



MINING HISTORY SOCIETY OF IRELAND

MHSI

NEWSLETTER

Cumann Stair na Mianadóireachta

NUMBER 5

JULY 1997

PROGRAMME: JULY-NOVEMBER 1997

July 11-14th (Fri.-Mon.): NAHMO conference (site/underground visits, lectures, etc. – report from attendees in next newsletter) near Matlock in Derbyshire.

September 21st (Sun.) {Not the date given in the issue}: National Heritage Day. Provisional programme (- full details will be notified).

East Avoca Mines (meet Whitebridge, Tigrony at 3.00) - Mr Nick Coy
Silvermines - Dr. Martin Critchley
Ahenny - Dr. John Morris or Dr John Colthurst.

Old Glengowla Mine, Oughterard - "A walk through the heritage of Glengowla Mine" between 2.30 and 5.00

"The Mining Community at Knockmahon in the 1840s- Temperance and Famine" - a walk from Bunmahon to the miners' Temperance Hall, with talks there on temperance and famine.

Kenmare Copper and Lead Mine – John Hamilton

October 4th-5th (Sat.-Sun.): Field meet at Knockmahon and Slievardagh..

Sat.: Assemble 10.00 a.m. at car park, Bunmahon [X 433 989]. Ballydwane, Knockmahon and Tankardstown introduced by Des Cowman. The Engine Houses at Tankardstown interpreted by Kenneth Brown.

Sat. evening lectures - *Cornish Engine Houses* by Ken Brown; *The Mining Company of Ireland* by Des Cowman.

Sunday: Depart Bunmahon 9.30 a.m. and reassemble Ballingarry, Co. Tipperary, at 10.30. (Further details will be notified).

18th Oct. (Sat): Workshop on the ecology of mining sites.

The programme is yet to be finalised and further details will be circulated later, including a registration form, as there will be a charge (about £10 for members) for this meeting to cover the abstracts, tea/coffee, lunch and other costs in running the meeting. For those attending the workshop, the option of a field trip to Avoca on Sunday 19th will be offered. Contributions to date include:-

H. Fox - *Lichen distribution patterns at old mine sites in Ireland, with comparison to other countries.*

K. McAney - *Old mine sites in Ireland as bat roosts - a preliminary survey.*

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9. SIMPLE SURVEYING
- 10 **FEATURE ARTICLE**
Towards a database of Irish mining sites.

[Continued over]

J.P. Timpson and D.H.B. Fitzgerald - *Rehabilitation of mine tailings at Tynagh, Co. Galway, Gortdrum, Co. Tipperary and Silvermines, Co. Tipperary.*

J. Durkan and J.P. Timpson - *Revegetation trials on tailings at Tara Mines Ltd., Navan, Co. Meath.*

P. Tierney and J.P. Timpson - *Natural colonisation by plants of old mine tailings at Abbeytown, Ballisodare, Co. Sligo.*

P. Treacy and J.P. Timpson - *Natural colonisation of wetlands at old mine sites in Ireland.*

B. Dallas and J. Good - *Overview of 25 years of mine rehabilitation in Ireland.*

D. Mitchell and D. Fay - *Mycorrhizal associations of recently planted trees on old mine spoil at Avoca Mines.*

J. Good - *Soil staphylinids of old Irish mine sites: their use as indicators of self-sustainability for mine revegetation.*

R. Otte and students - titles later

Further contributions on any related topic are still invited. Contact Dr. Matthew Parkes at the Geological Survey of Ireland.

1st November (Sat.): Talk by Ron Callender "Gold in the Hills" (Details in Newsletter 6).

EDITORIAL

This issue comes out a little bit earlier than normal in order to give members the opportunity over the Summer of beginning work on the survey of Irish mining sites as the first step towards the MHSI's database. Dr. Martin Critchley explains the basic procedures and outlines the intentions from page 10 to 12. A survey sheet is supplied separately for photocopying purposes.

This has meant that some articles have had to be deferred to the next issue, notably the reports of the field trips to Allihies, Glengowla and Newtownards. Apologies to Ken Brown for not getting to him early enough with proofs for the second part of his series on Cornish engine houses, dealing with Avoca. It will be carried in the next.

ITEMS RECEIVED: REVIEWS

1 Presented by Mr. Ike Wilson of Cheshire, four plans relating to Irish Base Metals Ltd. operation at Tynagh, Co. Galway.

