

NORTHERN CAVERN AND MINE RESEARCH SOCIETY

NEWSLETTER

NUMBER 4

SEPTEMBER 1971

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SOCIETY NEWS

1 - MEMBERSHIP LIST 1971

This list contains only the names of members whose
subscriptions for 1971 had been received up to the
15th. August 1971.

It is our intention to have a new batch of addressograph plates made in the immediate future - we would therefore be obliged if you would check your name and address very carefully and let us know if there are any corrections especially such things as POSTAL CODES. Addressograph plates are expensive and we do not want to have to have these plates cut twice. Please forward any corrections, BY RETURN POST, to Mr. D. Platt, 11, Neville Street, Skipton, Yorkshire, BD23 2EU.

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Mrs. H. B. ALMOND	11, Rutland Avenue, Marton, Middlesbrough TS7 8JY
J. ALMOND A.R.S.M.	
A.M.I.M.M.	11, Rutland Avenue, Marton, Middlesbrough TS7 8JY
J. L. BARKER	The Rookery, Healaugh, Richmond, Yorkshire.
H. BARNES	South View, Burton Road, Bentham, via Lancaster
	Lancs. T.N. Bentham 736
R. BAYLES	'Teuthill', Frodsham, Warrington, Lancs. T.N. 09282-2284
R. H. BIRD	41, Windsor Walk, South Anston, Sheffield, S31 7EL
	T.N. Dinnington 3229
R. L. BLAND	229, Ireleth Road, Askham-in-Furness, Lancs.
J. BROOKE	Kennett End, Harrow Park, Harrow-on-the-Hill, Middlesex.
J. M. BURNETT	1, New Ridley, Stocksfield, Northumberland. T.N. 2179
M. BUTTERFIELD	'High Gate', Green Lane, Glusburn, Keighley, Yorkshire
	BD20 8BE
A. CANNELL	310, Heysham Road, Heysham, Morecambe, Lancs.
Mrs. M. CANNELL	310, Heysham Road, Heysham, Morecambe, Lancs.
R. M. CHALMERS	38, Hornby Bank, Hornby, Lancaster, Lancs.
S. COATES	22, Hillcrest Avenue, Fairfield, Stockton, Teeside
	TS18 5AF
L. B. C. COOK	'Routhorpe', Bainton Cross Roads, Bainton, Driffield,
	Yorkshire.
G. COUCH	6, North Dale Road, Bradford, Yorkshire, BD9 4HG
B. D. CUBBON	9, Arnison Avenue, High Wycombe, Bucks.
A. CURTIS	Eachwick House, Eachwick, Dalton, Northumberland.
J. CURTIS	Eachwick House, Eachwick, Dalton, Northumberland.
J. M. DICKINSON	8, Cedar Grove, Sutton-in-Craven, Keighley, Yorkshire
	BD20 7QS
E. DIXON	102, Leeds Road, Eccleshill, Bradford, Yorkshire BD2 3AY
Mrs. J. M. DIXON	102, Leeds Road, Eccleshill, Bradford, Yorkshire BD2 3AY
I. FINLAYSON	12, Coalpike Road, High Ford Estate, Lanchester, Durham
J. R. FOSTER-SMITH	The Old Rectory, Middleton-in-Teesdale, Barnard Castle,
	Co. Durham.
A. K. GARDNER	36, Dial Street, Leeds, 9
M. GILL	1, Valley View, Cross Hills, Keighley, Yorkshire.
Mr. J. GOLEBY	24, Westgate, Baildon, Shipley, Yorkshire, BD17 5ES
G. GOSS	7, Ravenstone Gardens, Sutton-in-Craven, Keighley, Yorkshire

Mrs. L. Goleby	24, Westgate, Baildon, Shipley, Yorkshire. BD17 5ES
John Goleby	24, Westgate, Baildon, Shipley, Yorkshire. BD17 5ES
Miss S. Goleby	24, Westgate, Baildon, Shipley, Yorkshire. BD17 5ES
Miss J. Goleby	1 10, Oak Villas, Manningham, Bradford, Yorkshire.
D.M. Goth	'Schönerwald', Deer Park Lane, Hornby, Lancaster, Lancs. T.N. Hornby 595
Mrs. A. Goth	'Schönerwald', Deer Park Lane, Hornby, Lancaster, Lancs.
D. Griffin	6, Cavendish Drive, Guiseley, Leeds LS20 8DR
R.G. Guthrie	186, Station Road, Billingham, Teeside TS23 2RT T.N. Stockton-on-Tees 554437
Mrs. J. Guthrie	186, Station Road, Billingham, Teeside. TS23 2RT
J.B. Hall	Harehope Farm, Frosterley, Bishop Auckland, Co. Durham.
D.J. Harrison	7, Cairns Road, Seaburn, Sunderland, Co. Durham.
J.W. Hodgkins	36, Church Road, Altofts, Normanton, Yorkshire. T.N. Normanton 3316
W.J. Houston	19, Park Road, Milford on Sea, Lymington, Hamps.
J. Hunter	81, Acklam Avenue, Grangetown, Sunderland, Co. Durham.
W. Harvey, C. Eng., M.I. Mech. E.	23, Orleans Avenue, Glasgow W4. TN Glasgow 041-954-9948
P. Jackson	37, Broomhall Place, Sheffield. S10 2DG
D.A.W. Joy	'Holebottom', Hebden, Skipton, Yorkshire. BD23 5DL T.N. Grassington 369
J. Lawson, A.R.I.C.	11, Hillside Drive, Wallbridge Park Estate, Leek, Staffs.
D. Lawton, M.I.W.S.P., A.M.B.I.M.	26, Greenside Crescent, Waterloo, Huddersfield, Yorkshire.
J.A. Lowther	10, Crag View, Cononley, Keighley, Yorkshire.
J.F. Macpherson	63, The Avenue, Middlesbrough, Teeside TS5 6QU T.N. Middlesbrough 86528
Mrs. H.G. Macpherson	63, The Avenue, Middlesbrough, Teeside TS5 6QU
Miss F.M. Macpherson	63, The Avenue, Middlesbrough, Teeside TS5 6QU
J. Macpherson	63, The Avenue, Middlesbrough, Teeside TS5 6QU
R.W. Macpherson	63, The Avenue, Middlesbrough, Teeside TS5 6QU
J.K. Major	2, Eldon Road, Reading, Berks. RG1 4DH T.N. 0734-52698
C. Mc. Chesney	2, North Close, Elwick, Hartleypool, Co. Durham.
Mrs. A. McChesney	2, North Close, Elwick, Hartleypool, Co. Durham.
K. Makin	1 Wood Street, Todmorden, Lancs.
G.E. Metcalfe	'Rosebank', Hebden, Skipton, Yorkshire BD23 5DP
L. Miller	24, Wyvil Crescent, Ilkley, Yorkshire.
Mrs. E. Miller	24, Wyvil Crescent, Ilkley, Yorkshire.
J. Moon, F.G.S.	3, Mill Cottages, Distington, Workington, Cumberland.
A. Muckalt	'Barreng', 17, Wattsfield Avenue, Kendal, Westmorland.
D.J. Nicholls	22, Cobden Street, Burnley, Lancs.
J.M. Nunwick	41, Cleveland Drive, Northallerton, Yorkshire T.N. Northallerton 3340
P.J. Ord	19, Hillcrest Avenue, Oxbridge, Stockton-on-Tees, TS18 5AF
J.S. Owen	21, Whitby Crescent, Redcar, Teeside. T.N. Redcar 334951
K. Parkinson	34, Northfield Road, Wibsey, Bradford, Yorkshire BD6 1RA
D. Platt	11, Neville Street, Skipton, Yorkshire BD23 2EU
Dr. A. Raistrick	'Holme Croft', Linton, Skipton, Yorkshire BD23 5HH

H.W.Ratcluffe	The Forge, Gargrave, Skipton, Yorkshire. T.N. Gargrave 221
R.L.Rathmell	'Hilltop', Starbottle, Skipton, Yorkshire. BD23 5HY
D.T.Richardson,	5, Calton Terrace, Skipton, Yorkshire. BD23 2AY
A.R.I.C.	
J.E.Richardson.	'Rose House', Nenthead, Alston, Cumberland.
N.P.Scarr	'Erving', 67, Hawthorn Drive, Yeadon, Leeds LS19 7XA
P.J.Stephenson	4, Heild Close, Newton Aycliffe, Co. Durham.
R.A.Sutcliffe	93, Halifax Road, Nelson, Lancs. T.N. Nelson 64615
R.Turton	51, Lower Croft Road, Starling, Bury, Lancs.
J.C.Wade	14, Branch Road, Skipton, Yorkshire BD23 2BX
K.Walls,	33, Gledhow Avenue, Roundhay, Leeds LS8 1LD
	T.N. Leeds 664705
R.Walls	33, Gledhow Avenue, Roundhay, Leeds. LS8 1LD.
	T.N. Leeds 664705
W.Walton	20, Dragon View, Skipton Road, Harrogate, Yorkshire HG1 4DG
J.D.Wilcock.M.A.	22, Kingslay Close, Risingbrook, Stafford.
J.D.J.Wildridge	41, Ellerbeck Lane, Workington, Cumberland.
A.Wislniewski	21, Mons Road, Todmorden, Lancs.
T.G.P.Ziemba	11, West Street, Wigton, Cumberland. T.N. Wigton 2281,
	Ext. 148

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2 - NEW MEMBERS

We extend a welcome to the following new members - addresses as per the previous list:-

Mr. & Mrs J.Almond	H.Barnes
W.Harvey C.Eng., M.I.Mech.E.	K.Makin
A.Muckalt	J.S.Owen
K.Parkinson	A.Wislniewski.

