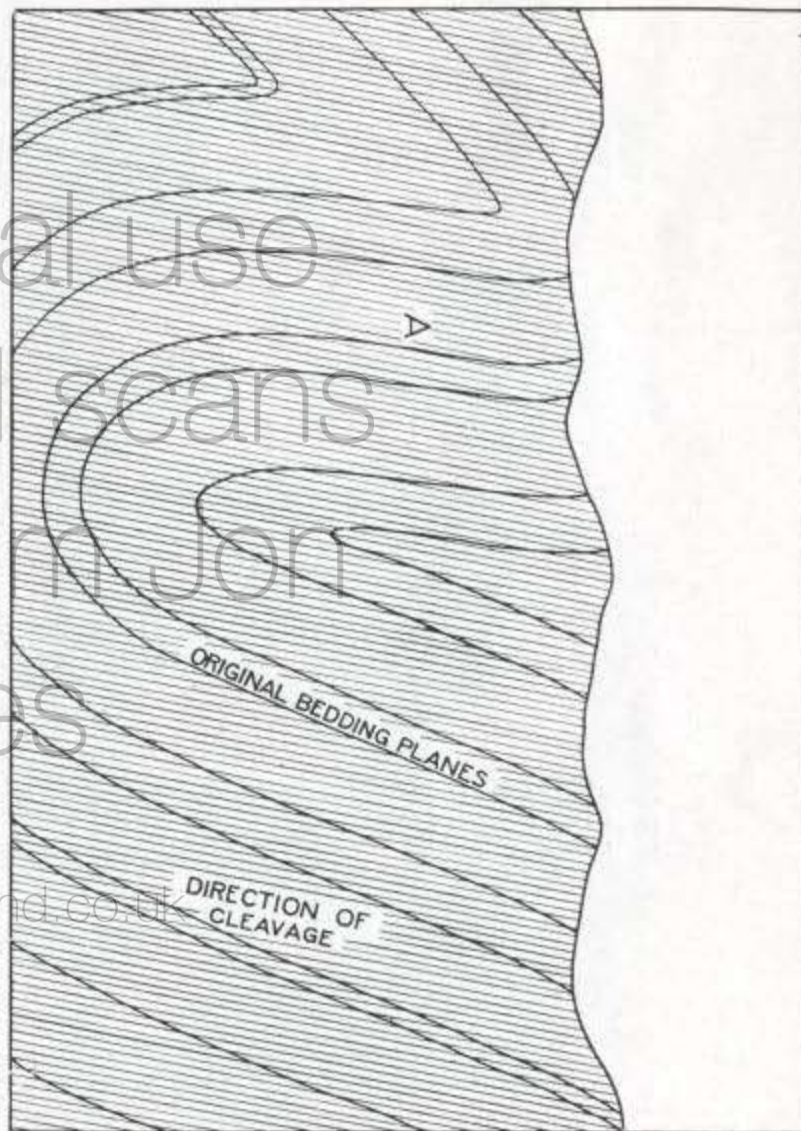


Fig. 5.

the strata, and not their true thickness nor the details of their succession.) Figure 5 illustrates diagrammatically the folding of the rocks and the development of cleavage irrespective of the original lie of the strata, although the relation between the cleavage and the bedding planes may affect the working of the slate rock.

Here, then, is the picture revealed by the geologist. Dust and mud carried to the bottom of the sea 350 to 400 million years ago, buried under thousands of feet of rock, folded, lifted, metamorphosed by the contortions of the earth's crust—

some 300 million years old if we count that upheaval as its birth—that is the story of our slate.

**It is interesting to note that Wales has provided the names, internationally used, for so many of the subdivisions of rocks and geological time. "Cambrian" is obvious; "Ordovician" and "Silurian" rocks occur in parts of Wales and the border once occupied by the Ordovices and Silures, ancient British tribes. Many other geological names are derived from localities in Wales.*

OAKELEY FROM THE AIR

IF THERE WERE now a raven with its eyrie on Craig Nyth-y-Gigfran it would, on its aerial excursions, often see the view that we give pride of place on our centre pages. To us this photograph from the air presents a most uncommon view of the Oakeley Quarries

Flying as close as he dared to our niche in the range of hills the photographer has caught us with the "sun in our eyes," every detail of the quarry top being clearly defined. The roofs of the Bonc Shaft mills glisten in the bottom foreground, with Bonc Coedan mill a little beyond and the higher Middle

Quarry group of mills further to the right. Yet the uninitiated would hardly guess that between Bonc Shaft and Middle Quarry mills is, in fact, a great excavation at the bottom of which are the main entrances to the present mine.