(a) A survey dated June 1962 on tracing paper of the surface features and topography, scale 1"=100'.

(b) Plan of "4700 Level" dated 15-6-1971 with thirteen revisions up to 14-12-1973; scale 1"=40'.

(c) Plan of "4725 Level Development" dated 21-6-1971; scale 1"=40'.

(d) Plan of "5000 Level Service Access to East Zone" dated 17-7-1974 with four revisions up to 2-7-1975; scale not legible.

Mr. Wilson has also donated a large collection of minerals and mining materials to the community at Bunmahon, Co. Waterford. It is anticipated that these will be on display during the MHSI field meet there on 4th October.

2 Philip Saundry of Cornwall has kindly donated to the Society a video copy of *The Cornish Engine* which is reviewed below. This may be borrowed through Matthew Parkes. It is one of a series of three films compiled c.1950 showing Cornish engines at work and other aspects of them. Each film is available from the Publications Secretary of the Trevithick Society, as follows -

- | | |
|--|-----|
| 1. <i>The Cornish Engine</i> | £21 |
| 2. <i>The Cornish Engine Record</i> (b & w) showing 6 steam engines. | £18 |
| 3. <i>Kitty to the Cape</i> , (c) showing engines from Wheal Kitty to Cape Cornwall. | £13 |

Prices are sterling and include post and packaging. From

Mr. C. Rowe, 3 Trenook, Church Cove, Lizard, Halspon, Cornwall TR12 7PQ (ph. +1326 290051)

REVIEW: THE CORNISH ENGINE.

This 34 minute black and white film was made in 1948, and is clear archival film with explanatory graphics extolling the history, physical principles and importance of the steam engines which, designed and built in Cornwall, became known as the "Cornish Engine". However, they were so successful in their time that they went on to be installed in mines all over the world, including many in Ireland.

The video falls into three sections. The first is largely film of engine house and machinery remains, with internal and external views of working engine houses. The importance of the engines to working tin and copper mines through counterbalanced wooden pump rods (weighing up to 100 tons and going down to 2000 feet to pump out the water) is clearly identified. Also in Cornwall the China Clay industry relied on the engines to pump water and clay out of the enormous pits.

The second section deals with the origins of pumping engines and a review of the physical principles by which steam engines work. Sixteenth and seventeenth century efforts to apply the principles deduced by Papin were successfully achieved by Savery in 1698, but never took off. The atmospheric engine of Newcomen, a Devon man, were installed throughout Britain in the early 18th century, but mainly in the coalfield areas where fuel was cheap. The lack of fuel in Cornwall was an impetus to James Watt, who added a steam condenser, to produce a more efficient engine about 1766.

Trevithick developed this further in 1812, producing the Cornish Engine through using riveted boilers to withstand high pressure steam, allowing an engine four times more efficient than Watt's. By mid-century the design was standardised. The working of this Cornish cycle is thoroughly demonstrated in this video. It shows the beam with its parallel motion to keep the piston vertical, the plug rod to open and close the valves and the cataract to govern the valve timing. The relative positioning of the different parts within the engine house is also explained.

Overall, this is an excellent film providing insight for the uninitiated into how such engines worked. It also gives a very visual impression of what in their heyday were probably unremarkable working machines to those who relied on them for pumping and winding. It is a most valuable adjunct to Ken Brown's Cornish engine review series in our Newsletter, providing meaning to the empty shells of engine houses remaining in the mining districts.

By John Morris and Matthew Parkes

3. Peter Eggleston of Shropshire writes re Nick Coy's review of his video "*The SCMC in Ireland*" in *Newsletter 4* that the discount to MHSL was not noted. The price to members, including VAT, p & p, is just stg£9.45. the video can be obtained from I.A. Recordings, P.O. Box 476, Telford, Shropshire, TF7 4RB (the *B* was missing from the postcode). [Editorial apologies].

Re. Nick's point of this being an unedited compilation of the SCMC's visits to Ireland (as distinct from the edited version shown at our AGM), Peter states - "The idea of a compilation tapes is to make the maximum amount of material available quickly and cheaply. Compilations are aimed at enthusiasts and are not intended for relaxing fireside evening viewing".

IRISH, HISTORIC MINE SHARES: an occasional series

The TASSAN LEAD MINE, later THE TASSAN MINING COMPANY LIMITED, County Monaghan.

John Morris.