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3 - RESIGNATIONS - 1971

N.Lupton 12, St. Annes Drive, Fence, Burnley, Lancs.

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4 - 1971 SUBSCRIPTIONS NOT RENEWED

Despite repeated reminders the undermentioned persons have failed to renew their subscriptions for 1971 - under the circumstances it is concluded that these people have resigned from the Society and their names have therefore been removed from the membership list.

P.A. Boothby	16, Kingswood Avenue, Newcastle-upon-Tyne.
K.Byfield	9, Olliver Lane, Skeeby, Richmond, Yorkshire.
J.P.Cumpsty	7, Ripon Avenue, Skerton, Lancaster.
R.V.Davis	Schools Department, City Museum, Bristol BS8 1RL
R.S.Harker	42, Oxford Street, Leicester.
R.M.Hazard	Moor House, Milford, Staffs.
W.J.Keay	17, Westfield Crescent, Keighley, BD20 5BL
E.Lambert	10, Phillips Lane, Colne, Lancs.
I.McCarrol	3, Meadow Rise, Greenacres, Skipton, Yorkshire.
C.M.Moseley	2627, Connolly Street, Halifax, Nova Scotia, Canada.

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5 - MINUTES OF GENERAL MEETING. 16th. MAY 1971

- 1 - Apologies for absence from Messrs Barnes, Chalmers, Scarr, Guthrie and Miller.
- 2 - The Minutes of the 11th. Annual General Meeting were read and accepted.
- 3 - Minutes of the April/May Working Committee Meetings were read. Due to cost the idea to have a talk/demonstration by a Hull Gemologist at the Presidents Talk-in in September was shelved.

4 - Correspondence. The Society reply to the Lancaster librarian re Arnside-Carnforth publication was read. The circumstances relating to this letter were outlined and a following suggestion by Mr. McPherson was held to be adequate.

Mr. Guthrie forwarded a message to the meeting expressing concern

1) On MEETS LEADERS not attending their allocated meets. He suggested that we should aim to provide a second leader, briefed to take over should this occur.

2) Receipts for subscriptions - many members were unaware that their subscription had been received. It was pointed out to the meeting that Society policy in recent years had been to publish a list of paid up members in a Newsletter issued as soon as possible after the A.G.M., the postal strike had however introduced difficulties this year. Where a receipt was requested it should be forwarded. In future renewal forms will contain a 'fees received' section which could be returned to those re-requesting it.

3) Renfrew Shaft - Cononley Meet - to be arranged later in the year to be discussed with Mr. Guthrie on the Alum Pot Meet.

5 - The Honorary Treasurer forwarded figures showing the PUBLICATION ACCOUNT at £164.86 less any cheques since 1st. Jan. 71 and the General Account at £105.

6 - The B.S.A. Ibbeth Peril meet was attended but no B.S.A. members were present. The Boulby, Staithes meet was most successful, the site was however dangerous. Castle Bolton was suggested as a possible venue for the Annual Dinner, Mr. McPherson kindly agreeing to make enquiries. Lancaster Cave and Mine Research Society to be requested for a Hodge Close meet in September. (KW)

The Society One-day Social Event (President's Talk-in) to be held at the Skipton Scout Headquarters as proposed by Mrs Dixon to the Working Committee. Second weekend in September subject to availability of the premises (DP)

Meeting closed 5.35 p.m.

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6 - PUBLICATION ISSUED IN 1971

The undermentioned publications have been issued by the Society during the last nine months - have you had yours?

The Greenhow Lead Mining Field (A Historical Survey) by J.M. Dickinson
Individual Survey Series Publication Number 4. November 1970

Memoirs of the Northern Cavern & Mine Research Society. Vol.2 No.1
April 1971

Newsletter (No.1) January 1971

Newsletter Number 2 April 1971

Newsletter Number 3 June 1971

July Interim News Sheet July 1971 (Single Sheet)

List of Meets from July 11th. to November 7th. 1971 (Single Sheet)

Library Catalogue July 1971

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7 - FORTHCOMING SOCIETY MEETS and EVENTS

It is regretted that the accompanying list contains a number of cancellations. These are a result of having found out that our own bookings will clash with various national and international speleological meetings which we consider members would perhaps like an opportunity to attend and the Lancaster Cave and Mine Research Society functions.

Details of these various functions are given in Section 12 of this Newsletter (OTHER SOCIETIES - Forthcoming, Lectures, Conferences, Dinners, etc.)

Sept. 12. PRESIDENT'S TALK-IN, Scout H.Q., Skipton. CANCELLED

Sept. 19. HODGE CLOSE MINES. Lancaster Cave & Mine Research Society
CANCELLED

Oct. 2 ANNUAL DINNER, CASTLE BOLTON, WENSLEYDALE . 7.00p.m. for sit
down at 7.30 p.m.
Charge £1.50 per person.
Bookings with prior payment please to: Mr. R.G. Guthrie,
186, Station Road, Billingham, Teesside TS23 2RT . T.N. Stockton-
on-Tees 554437.
Close of bookings 23rd. September 1971.

**** NOTE **** Cheques and postal orders to be made payable to the
NORTHERN CAVERN and MINE RESEARCH SOCIETY not to Mr. Guthrie.

Overnight accomodation will be available at Castle Bolton, sleeping
bags required. Charge (not included in dinner fee) 50p. includes
light, heat and toilet facilities. Pay on spot if required.
You will sleep in the Ball Room. The ghost of Mary, Queen of Scots, is
reputed to walk the ballroom, if seen, please collar and get an 'exclusive'
for the next Newsletter. Alcoholic visions not accepted.
Further information from the Manager, Castle Bolton (Mr. Calvert) telephone
5.

number Leyburn 2364.

- Oct. 24 Calvert Mine. Meet Garragill (Alston-Middleton)
 Nov. 7 General Meeting ,Overdale Hotel,Skipton. 2 p.m.
 Nov. 20/21 President's Talk-in, Scout Headquarters (The Dump);
 Skipton. Behind Devonshire Hotel,Newmarket Street,Skipton)

The following message has been received from our President.

' The aim of this Social weekend is to give members an opportunity to get together with fellow members to discuss and learn about each others Society interests,ina convivial and informal atmosphere.

The general theme of things will be that members are invited to give a talk or illustrated talk (projector and screen will be available) lasting 10 - 20 minutes only on their particular pet topic,with if possible a small exhibition of material or samples etc. These talks will be interspersed with general discussion and amusing anecdotes from our master of ceremonies Mr.Caleb Wade. We already have promises from about ten members who are willing to talk but more would be very welcome. If you are prepared to have a go please inform Mr.Platt at your earliest convenience.

The overall plan for the weekend is as follows. Meet at the Scout Headquarters (The Dump) at the rear of the Devonshire Hotel,Newmarket Street,Skipton at 3 p.m. Saturday 20th.November from whence we will have a guided field trip to some local place of interest to us. After the trip members will arrange their own tea (cooking facilities at the Dump if required) and meet afterwards for a night in the town.

On Sunday 21st November we will commence at 11 a.m. at the Dump with lunch taken around 1 p.m. and talks etc. will continue after lunch until sometime during the afternoon.

Overnight accomodation will be available at the Dump ,from 9 p.m. Friday 19th. Nov. where there are also cooking facilities,and on Sunday a sandwich,soup,etc. lunch will be provided by the ladies of the Society but this must be booked in advance through me.

All members and non-members and friends are invited to come to this get-together - the more the merrier,but please let Mr.Platt or myself know if you are willing to give a short talk and / or whether you are prepered to risk your life with a Sunday lunch.