To the right rise the terraced floors of older workings, "daylight" galleries on some of which rockmen are still employed. Beyond them, hiding most of Tanygrisiau, stretch the craggy terraces of Craig Nyth-y-Gigfran ("raven's nest rock"), and at the top of the picture can be seen part of Blaenau Ffestiniog.

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New Books

WE have to thank Messrs. Evers & Co., of Copenhagen, to whom we have sent slates for very many years, for sending a very well produced volume of photographs of their city to add to the Club library. The titles and descriptive foreword are in English, and the pictures of this attractive capital range over what the introduction refers to as "its riot of public buildings, its gardens and parks, and the animated life of its spacious harbour."

We reproduce below the photograph of the Fish Market at Gammel Strand on which Messrs. Evers & Co. have marked the position of their premises.

Local Lore

Coming much nearer home, we have the latest "Journal of the Merioneth

Historical and Record Society," with its customary miscellany of local antiquarian lore. The main paper this time is one read to the Society by Dr. R. T. Jenkins of Bangor, on the history of Bala Grammar School. Now we must confess to no special interest in this subject, yet, after a cursory glance at first, we found ourselves reading with attention and increasing delight in the "live" way in which the author presented and commented upon the results of what had evidently been much industrious research.

Also in the Journal, and naturally of more local interest to many of our members, are some notes on Pengwern, Ffestiniog.



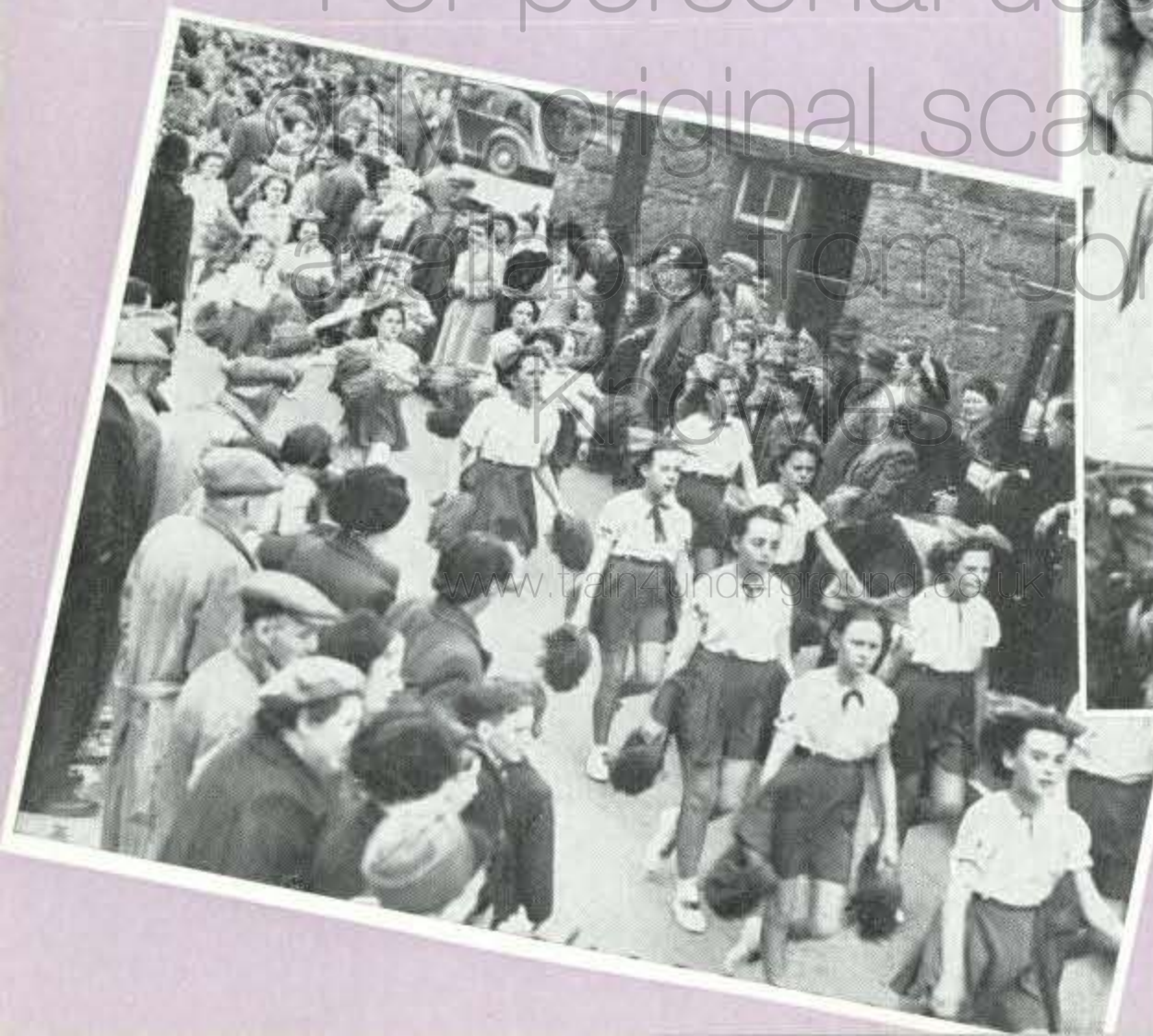
The Fish Market at Gammel Strand, Copenhagen