This relatively little known mine was one of the largest of a cluster of lead deposits in Northeast Co. Monaghan and the adjoining part of Co. Armagh which were developed during the mid-19th C. A summary account of the currently known history of the development of the Tassan Mine is provided in *MHSL Newsletter* No.3, December 1996, while the following brief outline of its capitalisation is abstracted from articles in the *Mining Journal*. There are obviously great gaps in this, so any further information, or direction to material such as share registers and company records, would be very welcome!

The company was formed in April 1853 to work a sett granted under a 21 year lease from May 1852. It seems that the Company was to be capitalised at £20,000 in the form of 20,000 shares of £1 nominal value. These were, however, only issued as "partly paid" shares, which were subject to "calls" periodically whenever the Company required extra working capital to sustain its development. In the first announcement of the formation of the Company (*Mining Journal*, April 9th 1853), it is noted that an initial target capital requirement of £2,500 was required and that this had already been raised prior to the public announcement. However, records of the initial fund raising are slightly confused: a figure of £2,350 is mentioned in the following June and a called up price of 10/-, suggesting an initial placement of only 4,700 shares. Additional shares were also issued to fund the purchase of the lease. This and subsequent information concerning paid up prices, calls and share prices/sales are noted in the Table below.



The report of the first AGM held in London and published in the *Mining Journal*, on June 25th 1853 was, not unexpectedly, very bullish. It was noted that the share placement had been received very eagerly, although, amazing though it might seem, dissatisfaction was expressed at share prices being quoted in the *Mining Journal* above the paid-up value - a quotation of £1-10-0 per share on May 25th is cited. This was considered unwarranted, did not reflect well on either the Company or the *Journal*, and should be discontinued in favour of listings authorised by the Company! A Mr. Josiah Hitchins of Tavistock was noted as a new and substantial shareholder.

The manner of how shares should be dealt was a source of ongoing comment almost from the outset. Joseph Holdstock, in a letter to the *Mining Journal* published on June 29th 1853, expressed many concerns: the lack of a public market for share dealings; the power of agents to control prices; the differences between quoted and actual prices of dealings; and the manipulation of prices by Directors and insiders to the exclusion of others - plus ça change! Similarly, in January 1854 a Mr. J. S. Lane expressed his outrage at the share transfer charges levied by dealers - 2/6 per transfer.

Development difficulties afflicted the mine throughout 1854 and 1855. This not only reflects operational problems, but also the impact of the Crimean War which started in March 1854 and continued until early 1856. Somewhat surprisingly, the commencement of the war induced a drop in lead prices (*Mining Journal*, Jan 20th 1855), while costs, of materials, supplies and equipment, not unexpectedly, started to rise. The net result for the mine was financial problems - as can be deduced from the periodic increase in called-up share values, reflecting the need for the company to seek extra working capital from its shareholders (see Table). Even so, its shares still traded at reasonable prices,

although from mid to late 1855 the difficulties would appear to have become almost insurmountable with shareholders calling for the dissolution of the Company. Instead, a new group, based in Bradford, took over management in October 1855 and re-financed the Company.

This transfer of control was extremely acrimonious, charges and countercharges littering the pages of the *Mining Journal* throughout the first half of 1856 with the Bradford faction claiming incompetence on the part of the preceding London-based management, and vice versa. In light of the fate which would soon befall the Company and with the benefit of hindsight, I cannot help but sympathise with the London based group and its supporting shareholders.

By January 1856, the share price had all but collapsed to 3d per £1 share, albeit at an auction sale of shares. This coincided with yet another call of 1/- per share, even though substantial arrears from previous "calls" remained uncollected. By mid-1856 the Company appears to have availed of the provisions of the Joint Companies Stock Act 1856, being reformed and renamed as a Limited Company. This action, and at least one further call to a paid-up value of 17/- per share, failed to save the Company. It went into liquidation in November 1857 and was sold for £300, the equivalent of 3.6d per £1 share. This was not, however, the end of the mine: it was, no doubt to the chagrin of its erstwhile shareholders, just the beginning of its most successful phase of operation as an apparently privately owned and operated Company.