Jean M.Dixon, President

102,Leeds Road,Eccleshill,Bradford,Yorkshire BD2 3AY

There is plenty of private parking for cars etc.

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8 - REPORTS OF SOCIETY MEETS

MAY 9th. ,Boulby Alum Workings . N.C.M.R.S.Leader R.G.Guthrie

A well attended meet in very good conditions made this one to remember. The shock of being presented with a large shovel and pick to match and being

informed 'this is a digging meet, Industrial Archaeology you know', stunned me for a time. However the splendid site restored the balance and I soon came into the swing of things. We all came to the conclusion that Cyril McChesney is wasted in any other occupation than 'DIGGING', you should see him go.

The following information regarding the industry was supplied by one of the Teesside Industrial Archaeological Group under whose supervision we were working:-

" The cliffs at Boulby are Jurassic and form one of the highest precipices on the English coast. The production of Alum was an important industry prior to the development of the iron trade. Alum was extracted from the Alum Shale which formed part of the Lias, these were thin grey shales of the Ammonites communis zone.

Alum is used in medicine, tanning and a mordant in the dyeing trade, but is now not as important as it was.

From the beginning of the 17th.C to the middle of the 19thC the Yorkshire Lias was the principle source of Alum for the English Industry. Yorkshire Lias contains silicate of aluminium and finely divided iron pyrites or marcasite. When the ground shale was roasted aluminium sulphate was formed by the interaction of the pyrites and aluminium silicate. The impure aluminium sulphate was extracted and treated with ammonium sulphate or potassium sulphate which combined with the aluminium sulphate to form the double salt or alum.

The method was as follows:-

The shale was broken into small pieces and placed in vast walled hearths (still to be seen on the site), brush wood was added and the heap fired. The process was repeated many times until a mound some 50ft high and 200ft long was formed. The process taking as long as nine months to complete. During this process sulphate of iron and sulphate of aluminium were formed.

The next process was to extract the sulphates from the waste siliceous matter by steeping the calcined shale in water in tanks. (These tanks are now hanging over the cliff edge at Boulby). The liquid was evaporated and concentrated. Sea weed was burnt to produce impure carbonate of soda which was mixed with carbonate of potash and carbonate of ammonia and the mixture added to the solution. Alum separated out being less soluble than the contaminating iron salts. The alum was finally purified by recrystallisation.

Once the process was understood the site became of more interest and the pattern of work followed through stage by stage. A measure of the degree of coast erosion is the proximity of the line of tanks to the cliff edge - only about five feet remains. Little time remains for recording this interesting industry at Boulby and I, for one, would like to see further joint meets in order to bring the work to a successful conclusion. D.P. (See also Members Handbook Sect.8 pages 3-8 The Alum Industry of N.Yorkshire by R.G.Guthrie)

23rd. May Alum Pot Meet Leader N.P.Scarr

In the absence of an actual meet report we can only report second-hand. About twelve members reached the sump and everyone looked wet and happy as they emerged into the pouring rain. After our departure the C.R.O. was called to the system to an accident involving another club.

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30th. May Lead Hills Meet Leader D.Platt

15 members and two guests turned up to sample the rather poor weather. Our hosts the Glasgow Speleological Society laid on a meet to the Limestone Mines but unfortunately showed us some pictures taken in the mines and the thought of neck deep water and the rain which was already falling put us off somewhat with the result that our two guests R.Thorley (Craven Pothole Club) and D. Judson (C.R.G.) and went on this meet. They thoroughly enjoyed themselves and believe it or not kept dryer than the rest of us who spent the day turning over the spoil heaps for minerals.

One of the highlights of the meet was the inspection of the Wanlock Head Engine (see separate article). An attempt to reach the working part of the pump was made by Messrs Thorley, Judson and Platt the way lying along a rather wet level. The level veered to the North and we found instead the shaft which a similar engine served in Whytes Clough. There was no sign of the pump as this was submerged in a gush of water which was coming out of the flooded lower series. This shaft was on a branch level off the main level and terminated by a massive floor to roof barrier from which a spot of water under considerable pressure was issuing giving some indication of the supply of water which lies beneath this ground, which perhaps supplied the hydraulic engine now gone. A further visit to this mine is planned.

The portal is in poor condition so the meet has not been made a general one. Members also tried to find gold in the Placer deposits without any luck or license. D.P.

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25th. July West Scrafton Pot

The swollen beck and imminent heavy rain made the descent by the massive assembly of members present undesirable so the meet was diverted to the local stone mines for safety(?) with only a minimum party entering the pot. Three members ventured into the rather tatty Stone Mines on the edge of the River Cover. D.P.

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8th. August. Buckden Gavel Mine

This meet, put off from the 'snowed -off' meet earlier in the year, was well attended with three parties venturing into the mine.

One group explored the upper series of workings above the No.1 Levels this being the main object of the meet. Another party completed the circular tour of the haulage ways and a later party under the care of J.Hodges then visited the furthest reaches of the mine. D.P.

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9 - LIBRARY LIST

All members should have received the new edition of the Library List which was issued in July. It is hoped that you will take advantage of the list and make use of the books which the librarian so kindly looks after on your behalf. Mr. Miller wishes us to mention that there are a number of publications which have been out on loan for more than a fair period - would members in possession of these publications

please return same to the Librarian without further delay. Requests by other members are having to be refused because of your thoughtlessness.

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10 - MEMOIRS and NEWSLETTERS

Material is required for the next edition of the Memoirs - any offers. Enquiries are being made as to the cost of printing the Memoirs and we are keeping our fingers crossed as to the estimates. The position of Editor has not yet been filled. We have however had two offers of help a matter which the Editorial Committee is taking up.

Material is also wanted for the next Newsletter which it is hoped to be able to get ready immediately after the General Meeting on the 7th. November so that we can remind all members of the President's Talk - in which is scheduled for the 20/21st November. Please send your contributions to Mr. D. Platt AS SOON AS POSSIBLE - do not wait until the General Meeting it will then be too late - a Newsletter is not completed overnight.

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11 - 1972 MERTTS LIST.

A large proportion of our members have for the last year or two quite rightly grumbled that the Society seems to have ceased to provide members with those very convenient Meets Cards which so conveniently fit into ones pocket or the handbags of our lady members.

Meets cards take a lot of getting together and it is no good taking one to the printer on the 31st December and asking him to deliver them all done and dusted for the 1st January.

We must pass the buck - we repeatedly ask for suggestions only to find that no one answers the request with the result that the Working Committee is left to invent a meets list at the last minute with the consequence that when we apply for permission to explore caves and potholes we find that the dates we want have already been allocated and we as a club are left out.

We will get a printed Meets Card done if you will react to this request and let us have your suggestions preferably by return post or at the latest at the Annual Dinner on the 2nd October.

Venue, time, meeting place with Grid Reference if possible, leader, deputy leader. Whether it is to be a camping meet, etc.

Send your suggestions to Mr. D. T. Richardson, 5, Calton Terrace, Skipton, Yorkshire BD23 2AY and he will see that they are given the attention they require. If you do this at once we will have a fighting chance of booking caves and potholes and getting a list for presentation to the general Meeting 7th. November and in the hands of the printer long before the end of 1971.

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OTHER SOCIETIES

12 - FORTHCOMING CONFERENCES, DINNERS, ETC.

5th. - 12th. Sept. INTERNATIONAL SPELEOLOGICAL UNION - Commission on Karst Erosion. Meeting on Theoretical and Experimental Methods of Karst Denudation. Oxford, England and Ireland. Fee £42 Programmes, etc from Dr. M. M. Sweeting, School of Geography, University of Oxford, Mansfield Road, Oxford OX1 3TB
Lectures etc by speleologists from all over the World.

10th. - 12th. Sept. BRITISH SPELEOLOGICAL ASSOCIATION - National Speleological Conference 1971. University of Leeds Union, University of Leeds. Meals are available for Lunch and Dinner on the Saturday (11th Sept) at 40p each. Snacks will be available at lunch time on Sunday and coffee/tea biscuits will be available between sessions. Lunch and Dinner Saturday must be booked for and paid for in advance - bookings to Dr. G. Stevens, 4, Kingston Avenue, Acklam, Middlesbrough, Teesside TS5 7RS
Programmes etc also from Dr. Stevens.
Entrance to lectures, etc and copy of Proceedings £1
Entrance to lectures only 50p
Entrance to lectures (Under 18's) 25p
Visitors accompanying delegates 25p
Proceedings only 80p
If you do not require meals, nor advance copy of Proceedings there is no need to book in advance as conference fees will be accepted at the door.