Carnival Comes to Blaenau!



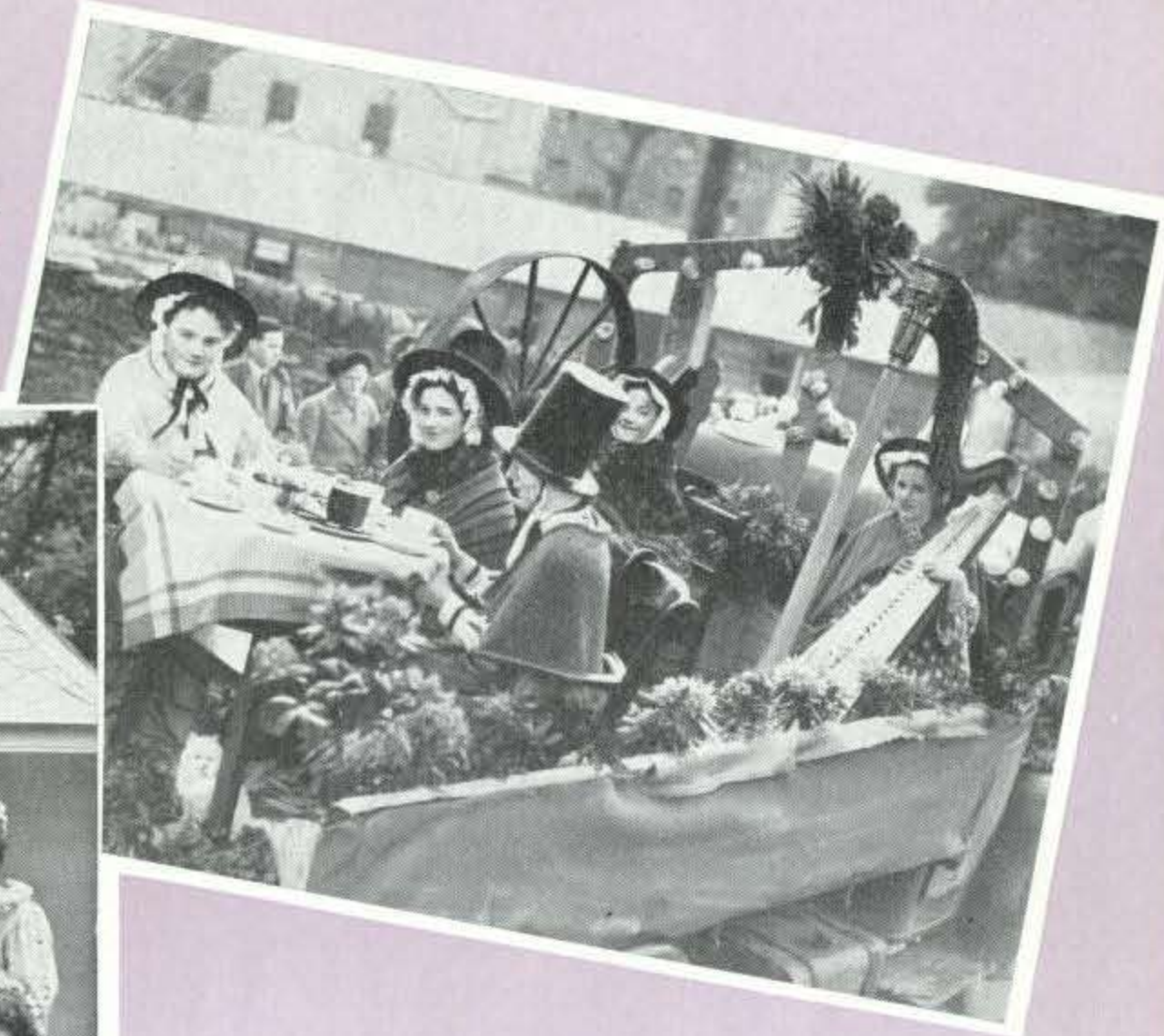
(Above) Queen Marjorie, the winner, smilingly accepts congratulations from Queen Eluned, (Oakeley Club) who was placed second.