The Five-share certificate illustrated dates from the period of existence of the Tassan Mine as a Limited Company between June 1856 and liquidation in November 1857: a period of just under 18 months. The very finely engraved certificate measures 13.3cm in width by about 20.5cm in length (variable measurement due to irregular cut along left hand margin) and is printed in light to medium grey on a very pale blue, semi-translucent paper. The certificate is signed in copperplate script by two of the then Directors, George Tetley and James Knowles; countersigned by the Company Secretary; dated May 14th 1857 and numbered, 17098 to 17102, in the top left hand corner. The Company seal is embossed across the Director's signatures (not visible in the illustration). I can only guess at the feelings of the original investor who bought these shares, even at a price substantially below the face value, only 5 months before the Company went into liquidation!

Date	Nominal Cap: £1 shares	Paid-up value per share	Paid-up capital	Share Price	Comments
April 9, 1853	?£20,000		£ 2,500		Private placements
May 25, 1853				£1-10-0	
June 25, 1853		10/-	£ 2,350		
Dec 3, 1853			£ 2,350		
Oct 7, 1854	£20,000	12/-	£ 12,000	5/-	
Oct 28, 1854					Shares traded
Nov 4, 1854					Shares traded
Jan 20, 1855	£20,000	13/-	£ 13,000	7/6	
Oct 6, 1855					New m'gmt
Jan 26, 1856	£20,000	15/-	£ 15,000	3d: at auction	300 shares auctioned
Feb 9, 1856		1/-per share call	? £16,000		£350-12-0 calls in arrears
June 1856					Ltd Co.
May 1857		17/-	£ 17,000		
Nov 13, 1857	£20,000		?	3.6d	Liquidation

IRISH MINING HISTORY AND THE WORLD WIDE WEB:

A Survey of Current Resources

Until recently, few people had heard (or even cared) about the Internet. Today, it's impossible to escape hearing about the Internet almost every day since the advent of the World Wide Web. Even the Mining History Society of Ireland has its own home page (<http://www.iol.ie/~dcowman/mhsi.htm>) which provides various organisational details, a directory of members, a checklist of Irish mining sites, a bibliography of Irish mining history and a note from the chairperson John Morris. The purpose of this article is to highlight a range of on-line mining history resources relating predominantly to Ireland, most of which is not available on the MHSI site. There is no space in this newsletter to explain how Internet works so the assumption is made that the reader knows how to access a web site.



Welcome to
the

MINING HISTORY SOCIETY
OF IRELAND



The MHSI Homepage minus the subtleties of colour (the society's name in fact stands out in chiseled red relief)

Directories & Links Pages

1. **Mining History Network** (<http://ex.ac.uk/~RBurt/MinHistNet/www.html>) compiled by Roger Burt, designed by Ray Burnley.
This contains links to over 60 other Web sites along with a few Email contact addresses arranged alphabetically. The listing is quite international as it includes American, British, Canadian, Dutch, French, German, Italian, Russian and South African bodies, while Ireland is represented by MHSI's site.
2. **Underground Database** (<http://wkweb4.cableinet.co.uk/adrian.pearce/MSUK.HTM>) compiled by Adrian Pearce.
Links to UK and foreign mining/caving clubs and museums, as well as references to UK and foreign information. Sources. Now contains the official NAMHO web pages. Of the mining history organisations listed, many do not have a Web site or Email address. Frustratingly, where no electronic address exists, readers are simply told 'Not on Internet, contact Adrian Pearce for details'. Surely, it would have been better to add the postal address of the organisation instead?
3. **West's Geology Directory** (<http://www.soton.ac.uk/~imw/links.htm>) maintained by Ian West.
Most links pertinent to MHSI members can be found under 'ECONOMIC GEOLOGY - Mining History' which is divided into four sub-categories - General, Societies, Turkey, and UK.
4. **Das Virtuelle Museum Industriekultur** (<http://www.industriekultur.de/VIM/gross.htm>)
A huge list of links to British mining and other industrial history museums (and some organisations too). The Ireland page consists of only two links but one of these is MHSI.
5. **I.A. [Industrial Archaeology] Recordings** (<http://www.iarecord.demon.co.uk/otheria.htm>)
UK museum links but not as wide-ranging a list as that of 'Das Virtuelle Museum'.