LECTURES Sat: Jenolan Caves, Australia

Some Recent Explorations in the Northern Dales
Dentdale, Present and Future
The Mining District of Mid-Wales

Sun: Water Tracing with Optical Brighteners

British Karst Research Expedition to the Himalaya
The Little Neath River Cave
The Black Keld System.

Also on Saturday S. Perou's Film on Gaping Gill.

18th. Sept.

LANCASTER CAVE and MINE RESEARCH SOCIETY

ANNUAL DINNER, Ingleborough Hotel, Ingleton. Price £1.25
Members of N.C.M.R.S. cordially invited to join in and come to the dinner on payment of the £1.25 of course.

If any N.C.M.R.S. members want to camp at Warton on Friday 17th. Sept. L.C.M.R.S. extend an effort to these people to use the coach service which will be used to convey L.C.M.R.S. members to their dinner on the Saturday. The cost of this has not yet been worked out. N.C.M.R.S. Members wishing to attend the

Dinner should write to the Honorary Secretary Mr. R.F. Ashmead, 28, Fairhope Avenue, Lancaster as soon as possible indicating whether or not you intend to camp at Warton on Friday night and if you will want transport from Warton on Saturday to the Dinner.

Sunday 19th. LANCASTER CAVE AND MINE RESEARCH SOCIETY - INAUGURATION
Sept. OF SOCIETY HUT.

N.C.M.R.S. members are very cordially invited to this ceremony which will take place i on Sunday 19th. Sept. Exact details are not available at the moment. The hut is at Moss House Farm. If you are going to the dinner on Saturday please let Mr. Ashmead know if you are going to the inauguration.

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13 - MISCELLANEOUS REPORTS

EARBY POTHOLE CLUB 1971 SERIES LANCASTER HOLE , CASTERTON FELL

'NO SPED LIMIT ON BARLIC NEW ROAD ' A part of the vast new extention to Lancaster Hole has been named 'Barlic New Road' by the finders the Earby Pothole Club who have kindly given us this report.

The E.P.C. Series consists of four levels and requires 175 ft. of ladder not counting the entrance pitch of Lancaster Hole. Although it is only a difficult trip it must be rated as S.S.P. on rescue value. Length nearly three miles.

The ENTRANCE SERIES

This leds off from the Maze Series at Stake Pot and is a long rift type passage for 620ft, where it finishes in an aven 30ft high. A passage leads off 25ft up from the foot of this aven, this is the beginning of the TOP SERIES.

TOP SERIES

On reaching the passage, turn right through a boulder choke into Breakthrough Chamber which leads to a dry sandy passage which links a series of large chambers for 850 ft. finishing in three chambers found on Equinox Day hence the name Equinox Chambers. Coming back to the last big chamber (Brew Chamber) a passage leads off into the MIDDLE SERIES.

MIDDLE SERIES - UPPER

Drop down from brew chamber about 6ft into a crawl which in turn leads to three chambers the last all shattered and care should be taken here. On entering the chamber one can go left into a rift passage which terminates some 800ft further on in a high aven or you can go on right to the end of the shattered chamber to a 45ft pitch which leads to the LOWER MIDDLE SERIES.

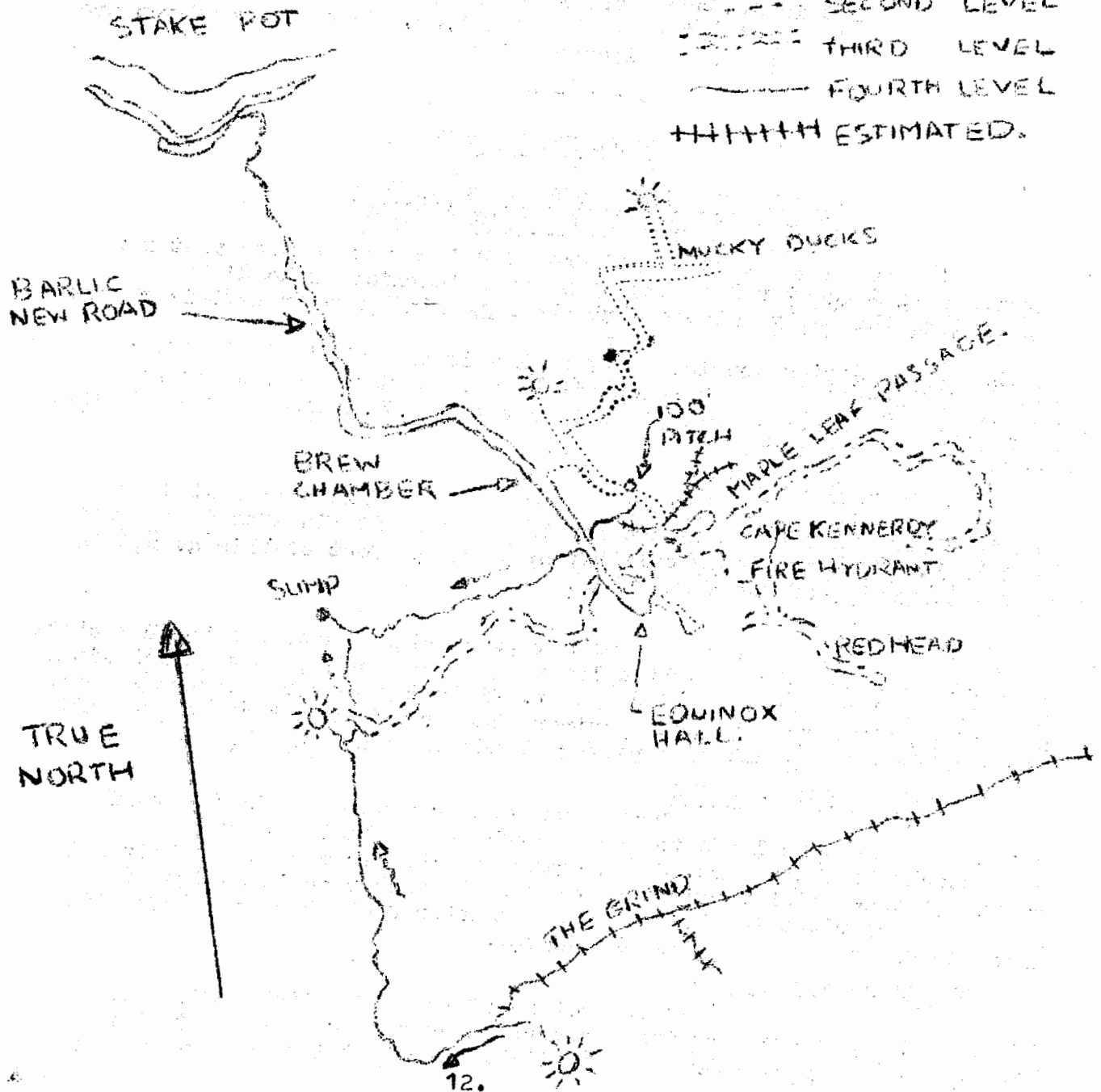
MIDDLE SERIES -LOWER

At the bottom of the 45ft pitch a rift passage is entered under two curtains, travers along passage for 70 ft where bottom of rift opens into a 100ft pitch, turn right into a passage some

LANCASTER HOLE
EARBY POT HOLE CLUB EXTENSION
E.P.C. 71 SERIES

SCALE 0 100 200 300 400 500

— FIRST LEVEL
--- SECOND LEVEL
--- THIRD LEVEL
— FOURTH LEVEL
+++++ ESTIMATED.



1700 ft long. Approximately 300ft along this passage an opening in the roof can be seen -this leads to four chambers with very fine formations.

THE BOTTOM SERIES

At the bottom of the 100ft pitch a passage leads off ankle deep in water for 500ft where another passage is encountered. The right hand passage continues upstream for over 1000ft to an aven 100ft high. This passage has all the characteristics of backing up in wet weather, so take care.

Expoloration is still going on. A rough line survey indicates that the system is running under Leck Fell Beck.

E.Scrivener
4, Monkroyd Avenue,
Barnoldswick.

By Kind Permission of the
Earby Pothole Club.

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GAPING GILL EXTENTION

Mike Wooding has extended G.G. from Clay Cavern, the Far Country into a 1000ft passage which ends in a boulder choke above a deep well, which it is thought might connect with the sump in Ingleborough Cave.

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ROBIN HOODS WELL, GRASSINGTON.

The young 'Tigers' of the Craven Pothole Club have at last cracked that 'Horrid little Drain', Robin Hoods Well, near Grassington.. This has long been one of my own favourite long shots, as a good place to push. The system ended in a very tight water filled slot and attempts to blast this slot in the 1950's failed. All it required, however, was guts and the additional stamina that the 'wet suit' gives one. As a result the Craven now have one very wet new system, 1500ft. plus.