(Below) Morris dancers in Carnival parade.



Queen Eluned, Oakeley
and her

and Votty Club Candidate
suite.



(Above) A "Welsh tea-party" improves shining hour with harp and spinning wheel.

(Below) Completing the festive scene were Hawaiian dancers.





*R. F. Hughes and Idris Jones,
Slate Inspectors, Oakeley.*

SLATE INSPECTORS in charge at the mills are officials by virtue of their special knowledge. They are men who have literally gone through the mill of experience in their department of production at the quarries.

At Oakeley we have, for instance, Robert Francis Hughes, slate inspector since 1936, and specifically trained to the task, and Idris Jones, who joined the staff of inspectors in 1937.

ROBERT FRANCIS HUGHES presides at Bonc Shafft mills, and started as a youth with Ben Jones, former chief inspector at Oakeley. Under the special guidance of his chief he worked through the essential early stages as rubbisher, and later as slatemaker and partner. This preliminary training embraced experience in all our mills and with all methods of production and qualities of slate products. Promotion to a staff appointment as inspector at Bonc Coedan came in 1936, a post which entailed the full use of the knowledge acquired, plus an ability to superintend the flow of work, to check it and record it. The records are taken outdoors on the slate banks and, as of yore, are written in all weathers on the unfailing old-fashioned slate "notebook."

The inspectors, as our picture shows, are identified by their inseparable "recorder"—a piece of slate. The figures are entered in more permanent form for checking against the quarrymen partners' own "account," and from these two sets of figures is derived the final reckoning on the monthly "bargains."

After a period at Bonc Coedan Robert F. Hughes had twelve months experience as inspector at the Cwmorthin quarry followed by a return to Oakeley, to the large mills at Bonc Shafft, where he has remained in charge of production.

IDRIS JONES, who followed a similar career, joined the staff in place of Robert Francis Hughes at Cwmorthin. In the war years he entered the slab mill, and in 1944

was appointed to his present charge as inspector. Off duty will find Robert Francis Hughes tending his bees. Idris Jones, who continues breeding budge-rigars, has added show rabbits to his pursuit, a development which has already been crowned with success—a first and two seconds at Anglesey county show, and a championship at the Harlech show.

William Roberts, Unhitcher, Oakeley.



Between
OAKELEY
WHO'S

WILLIAM ROBERTS, otherwise "Wil Seth," a name bestowed forty-seven years ago to associate the boy blacksmith striker with his father, Seth Roberts, rockman at Oakeley, probably sees and handles as much of our output as any man. Working at the top of "K" level his job is that of unhitcher on the main haulage up five floors from "P." His daily average of waggons handled must amount to a total of 400 laden and empty. Everything sent up and returned is unhitched by William Roberts. He sends the slate slabs and the waggons of

waste on their way out to daylight via the "K" balance lift, receives the empties and delivers them below, a smooth-running operation. William Roberts has been thirty-seven years

employed on the "K" level. The earlier period included work as a miner and rockman.