6. **Websurfer's Biweekly Earth Science Review: Hot Links Page**
(<http://shell.rmi.net/~michaelg/HOTLINKS.html>) Includes a section on mining and related topics. Mostly present-day mining activities but also includes some mining and metallurgical history links. It is primarily concerned with palaeontology, minerals, volcanology and geology.
7. **Cave Linx** (<http://web.ukonline.co.uk/members/andy.mccarron/cavelink.htm>) maintained by Andy McCarron
Includes 350 links (or so it claims) to various 'caving related' Web sites around the world. These are organised alphabetically under each continent. Ireland merits only four entries but MHSI is not among them.
8. **Caves and Caving in the UK** (<http://www.sat.dundee.ac.uk/~arb/speleo.html>) maintained by Andrew Brooks
This seemingly comprehensive directory includes links to the Spelaeological Union of Ireland's home page and to special interest groups of the British Cave Rescue Association such as 'SpeleoHistory' and 'Photography'.
9. **Geological Survey of Ireland's List of Irish Earth Science & Related Sites**
(<http://www.irlgov.ie/tec/gsi/gsilink1.htm>)
Includes university departments and research bodies, as well as MHSI.

Bibliographies

1. **Published Works on Irish Mining 1955-1995** (<http://shaw.iol.ie/~dcowman/books.htm>)
This is identical to that printed in MHSI's Newsletter 3. Although publications post-dating 1995 are not yet included, they could easily be added at any time in the future. The major advantage of an on-line bibliography is that it can be continually updated whereas a printed one remains a static publication. Therefore, MHSI's bibliography has the potential to become the most comprehensive and up-to-date compilation on Irish mining history publications.
2. **Mining History Network Bibliography : Ireland**
(http://info.ex.ac.uk/~RBurt/MinHistNet/bib_IR.html)
Based on one compiled by Roger Burt of Exeter University. There is a section for postgraduate theses, though none had been listed by 7 March 1995 when this particular Web page had last been brought up to date.
3. **International Union of Speleology's Bulletin Bibliographique Speleologique: Speleological Abstracts for 1991** (<http://www.geo.nizh.ch/~heller/SSS/BBS/91/211GB.html>)
Invaluable bibliography of spelaeological literature dealing with (predominantly UK) accidents and rescue incidents, radon presence in caves and mines, courses in first aid and mine leadership. The entries are listed alphabetically by author and are drawn from a wide range of periodicals including Mining News.
4. **Geological Survey of Ireland Publications List** (<http://www.irlgov.ie/tec/gsi/gsipub1.htm>)
Covering the various sheets of the new 1:100,000 scale Bedrock Maps and booklets, a video, geotourism brochures and a few books on geology and mining history. A link to an on-line order form is provided to facilitate electronic submissions of orders of GSI publications.

Historical literature

1. **Ancient Miners, Modern Collections**
(http://www.kanwar.demon.ac.uk/begs/l_report/1996/25nov96.html)
Transcript of lecture by Alf Cole on the origins of early Irish copper and bronze working.
2. **The Glenariff Mines and Railway** (<http://www.btinternet.com/~lochist/glenarif.htm>)
Compiled by Kevin O'Hagan and deals with a group of iron ore mines in County Antrim that were exploited from the 1870s to the early 1880s.

3. **The Village of Cargan, Co. Antrim** (<http://www.btinternet.com/~lochist/cargan.htm>)
Compiled by Kevin O'Hagan and provides an account of this nineteenth century village laying close to an early (short-lived) attempt to distill paraffin from bituminous peat in the area.
4. **Introduction to Mineral Statistics** (<http://info.ex.ac.uk/~RBurt/MinHistNet/MS/intro.html>)
An outline of the historical evolution of the British Mining Record Office's initially irregular, but soon annual, publications on the output of the mineral industry in Britain and Ireland since the 1840s. Additional material on the Mineral Statistics can be perused by typing the above URL without the final element intro.html.
5. **Spelaeological Union of Ireland and the Irish Cave Rescue Organisation**
(http://www.ul.ie/~sui/suicro_news.html)
This contains a note on the foundation of MHSI, as well as other articles. One useful feature is a brief paragraph on funding sources for caving/spelaeological research projects, potentially worth exploring further for the purposes of exploring old mines.

Conclusion

This general survey of Irish mining history and related resources on the World Wide Web has only considered the results of a search for the terms 'mining history' and 'Ireland'. It should therefore be borne in mind that there may be some material that was missed because the word 'Ireland' did not appear on particular Web pages dealing with Irish mining history. Also, Web sites dealing with Irish miners or mining operations overseas were not included in this survey though a few of these were encountered.