One more FIRST for the Craven Pothole Club, where youn men can learn from the Elders the confidence and techniques so essential for safe caving.

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B.S.A. EXHIBITION

Held over Whitsuntide at the Duke Street headquarters of the Settle branch. For the first time many records of the B.S.A. saw light of day. The exhibition was well attended and over £25 was taken at the door.

N.C.M.R.S. was to have put up its exhibition stand but because we did not make hard and fast arrangements we missed out.

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NEW MUSEUM

The Earby Mine Research Group have opened a Museum of Mines in the Old Grammar School at Earby, nr Skipton.

Hours of opening Tuesday; Thursday; Saturday and Sunday 2p.m. to 8 p.m. Admission 5p Children 2½p.

8 = 8 = 8

MISCELLANEOUS ARTICLES.

14 - UNDERGROUND BAT ROOSTS IN NORTHERN BRITAIN.

A recent communication with Mr. W. Harvey of the Glasgow Speleological Society laid bare the fact that virtually nothing is known about underground bat roosts in northern Britain. The National Environmental Research Council are concerned about British bats which appear to be on the decrease but need factual evidence and reports to work on.

Mr. Harvey suggested that perhaps some of our members might be interested in making a survey of bats in any caves and mines that they visit.

From the only occasional report of bats being seen in northern locations it would seem at first sight that they are not common, however it is likely that this is partially due to lack of deliberate searching and more positive hunting may be very revealing.

I can supply a simple key toward identification to any interested parties. At the President's Talk-in on November 20th, I shall give a short talk on one or two interesting points about bats, in an attempt to stimulate your interest and enthusiasm to participate whenever possible in reporting bat roosts underground.

Jean M. Dixon.

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15 - THE EBBING and FLOWING WELL, GIGGLESWICK.

On the 27th, June 1971 L. Miller and myself stopped at this site on Buckhaw Brow. The well was full up to the lower outlets (the two holes bored in the side) and a fairly heavy flow of water was coming in from the top inlet spout, the water level being up to this top inlet spout at this stage. Whilst examining the colonies of *Gammarus pulex* L. - Freshwater Shrimp - which the well contains we noticed that the flow of water had ceased and that the water level was rapidly dropping - a drop of 5 inches in under one minute being observed. Observation was kept for a further 25 minutes without any further water movement so we withdrew happy to have witnessed a phenomenon which was recorded as long ago as 1613 on this ancient high road between Lancaster and York.

This Well is never reported as working, as it did, these days - perhaps we all spend too much time rushing about to observe some of the natural curiosities on our doorstep.

The rainfall that week had been moderate after a rather dry spell.

The hand painted sign on the wall of the well needs attention having suffered impact damage from air guns.

D. Platt.

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Although Wanlockhead, Dumfriesshire, is rich in mining history, the only complete piece of old machinery remaining in the area is a Beam Pumping Engine on the outskirts of the village. A fine pillar of dressed stone carries a wooden beam with one end poised over the cap of what was once an open shaft. The other end is linked to an iron crosshead in a wooden steeple, and from the crosshead an iron rod disappears into a rubbish filled hole. While it may be safely assumed that the engine was a pump, there is no obvious indication as to how it was powered.

The following tries to make some assessment of this old mining relic, and is based not only on site work carried out during the summer of 1969, but on research in the Mitchell Library, Glasgow, and correspondence with Glasgow and Edinburgh Museums, Industrial Archaeologists, and other interested parties. This correspondence demonstrated that the engine had not been the subject of much serious study in the past.

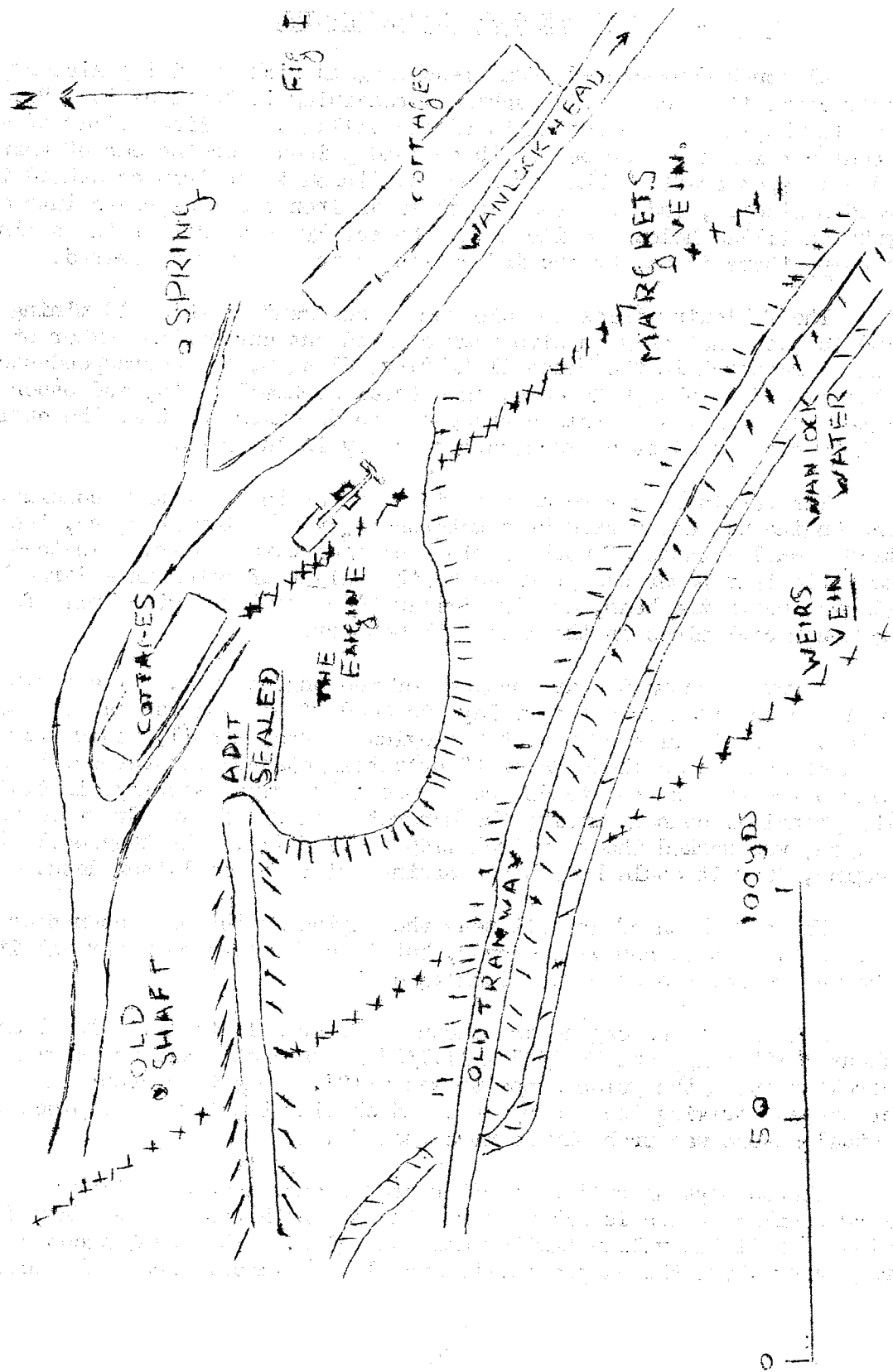
The result of our researches is to offer the tentative conclusion that the engine was not worked by a waterwheel or by water pressure, the traditional methods of working mine pumps by water power. Instead it seems probable that power was provided by the weight of water in a large bucket at one end of the beam, and is similar to a pumping engine built for the Byreburn coal mines in the late 18th Century.

Figure I shows the arrangement of the engine site. The engine is close to the road from the village to Meadowfoot, and is near the Wanlock Water. Examination of the 6" Geological Survey Map (1), shows that the vein of lead ore called "Margret" or "Straightstep" ran across the glen near where the engine stands, so it probably pumped workings in that vein. The principal company mining the Margret vein was Messrs Crawford, and Meason, who worked the vein from 1755 to 1798 (2). If they built the engine, then it could have been working prior to the latter date.

The only sign of an adit near the engine is the one shown near the cottages. It is now closed over, but it could have been through it that the water from the pump was discharged.