ROBERT JOHN PRITCHARD has been a slate inspector at Votty for 21 years. Like his opposite numbers at Oakeley, R. J. Pritchard graduated to the staff via the route of full experience.

David Davies, Votty Weighman.



R. J. Pritchard, Votty Slate Inspector.

Starting as a boy apprentice before the first world war, he returned to Votty after war service as a slatemaker. Seven years of experience in this capacity found him qualified for a staff appointment, and in 1930 he became a slate inspector. Our Votty inspector, like several in his charge, is a veteran of the championship days of local league football.

During the period of his early career he was centre-half and "sheet anchor" of the Ffestiniog league championship team—then an outstanding combination. During the 1914-18 war he secured a place in his divisional team. Another pursuit was choral singing. R. J. Pritchard shone in this capacity, too, in the well-known but now defunct Blaenau Ffestiniog Choral Society.

DAVID DAVIES, weighman at Votty, weighs and keeps account of the loads coming up from the mine to the high main tip at Tuxford. He is 73 and started on this job on recovering from an accident that cost him his left arm in 1913. He has not been up there all that time; he put in a solid 21 years on the weigh-bridge at "Old Robey"—where the main underground incline comes up—but returned to Tuxford in 1950.

(Continued on page 27)



HOLIDAY SNAPS

Competition Result

First Prize: John Lewis Arnold

THE response to our Holiday "Snaps" competition was the best of the series, and most encouraging from all points of view. Some of the entrants may have lacked the technical skill to secure the picture they actually sought, and to them we say: better luck and less haste next time! Others missed the essential holiday atmosphere, a point which we hope they will not overlook when next they try to catch the judge's eye.

Professional, or exceptional standards of photography are not expected, although, of course, proof of any hidden

talent in this direction is always welcome. We have looked for the happy or unusual "snap"—pictures bearing the stamp of topicality and spontaneity, such as that of our first prize winner, John Lewis

Second Prize: Peter Owen



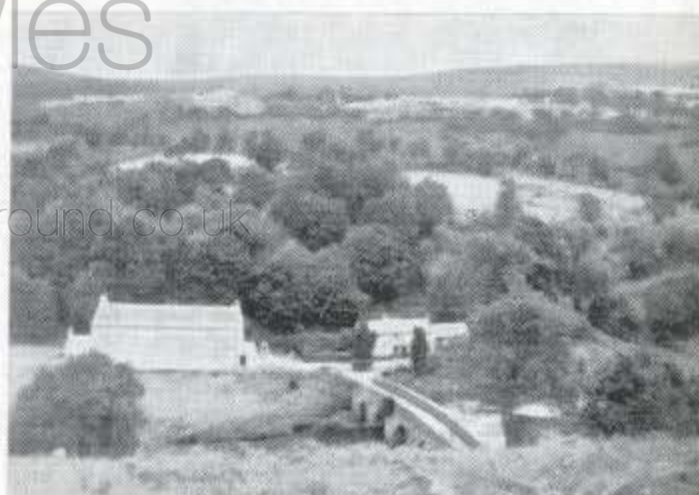


Equal Third: John Douglas Jones and Ieuan Thomas.

Arnold, wharfman, who appears to have captured the whole holiday spirit in his simple study of the curly-headed tots ankle-deep in the sea at Prestatyn, reveling in their first "paddle" of the holiday.

Again, the unusual is typified in our second choice, a quite skilful attempt by Peter Owen to give a new perspective to a holiday in the Isle of Man. He has picked out a floral representation of the familiar "Legs of Man" in the reflection of a myriad fairy lights.

The choice of a third prize winner was difficult and was finally resolved by the award of five shillings prizes to four of equal merit. Three of the pictures speak for themselves—a picknicking group holidaying at home with the junior member lustily asking for more; a reminder of the Festival year; a care-free family making the most of a seaside holiday, and the fourth, a snap of a tiny Irish village, comprising only a house, a church and a bridge.



Equal Third: W. R. Hughes and J. E. Roberts.