Although currently dominated by organisational and bibliographic data, there is much potential for more extensive mining history information to be supplied online. In particular, more full-text articles (perhaps previously or simultaneously published in conventional print format) could be hosted either on the sites of particular mining history associations or on individual historians' home pages. Postgraduate theses, often difficult to publish conventionally, could be made available over the Internet, while video footage of old mine explorations or even of their archaeological excavation could accompany a textual discussion of the sites involved. Electronically searchable databases could also be placed and regularly updated on the Web, such as the MS Access database of Irish mining sites featured in this issue of the *Newsletter*. Courses on mining history, archaeology or even safety in mine exploration could be given directly across the Internet through distance learning programmes (for an idea of what kinds of Internet-mediated courses are already being offered by a number of third level institutions in North America, see <http://www.caso.com/>).

The only factors limiting the potential of the Internet as a resource for Irish mining history are the scarcity of historians willing to publish on the World Wide Web and the expense faced by many people wishing to connect to it. Hopefully, as mining history grows in popularity and more people get connected to the Net, then the demand for mining history content on the Web will increase also.

Greg Fewer

ED. NOTE. Due to pressure of space in this issue this is a shortened version of the original article submitted at short notice by Greg Fewer. Thanks to Adrian Pearce of Telford, Shropshire for his help in this regard.. It is anticipated that the full article will appear in the Shropshire Mining and Caving Club Journal in January 1998. Readers who have found other relevant sites are invited to send details to the editor or to Greg at the address below.

[Greg Fewer is a part-time lecturer in local archaeology at Waterford Institute of Technology. He also maintains his own Web site (<http://www.infohwy.com/~gfewer/>). This coming academic year (1997/98), he will be offering an Extra-Mural Certificate course in Electronic Publication at WIT. Persons interested in taking this course may contact him or the Dept of Adult & Continuing Education, Waterford Institute of Technology, Cork Road, Waterford, E-mail, gfewer@wit.ie.]

SIMPLE SURVEYING

By Anita Doran

The weekend workshop at Oughterard included a brief outline of simple survey techniques to enable members to carry out basic surveys themselves. Only basic survey techniques were demonstrated due to the unavailability of advanced survey instruments.

Equipment used: measuring tape (30 m) x 2
 wooden pegs
 optical level, and tripod
 surveyor's staff
 clipboard, paper, pen

Surveying is often a slow and time-consuming job, so remember - many hands make light work! At least two people (preferably three) are required to carry out a survey. Two types of surveying were outlined:

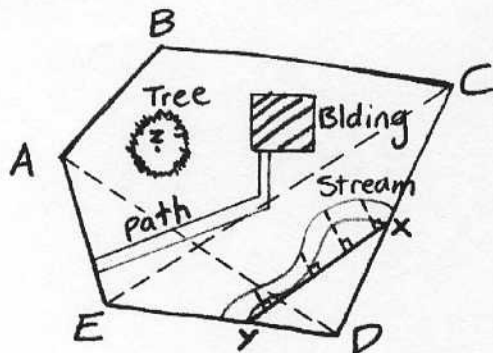
- 1) the dimensional survey and chain surveying
- 2) levelling (to determine heights).

The Dimensional Survey and Chain Surveying

The first phase of the survey is to determine the shape of the site, the position of features, shape of paths, rivers etc. All that is needed is two measuring tapes, wooden pegs, clipboard and paper, and organisation.

The aim is to represent the site and its features on a sheet of paper.

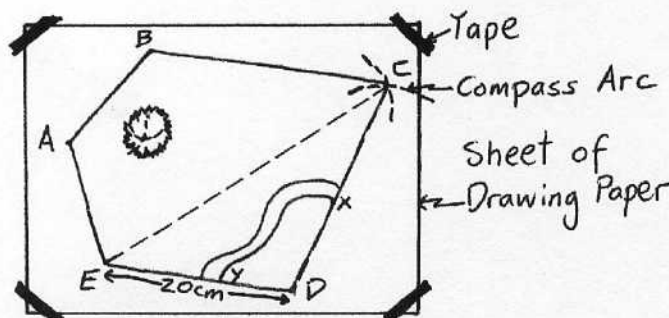
Procedure



- i) using a measuring tape measure the lengths AB, BC, CD, DE, EA, EC, AD.
- ii) to determine the position of the stream measure the distances XD and DY. Then at regular intervals along XY take measurements at right angles to the stream in order to determine the distance of the riverbanks from XY. This is called chain surveying (named so because chains are often used instead of measuring tapes).
- iii) the tree centre can be located by measuring the distance BZ and AZ. Follow this simple procedure to locate any feature.