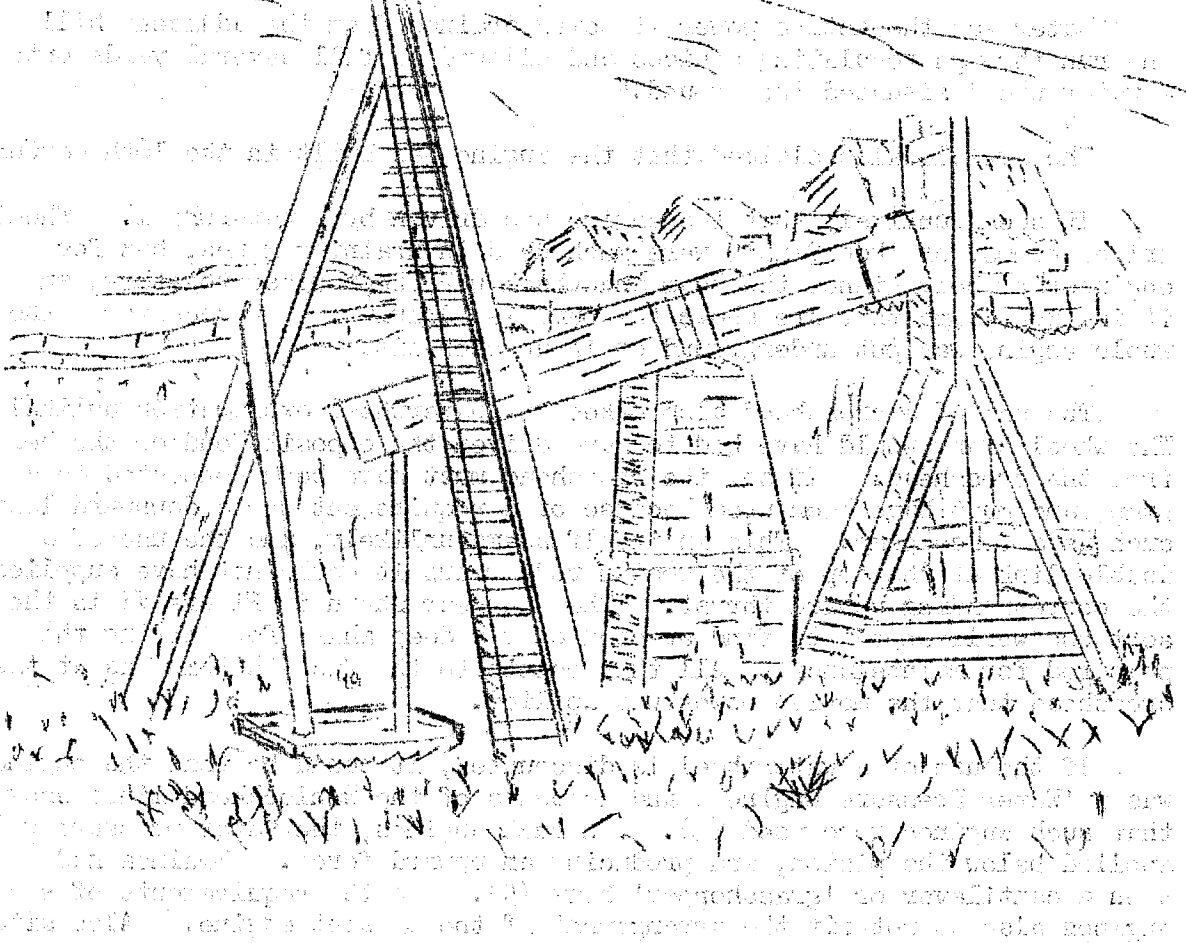
Details of the engine are shown in Figures II to IV. The beam is about 14'6" long, and 25.1/2" x 11.1/2" in section; and the maximum stroke between the guide supports was 9'10". But to prevent the crosshead striking these supports, and shaking the engine to pieces, the actual stroke was probably no more than 8'.

The supporting pillar is of dressed stone, and is similar to a much larger pillar which is all that remains of another engine in Whytes Cleugh, a little valley farther down the glen. The beam, steeple, and rod lying above the capped shaft, are all of timber. The links, crosshead,



The engine was a simple, sturdy affair, built of heavy iron and steel. It was a marvel of engineering, a masterpiece of the craft. The engine was built by a man who had spent his life in the workshop, a man who had seen the engine grow from a simple idea to a complex machine. The engine was built for a purpose, a purpose that was as noble as the engine itself. The engine was built to pump water, to bring life to the land, to bring hope to the people. The engine was built to be a part of a larger machine, a machine that was as big as the world itself. The engine was built to be a part of a larger machine, a machine that was as big as the world itself.

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THE OLD PUMPING ENGINE AS IT LOOKED FIFTY YEARS AGO.

rods, etc. are of iron, with the bearing bushes of brass.

The design of crosshead seems elaborate for what must have been a very simple machine. A wash and pencil drawing of the Wanlockhead mines, made in the 18th Century and now in the Dumfries Museum, shows a number of pumping engines driven with waterwheels. All have the beam connected up with chains or ropes.

To date, the only account of the Wanlockhead engine which has come to light is an article and drawing in the Glasgow Evening Times for August 20th, 1906, and the drawing of the engine, Figure VI has been based on it (3). The article describes the way the engine was powered as follows:-

"Water was the motive power it being drained from the adjacent hill and run through regulating sluices and allowed to fall several yards onto a water-wheel situated the ground."

The article also claimed that the engine was built in the 16th Century.

It seems unlikely that the engine was driven by a waterwheel. Wheel driven pumps, or 'Bob Gins', were much used in draining mines, but for engineering convenience the beam and wheel were kept close together, and it is such pumps that are shown the Dumfries drawing. If necessary, the whole engine was put underground or in an open pit.

The use of a crosshead also makes the waterwheel explanation unlikely. The wheel crank would have had to have driven the opposite end of the beam from the crosshead. If so, the crosshead must have been connected to a pump, and must have been used because of a requirement for a downward load such as a force pump. This in itself seems unlikely, and the use of a double link at the top of the wooden rod, means it could not have supplied the corresponding upward thrust. The headgear shown in Figure VI is the sort one would expect to find erected over a deep shaft for lifting the pump rod for maintenance. All this points to the fact that it was at the crosshead that the motive power was applied.

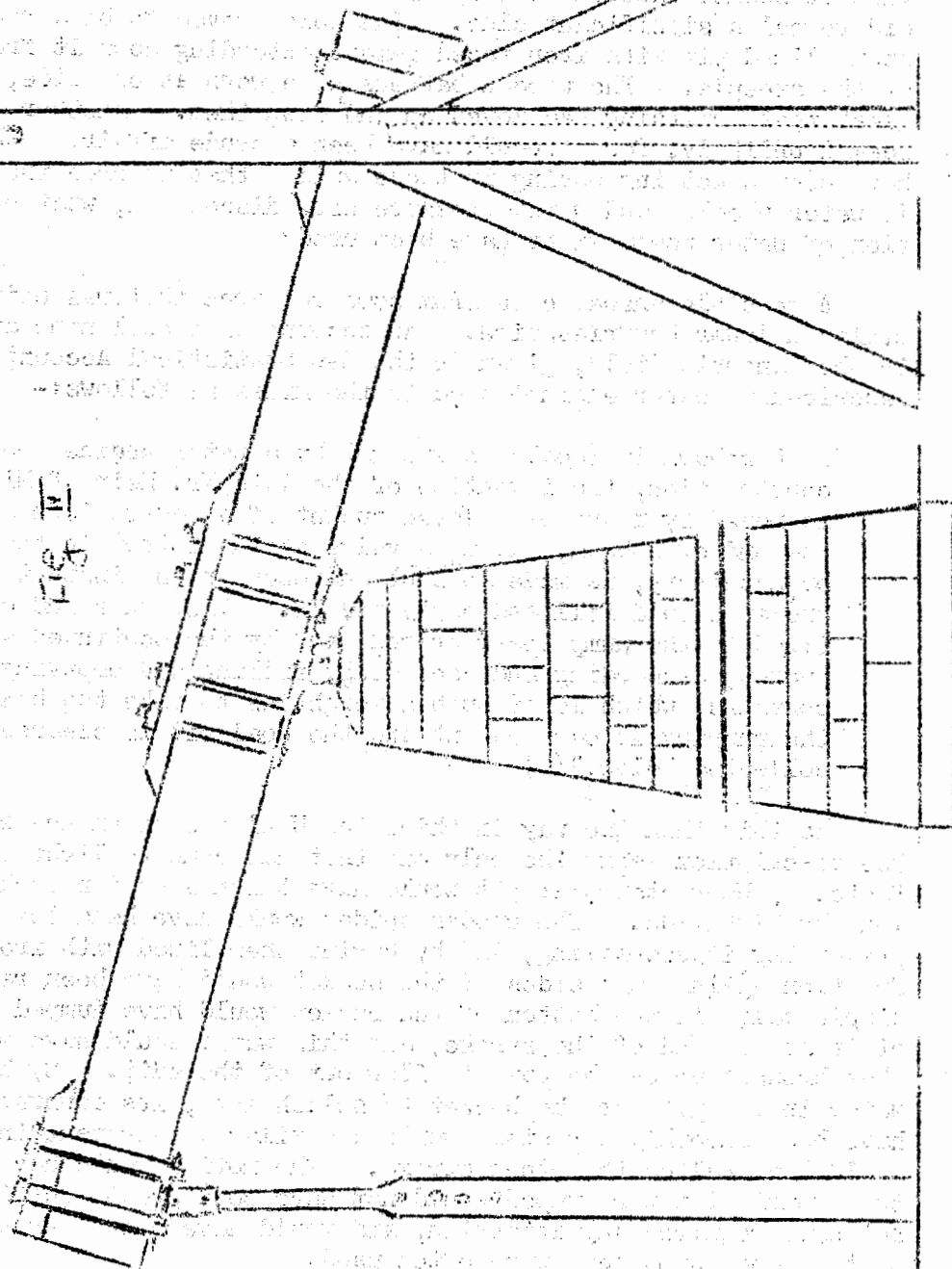
If the use of a waterwheel is discounted, it could be that the engine was a 'Water Pressure Engine', and accounts of the Wanlockhead mines show that such engines were used (4). In such engines, the water pressure was applied below the piston, and producing an upward force. Engines had then a cantilever or 'grasshopper' beam (5). So the requirements of such engines also do not fit the arrangement of the present engine. Also site excavation did not reveal any sign of a cylinder or valve gear. The absence of such pressure parts, or of any sign of a boiler, also rules out the possibility that the engine was worked by steam.