NEWS EXCHANGE

Mabolgampau Blynnyddol Club yr Oakeley a Votty

LLWYDDIANUS tros ben oedd y mabolgampau blynnyddol a gynhaliwyd ar gae Dol Awel ar brynhawn hyfryd, Sadwrn, Gorffennaf 28, 1951. Cyrchodd tyrfa fawr ynghyd, a chan fod y rhaglen mor amrywiol daeth tros ddau gant o ymgeiswyr ymlaen.

Cystadleuaeth tra diddorol oedd rhedeg pedwar ugain llath i ddynion tros hanner cant oed, ac yr oedd cyflymdra y buddugwr, Mr. T. Hughes Jones, yn nodedig. *Item* arall werth chweil oedd y *pole jump*, ac fe roddodd David Morgan, yr enillwr, arddangosfa ardderchog; yn wir, mi fuasai'r neidio yn gyffredinol yn gredit i unrhyw fabolgampau. Yn anffortunos bu rhaid cwtogi tipyn ar y gystadleuaeth taflu *quoits* gan mai *singles* yn unig a allwyd ei drefnu. Fodd bynag, ni amharodd hyn ddim ar safon y gystadleuaeth, a gorfu i'r buddugol, Mr. A. Cooke Thomas, ymdrechu ei orau glas i feistroli rhai o brif daflwyr *quoits* yr ardal.

Y beirniaid oedd Meistri G. W. Humphreys, Alfred Hughes, Edward Jones, T. Hugh Jones, J. O. Williams, Humphrey Lewis, Robert Thomas, W. Ll. Owen; cyhoeddwr, J. E. Jones; cad-eirydd y pwyllgor, Humphrey Morris; trysorydd, Trevor Davies.

Ffarwelio a Chroesawu Ffarwelio

Yn ddiweddar yn Caban Mawr, Chwarel y Foty, ffarweliwyd â'r chwarelwr ifanc Evan Ellis Thomas ar ei ymadawiad i ymuno â'r Fyddin. Ar ran ei gydweithwyr, cyflwynwyd anrheg iddo gan Ieuan E. Jones. Dymunwyd yn dda a rhoddwyd cyngorion iddo gan y brödyr Sam Roberts (llywydd), R. J. Jones, Howell Williams, R. D. Jones a Humphrey Lewis. Deallwn mai mewn gwersyll ger Croesoswallt y mae Evan ar hyn o bryd, a'i fod mewn hwyl iawn. Anfonwn ein cofion ato.

Fe gyfrannodd Mr. Douglas Hervey a Mr. Idwal Jones tuag at y gwobrwyon.

Results

50 yards, for boys and girls, under 8 years of age: 1, Glenys Mai Jones; 2, Haf Wyn Williams. 60 yards for boys, under 12: 1, Gwyn Roberts; 2, Ken Roberts. 60 yards for girls, under 12: 1, Brenda Thomas; 2, Mary Meirionwen Jones. 80 yards for boys, under 15: 1, Griffith Jones; 2, Gwyn Roberts. 80 yards for girls, under 15: 1, Rhiannon Jones; 2, Menna Jones. 100 yards for boys, under 18: 1, Tommy Davies; 2, Reginald Roberts. 100 yards for girls, under 18: 1, Rhiannon A. Jones; 2, Menna Jones. Half-mile for boys, under 19: 1, Tommy Davies; 2, G. Morgan. Three-legged race for boys and girls, under 12: 1, Mary M. Jones and Margaret E. Roberts. Three-legged race for boys and girls, under 15: 1 (equal), Melfyn Hughes and Leslie Jones, Rhiannon Jones and Menna Jones. Three-legged race for boys, under 18: 1, Melfyn Hughes and Leslie Jones. Three-legged race for girls, under 18: 1, Mary M. Jones and M. E. Roberts. Sack race for boys and girls, under 12: 1 (equal), Ellis Owen Jones and Cyril Wyn Davies. Sack race for boys and girls, under 15: 1, Brenda Thomas; 2 (equal), Gwerfyl Jones and M. E. Roberts. 100 yards, (under 20): 1, David Morgan; 2, Tommy Davies. High jump, (under 18): 1, David Morgan. High jump, (under 20): 1, David Morgan. Long jump, (under 20): 1, Ronnie Jones. Pole jump, (under 20): 1 (equal), Don Evans and D. W. Thomas. Relay race: 1, Gwyn Morgan. 100 yards race for men 30-50: 1, Enoch Morris; 2, W. R. Jones. 80 yards race for men, over 50: 1, T. Hughes Jones; 2, Alfred Hughes. Quoting competition: 1, Arthur Cooke Thomas; 2, Hugh Hughes.