Pen to Paper - Drawing the Map

Firstly decide what scale the drawing is to be e.g. at a scale of 1:100 a ground measurement of 30 m will be 30 cm on the page. Use a scale ruler when drawing the map to make life a little easier.

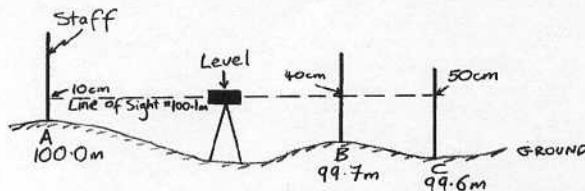


- i) draw a line on your paper and mark off the distance ED to scale.
- ii) open a compass to the distance DC, place the point on D, and make an arc at C. Then with the compass set to the distance EC, place the point on E and make an arc at C. The point of intersection between the two arcs is point C. Continue with this until each point is located.

- iii) mark the points XY on the map. With a square ruler, mark in the offset lines at right angles to XY so as to locate the position of the stream.
- iv) the location of the tree is found by using the compass to draw arcs from points B and A.

The Levelling Survey

In order to determine the height of a point and to contour a site it is necessary to use a level and staff. The levelling is straightforward enough once you get used to it.



A staff is effectively a large ruler that is used to measure the height from the ground.

If you only require random spot heights, e.g. the height of certain features, the procedure is straightforward. We will use figure 1 as an example. To determine the heights of A, B, C, D, E, and F:

- i) set up tripod and level.
- ii) assign an arbitrary height value to A e.g. 100 m. Place the staff on A and, looking at the crosshairs in the eyepiece of the level, record the height reading on the staff. If the reading is, for example, 10 cm, then the line of sight is 100.1 m.
- iii) without moving the tripod, place the staff on point B, sight the level onto the staff and record the height again. If the reading is, for example, 40 cm, the 'reduced level' (i.e. height) at pt. B is 99.7 m

i.e. $[100(A) + 0.10(\text{staff reading at A})] - 0.40(\text{staff reading at B}) = 99.7 \text{ m}$

$$100.0\text{m} = \text{Reduced Level (height) at A}$$

$$99.7\text{m} = \text{Reduced Level (height) at B}$$

References

- Bodey, H & Hallas, M. 1978. *Elementary Surveying for Industrial Archaeologists*. Shire Publications.
Major, J.K. 1975. *Fieldwork in Industrial Archaeology*. Batsford.

MINE SITE INVENTORY

By Martin Critchley

Introduction

Two of the main aims of the society are to record the extant mining remains in Ireland and to seek conservation of these important features. Several important and unique mining remains in Ireland are currently under threat of destruction by re-development, wilful destruction or by the ravages of time.

An inventory of mine sites is currently one of the main priorities of the society. Such an inventory will highlight sites under threat and those that require urgent conservation. The inventory will be used as a basis for representation to the relevant statutory authorities and as a baseline for future studies.

The society would like all members to contribute to this inventory where possible. Obviously there may be some overlap in certain areas and in order to avoid any unnecessary duplication I suggest that contributors contact me before providing information.

A short description is given below of all the items in the inventory. An example completed survey sheet is also shown. A blank survey sheet is also provided with the newsletter. This can be photocopied or additional copies can be obtained from me.

The completed forms should be returned to me (Martin Critchley, at ERA-Maptec Ltd, 36 Dame Street, Dublin 2. Tel. 01-679-9227 Fax. 01-679-9798). The data will be entered on a computer database.

Photographs, maps and sketches will also be accepted. It is hoped to 'publish' the inventory at some stage – ideas include web publishing, CD-ROM and summary leaflets.

Finally, it must be emphasised that any surveying or work undertaken for the inventory must be undertaken within the law of the National Monuments Acts. Please contact the Committee if you need any clarification of the Acts.

Items in the Inventory

The inventory form has been designed in consultation with the several members and with the Heritage Council. It is hoped that the layout of the inventory will be compatible with other Industrial Archaeological Surveys being undertaken in Ireland.

The items to record on the inventory form are as follows.