It was hoped that the clearing of the hole under the crosshead would reveal some clue as to how the engine was worked. The hole was filled

THE VANLOCKHEAD BEAM ENGINE

SCALE $\frac{1}{4} = 1"$

FIG. IV



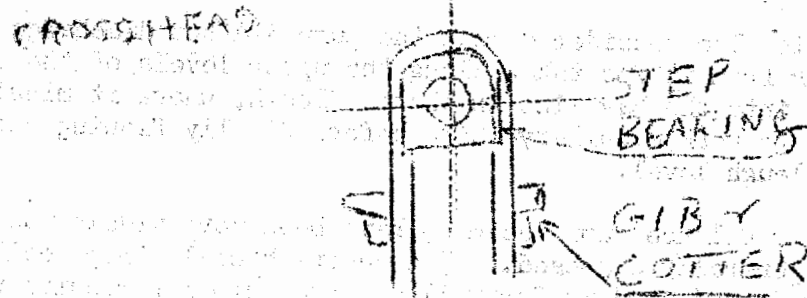
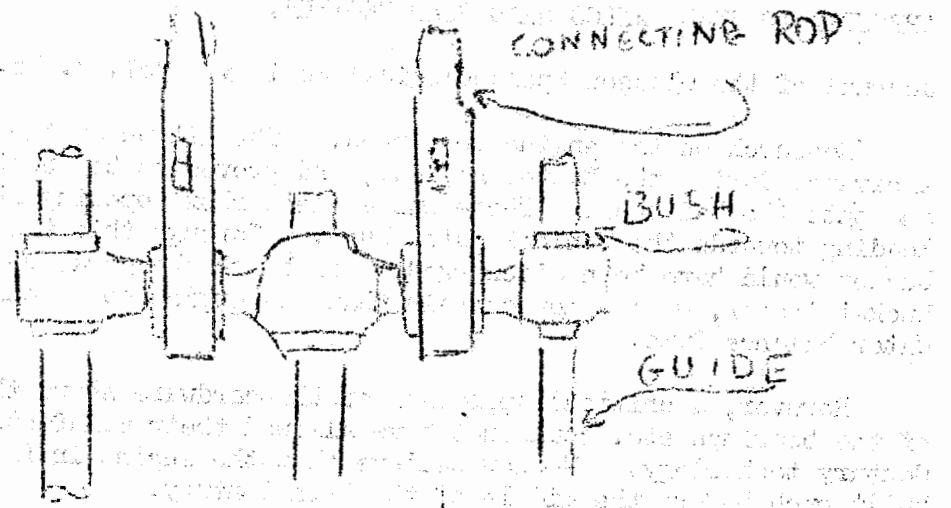
with rubbish, and the presence of the iron rod in the centre made it difficult to get into. Attempts to clear it were eventually abandoned when it seemed that the bottom might well be 10 ft down, but the work did reveal a significant clue. The hole proved to be a rectangular stone lined pit with iron faced guides extending down it from the pillars of the steeple. The wooden battens were worn at one side, and it was clear that something had moved up and down them. Another crosshead seemed unlikely, for it would have been a crude affair. But it must have been something moving in these guides that powered the engine. If water wheels, and water pressure were discounted, what other application of water power might have been used?

A possible answer came from some research that was being made into mines in lower Dumfriesshire. An account of a coal mine at Byreburn, in the Canonbie field, given in the New Statistical Account of 1845, described a 'water engine' used in the mines as follows:-

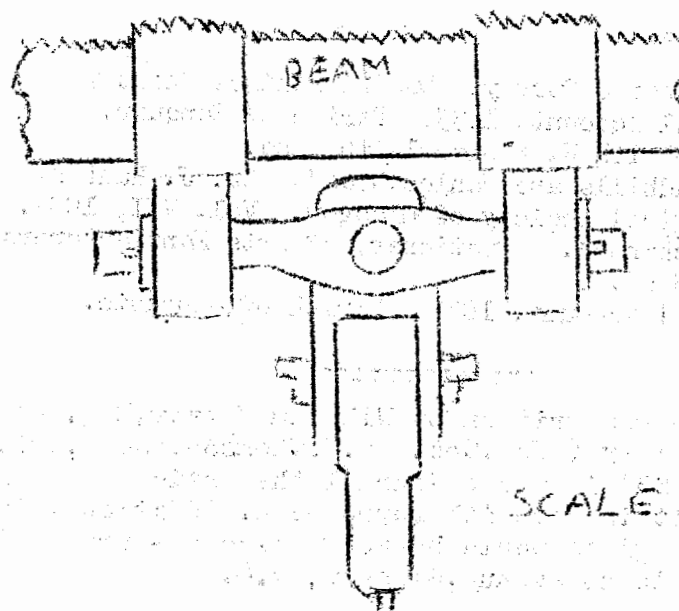
"At Byreburn it (coal) is wrought by a water engine upon a new construction, the invention of the late Mr. Meir of Millholm. It is moved by means of a large bucket of a square form suspended from the end of a beam, having a valve at the bottom in the centre, which, by machinery, is made to shut and open in the instant of time the bucket should fill and empty itself. The other end of the beam is fixed to the pump spear or rod, and by the continued action of the bucket, descending and ascending, filling and emptying the water it contains, which is of such a weight as to make the beam preponderate, the pumping is carried out and the coal pit is cleared of the water collected below." (6)

Is this then the way in which the Wanlockhead engine was operated? The description seems the only one that has come to light to fit all the facts. The rectangular pit would have taken a wooden bucket about 4'6" long by 2'3" wide. The wooden guides would have held the bucket, preventing it see-sawing, and by having them lined with iron strips, the friction against the sides of the bucket would have been reduced. A simple valve in the bottom of the bucket would have dumped the water out of it at the end of the stroke, and this water would have mingled with that brought up by the pump to flow out of the adit. By holding some water in the pit for the bucket to splash into, its downward motion would have been smoothly arrested, while a similar arrangement in the pump shaft would have halted the other stroke. The motion would have been slow and the amount of water pumped would not have been great, but the engine would not have required any attention, and would have been a great improvement on the hand pumps that were often used.

If the Wanlockhead engine is indeed similar to that developed at Byreburn, and this seems probable, then it is not only a fine old piece of machinery, but is also a monument to the ingenuity of a forgotten Dumfriesshire Mining Engineer.



DETAIL OF
CONNECTING ROD



DETAIL OF TRUNNION

WANLOCKHEAD BEAM ENGINE

Journal of the Glasgow Spelaeological Society. Vol. 2. No. 1. Feb. 1970.

"Research on the engine continues. The pit under the crosshead was excavated during the Easter holiday, and proved to be about 6 ft. deep and onto the bed rock. There was a 'letterbox' opening at one side and leading towards the Wanlock Water burn. Through this the water from the bucket would have been discharged. Although there was no sign of the bucket itself, we are now certain that the engine could only have been a Water Balance Pump.