Cyn y daw y rhifyn hwn o'r *Caban* o'r wasg byddwn wedi ffarwelio a chydweithiwr ifanc arall, sef Robert C. Thomas. Bydd ef yn ymadael yn ystod y dyddiau nesaf yma i ymuno â'r Llynges. Ein dymuniadau gorau i Bob hefyd!

Croesawu

Croeso yn ôl o'r Llynges i Ifor Wyn Jones. Fe gofir inni ffarwelio ac ef yn rhifyn Hydref, 1949, o'r *Caban*. Erbyn hyn mae Ifor wedi ail-afael yn ei waith fel chwarelwr.

Croeso hefyd i newydd-ddyfodiad, sef Gwynros Thomas, llanc pymtheg oed,



Gwynros Thomas

gychwynodd yma'n ddiweddar o'r ysgol. Dyma ddarlun ohono. Daw Gwynros o deulu sydd yn adnabyddus iawn fel gweithwyr yn y Foty. Mab ydyw i Ivor Thomas, a brawd i John Ifor ac Evan Ellis Thomas. Yn nyfodiad Gwynros, dyma'r tad â'r tri mab yn awr yng ngwasanaeth y cwmni. (Fel y gwyddis, cyfarfu'r tad â damwain flin yma beth amser yn ôl. Da gennym ei weld yn gwella'n dda, a dymunwn iddo lwyr wellhad yn fuan.)

Llongyfarchiadau

I Robert D. Williams (ysgrifennydd ein Clwb) ar ei lwyddiant yn ennill her gwpan Cymdeithas Bowlio Blaenau â'r cylch.

I John H. Jones, Heol Dorfil, ar ei ddyweddiad âg Eirwen, merch Mr. a Mrs. Owen Evans, Conglywal.

I Ronnie Humphreys. Er nad yw Ronnie eto ond unarbymtheg oed, cyflawnodd gampwaith yn ddiweddar drwy ddal amryw o eogiaid sylweddol (un yn naw pwys) yn y Conwy, yng nghyffiniau Dolwyddelan.

(Tra'n sôn am bysgota eogiaid, ni allwn lai na chydymdeimlo â Dennis Roberts, y Swyddfa. Yn llawn hyder, ac yn darogan pethau mawr, treuliodd y rhan fwyaf o'i wyliau gyda'i enwair ar lannau'r Glaslyn ym Meddgelert. Ond er ei holl ddygnwch a'i ymdrechion diflino ddydd a nos ger yr afon, trist ydyw cofnodi mai gwag fu'r gawell bob tro!)

Dyna beth Od!

Somebody has claimed that he had heard the Oakeley siren as far south as Ynyspenllwch. "Dyna beth od," you might remark, "how could it be so?" And that's it! "Dyna Beth Od," the B.B.C. Welsh Regional radio feature on out-of-the-ordinary sounds and events broadcast the deep-throated note of our compressed-air driven ship's hooter in a recent programme, and with W. J. Williams, driver of the Middle Quarry compressor, at the control, the signals—one for the hour, two for blasting, and three for the all clear—were brought into listeners' homes all over Wales. Gwilym Humphreys and Idris Williams introduced the item, and told how the fifty-year-old siren came to Oakeley from a deep sea ship to supersede the tolling of warning bells.