- Site Number:* This number will be assigned during data entry. You do not have to enter this number yourself.
- Site Name:* Give the most commonly used site name.
- Alternative Names:* List alternative names and spellings.
- Mining District:* We hope to use a common set of names for Mining Districts, e.g. Silvermines, Avoca, Bearhaven etc.
- Townland:* Townland names can be found on the 1:2,500 1:10,560 and 1:25,000 scale maps. (Record any previous townland name in the comments box).
- County:* Use the current county names.
- Map Sheets:* Provision has been made for recording the relevant map covering the site. The 'half-inch' (1:126,720) and 1:50,000 maps can only give a general location. The 'six-inch' (1:10,560) maps should show enough detail to locate a site. The 1:25,000 maps are photographic reductions of the 'six-inch' maps, with the addition of the national grid. Photocopies of these maps and an index sheet can be obtained from myself or from the Geological Survey of Ireland. We would welcome the provision of maps showing the site. These could be extracts of the above maps; although for copyright reasons we can only include 1:25,000 maps in any publication of the database. Sketches and hand-drawn maps can also be submitted. These maps and sketches will be digitally scanned and the originals returned.
- Grid Reference:* A grid reference is the best means of locating a site. Grid references can be got from the 1:25,000 and 1:50,000 scale maps. The new 'metric' versions of the 1:10,000 scale maps also show the national grid. A full grid reference (to the nearest metre) consists of 6 digits each for the easting and northing (eg 227510E 100620N. A simpler grid reference (to the nearest 100m) is the 100km square followed by 3 digits easting and 3 digits northing (eg. S275006 for the same point as above).
- Main Minerals* Record the main economic minerals extracted. For metalliferous mines please list the metals extracted rather than the individual mineral species. Use chemical symbols if possible (eg. Pb for lead, Cu for copper). If a rare mineral species occurs at a site and you consider this a conservation issue, then record this in the conservation issues box. For non-metalliferous mine, record the main substance extracted eg. coal, gypsum etc.
- Other Records:* List references to publications about the site, mine plans etc.

- Feature Number:* Give each feature at a site a separate number. A feature could be a mine building (eg Engine House, explosives store etc), a mine entrance (shaft, adit etc.) or something else (chimney, ore bin, unknown etc).
- Feature Type:* Record the nature of the feature. Try to use simple terms, I suggest a list of common feature types might be: Manager's House, Barracks, Engine House, Water Wheel Pit, Leat, Horse Gin, Dressing Floor, Crusher House, Flue, Chimney, Smelt House, Shaft, Adit, Open Cast etc.
- Function:* Interpret the function of the feature if possible. For example an Engine House may have been for pumping or winding.
- Condition:* I suggest a set of simple terms for condition
1. Perfect Feature almost as good as when last used.
 2. Good Feature may be missing some parts (eg roof) but medium term stability is not threatened.
 3. Fair Many parts missing (eg. some walls), but short term stability is not threatened.
 4. Poor Many parts missing, short term stability is threatened (eg. bad cracks in walls etc).
 5. Trace Outline of feature may only be present.
- Threats:* What are the current (and future threats) to the feature. For example is a building about to fall down due to instability or about to be demolished?. Is a shaft threatened by in-filling?. Is some development planned which might affect the site (eg. new road, new building etc.)
- Conservation Issues:* Does the site or some of the feature merit conservation. For example an Engine House may be unique within Ireland or may have historic connections, which makes it worthy of conservation. An adit or shaft may be providing access for bats. How urgent are the threats.
- Comments:* Any other comments. Could there be tourism potential?. Access problems?
- Site Owner:* Record the name and address of the site owner if known. These details will NOT be published in any form. Be sensitive if seeking the owner of any site; it may be better not to ask for this information if the owner may be offended.
- Author/Date:* Name of person who completed the form and date.

INSURANCE

By Martin Critchley

I have been asked by several members of the society to clarify the situation regarding insurance. The society is a member of the National Association of Mining History Organisations (NAMHO). NAMHO itself is a member of the British Cave Research Association (BCRA). The BCRA has negotiated an insurance policy which covers all its members; including those indirectly as members of NAMHO. The Mining History Society of Ireland therefore has an annual policy in its own name for third party liability. This policy provides for third party liabilities for injury or damages up to £2m for any one claim and covers both the society and its members. The insurance is only valid for official MHSI trips. It does not provide personal injury or life insurance cover for members themselves.

The policy only covers paid up members of the society. Thus, non-members attending field visits etc. can only be covered if they are enrolled as temporary members of the society. Organisers of field trips should make it clear to non-members that they are not insured.