However, a critical appraisal of the hardware shows that the design of the bearings etc. could not have allowed their manufacture by 18th Century technology. We now believe that the engine in fact was not built much before the middle of the 19th Century.

It is also considered that the pump did not discharge nearby but that the water from it was taken along the upper levels of the Straightsteps vein and into the Bay mine in Whytes Cleugh, where it mingled with other drainage to work machinery there before finally flowing out through the Whytes Cleugh level.

Water Balance Pumps seem to have been more widely used in Britain than is generally supposed. The Scottish coal miners called them "Bobbing-johns", and in Cornwall a rather similar machine was known as a "Flop-jack".

The Wanlockhead engine is probably the best example of a Water Balance Pump that remains in the country, and moves are in hand to have it scheduled as an Ancient Monument.

REFERENCES.

1. Geological Ordnance Survey. Dumfriesshire. Sheet 7.
2. New Statistical Account. 1835. Parish of Sanquar.
3. Correspondence with H. Plenderleith, Esq.
4. "Mining in Leadhills and Wanlockhead". Dr. J. Hunter.
Trans. Geological Society of Glasgow. Vol. VII, 1884.
5. "Hydraulic Machines". Dictionary of Arts Manufacturers & Mines,
A. Ure. 1875 ed.
6. New Statistical Account. 1835. Parish of Canonbie.

This article was written by William Harvey, Esq. of the Glasgow Spelaeological Society (Hon. Sec. S.F. Thomson, Esq., 120, Lochlea Road, Newlands, Glasgow, S3) in whose Journal the article appeared and with whose permission it is herewith reproduced. Additional information on this, or similar engines would be most welcome - write William Harvey, Esq., 23, Orleans Avenue, Glasgow, W.4.

17 - MINING in the NORTHERN PENNINES

A SHORT GUIDE to WORKING MINES and MORE RECENT PROSPECTS

Compiled by
Peter Jackson.

WORKING MINES

CANMOCK EALS MINE

A working partnership. Working Slith Vein for fluorspar from Horse Level two mile East of Westgate.

REDBURN MINE, WEARDALE LEAD COMPANY

At Rookhope in Weardale, working Rockhope Red Vein for fluorspar. Shaft 50 fathoms deep and incline to 17 Fathoms Level. Uses Hagglunds waggons and an Alimak rise climber.

GROVERAKE MINE, BRITISH STEEL CORPORATION

2 miles WNW of Rookhope, working Groverake Vein for fluorspar. Two shafts and level. Ore is carted to Whiteheaps Mill.

BLACKDENE MINE, BRITISH STEEL CORPORATION

Near Ireshopeburn in Weardale. Access by Horse Level and Incline, working Blackdene and Slith Vein equipped with a gravity feed mill for fluorspar.

CLOSEHOUSE MINE

6 miles NE of Brough. A barytes mine working a complicated orebody of large reserves.

WHITEHEAPS MINE, BRITISH STEEL CORPORATION

South of Blanchard village, working the White Vein for fluorspar by shafts and inclines. Equipped with a modern Heavy Media Separation Mill.

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PROSPECTS

ALLERHEADS MINE, BRITISH STEEL CORPORATION

Double track incline in Allenheads village now about 30^{30s} years down. Trial for Allenheads veins for fluorspar as backfill or in virgin ground.

CORNISH HUSH HIGH LEVEL. STAR ALUMINIUM CO.

Trial for fluorspar by reopening old Horse Level. Well equipped on surface, 2¹/₂ miles S.W. of Frosterley.

CALIFORNIA LEVEL. STAR ALUMINIUM CO.

Trial for fluorspar, in same ground as Cornish Hush Level 4 miles S.W. of Frosterley.

MIDDLEHOPE OLD LEVEL. ALCAN U.K.

Surface drilling followed by reopening of Middlehope Old Level as a fluorspar prospect on Longsike Vein 2 miles N.W. of Westgate.

RIGG MINE. LOCAL PARTNERSHIP

Small shaft on Slith Vein tried at various times for fluorspar but usually too siliceas, 1 mile N.E. of Westgate.

BURTREE PASTURE HORSE LEVEL. WEARDALE LEAD CO.

Fluorspar prospect for Breckonsyke and Burtree Pasture Veins. Level being reopened. 2 miles N.W. of St. Johns Chapel.

WIDLEY WATER VEIN, LOCAL PARTNERSHIP

Reopening old drainage level for Stanhopetoun Mine. 1 mile North of Stanhope.

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MINING NEWS (U.K.)

WORLDWIDE ENERGY CO. reported to have bought Carrock Fell Tungsten Mine. A mill reported to be under construction to start up early in 1972.

WHEAL PROSPER, HELSTON, CORNWALL

National Trust repairing engine house and chimney.

OGOGFAU MINE, DOLDUCOTHI, WALES

Being investigated by archaeologists of the National Museum of Wales.

RIO-TINTO FINANCE and EXPLORATION LTD. (Subsid. of R.T.Z.)

Permission for drilling to take place on land owned by Manchester Corporation at Thirlmere and Haweswater.

BRITISH GOVERNMENT

Announced a scheme to meet 35% of the cost of work done in exploring for and evaluating deposits of certain minerals. The grant will be repayable only if the project is developed into a productive mine. Minerals covered include lead, copper, zinc ores etc and barium, fluorspar and potash ores. Expenditure by Government will probably be in the region of £50 to £75 millions.

ACMIN EXPLORATIONS N.L. and WEARDALE LEAD CO. LTD.

After negotiations these two companies have reached agreement on a prospecting scheme. Acmin will have the rights to lead/zinc and W.L.C. the rights to fluorspar found. Explorations is to be carried out by Acmin Explorations (U.K.) Ltd. and is started as starting immediately. (9.7.71). Initial operations will be Boltsburn Vein, N.E. of Rookhope to find possible extensions to known orebodies. Mackay and Schnellmann Ltd are to carry out initial prospecting.

MAGPIE SOUGH

The collapsed entrance, partially cleared by P.D.M.H.S., has now completely filled in again.

FORCE CRAG MINE, KESWICK

Reported to have closed at end of July 1971.

NOTE WELL

Certain elements of the amateur mining community are

causing a great deal of friction amongst professional miners. This has been highlighted at Force Crag Mine where gated levels were frequently broken in to, presumably by mineral collectors.

Complaints have been heard from all parts of the Midlands and Northern England and with the upsurge of interest in reopening mines it is those interested in mining history to prevent the image of mine historians being tarnished.

P. Jackson.

July 1971

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STOP - PRESS

18 - ADDITIONS TO LIST OF MEMBERS 1971, -26th, AUGUST 1971

The undermentioned members have renewed membership for 1971

K. Northin 14, Back Lane, Idle, Bradford, Yorkshire BD10 8RX
Mrs. V. Northin 14, Back Lane, Idle, Bradford, Yorkshire BD10 8RX
W. K. Pirt 44, Fines Road, Medomsley, Consett, Co. Durham.
Dr. A. J. Sutcliffe, c/o Department of Palaeontology, British Museum,
(Natural History), Cromwell Road, London S.W.7
B. P. Wilkinson Briars Croft, 12 Hugar Road, High Spenn, Rowlands Gill,
Co. Durham.

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19 - MEMBERS - CHANGE OF ADDRESS

N. P. Scarr 'Erving', 67, Hawthorn Drive, Yeadon, Leeds LS19 7XA

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20 - CHANGE OF OFFICER - HONORARY TREASURER

Miss Jennifer Goleby has been appointed Honorary Treasurer. As Miss Goleby will shortly be changing her address membership and membership subscriptions will be dealt with for the time being by our Public Relations Officer Mr. D. Platt, 11, Neville Street, Skipton, Yorkshire BD23 2EU.

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21 - NEW POTHOLE

A pothole appeared during quarrying operations in Greenhow Quarry. This pothole was approximately 65 ft in depth and is thought to be a part of the Pendleton Pipe series. It has unfortunately been sealed off during subsequent quarrying operations.

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22 - PUBLIC LECTURE AT WANLOCK HEAD, SCOTLAND.

A lecture on 'Pumping Problems and Pumping Engines at Wanlockhead' is to be given at the village school, Wanlockhead at 7.30 p.m. on September 10th. by Wm. Harvey and Mr. Downs-Rose.

It is anticipated that this occasion will serve to launch a small village museum.

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23 - GUISBOROUGH LIBRARY, GUISBOROUGH, TEESIDE

Mr. R. G. Guthrie is to give a lecture on the Cononley Mines on Thursday 28th, October 1971 on behalf of the Teesside Industrial Archaeological Society sponsored by the Teesside Museums - Library Committee.