Duchess of Kent sees "Caban"

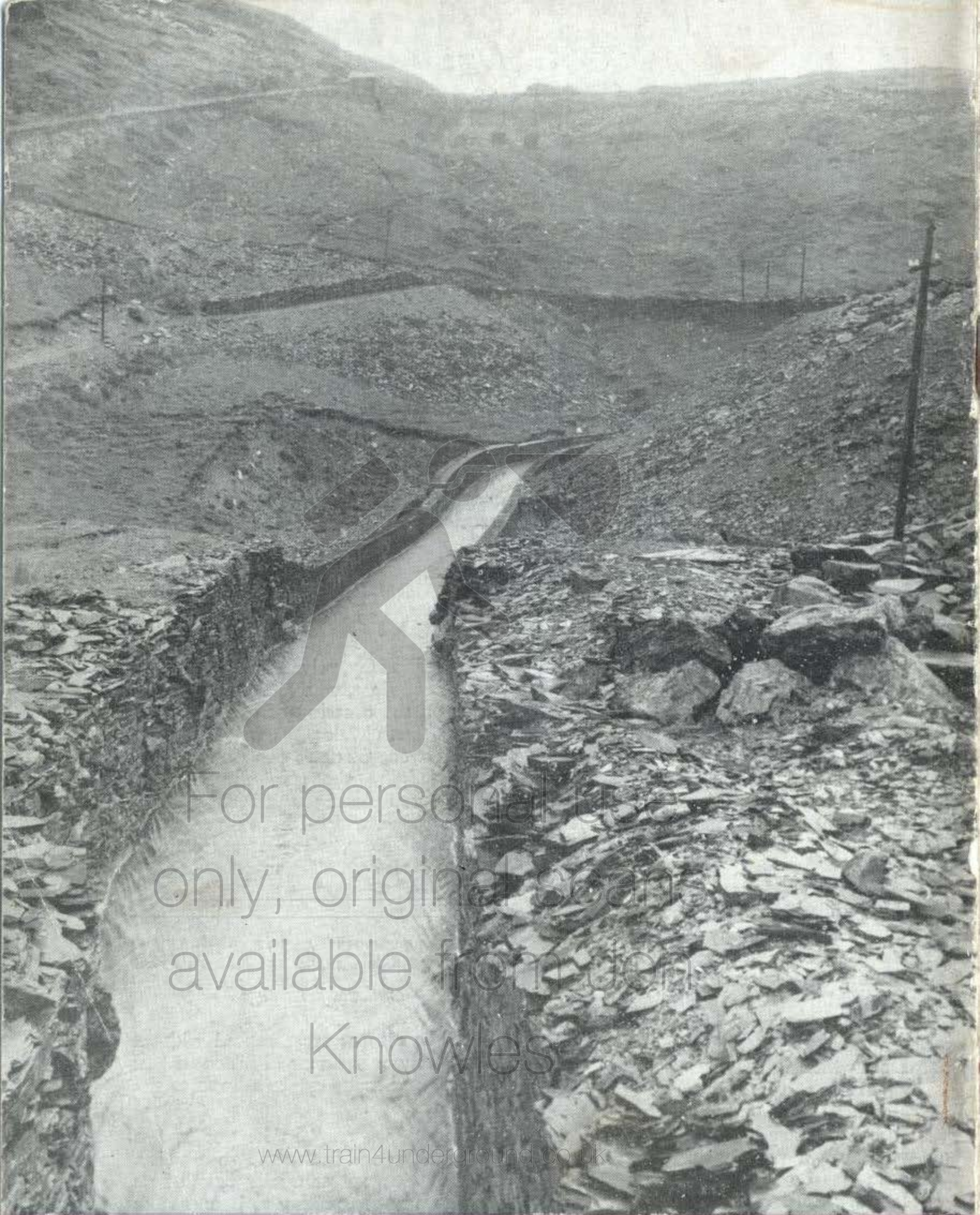
Mr. Philip Hay, private secretary to the Duchess of Kent, who received a copy of *Caban* on the occasion of the Duchess's visit to North Wales, has written to Mr. Hugh Owen, Clerk to the Lieutenancy, acknowledging the gift, and adding: "Would you please thank Mr. Cutts for this magazine, which I have given to the Duchess of Kent, who was much interested to see it? ..."

BETWEEN OURSELVES

—continued from page 23

David's returns are accepted without question by everyone, and his consistent neatness and accuracy are a boon to the office staff.

Being "up there," as he put it, has kept him in good health and good voice. Blessed with an unusually good bass voice it is not surprising to hear that he is a veteran of the choral societies, and for many years has been a stalwart of the local Old Age Pensioners' Choir.



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A MOUNTAIN "SPILLWAY" DIVERTING WATER FROM VOTTY MINE

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