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TEACHING MINING HISTORY

By Roger Burt

INTRODUCTION

Mining history has emerged as a separate subject area in its own right in the last 30 years. Numerous specialist regional and national organisations have developed to promote it. An extensive literature of monographs and periodicals surrounds it, and a wide variety of conferences and meetings – academic and popular, national and international – help to propagate and advance it. So far, however, it has had little visibility in formal educational curricula, at any level. The reasons for this are unclear. It is an integral part of the cultural heritage of many communities throughout the developed world and attracts wide interest. It can be projected in an interesting and informative way from a wide range of documentary and archaeological sources, and there are numerous teachers in post, at all levels, who have a sufficient familiarity with the subject to make a reasonable attempt at teaching it. To test the viability of teaching in this area, and to take advantage of a temporary gap in our degree programme, an experimental course, *Metal Mining in England and Wales from the Early Modern Period*, was put on as part of Exeter University's BA in Economic and Social History during the academic year 1994/5. It was specifically designed as a generalist course, to introduce all aspects of the subject. This was done with some trepidation in view of present mission directives in course development, quality control, student centred learning and other hurdles. But overall, it seems to have progressed satisfactorily.

THE COURSE

The course was taken by 10 third-year students with no previous knowledge of mining or mining history, geology or engineering. It was taught in 20, two hour sessions, each one devoted to particular specified themes (see Appendix A). There were no lectures, but all students were expected to familiarise themselves with that week's subject area. Each week, two students were given specific responsibility to present papers outlining the principal issues for that week's discussion. Sometimes there were produced independently, sometimes co-operatively. This system worked reasonably well, but required considerable "leadership" from the course teacher. No specific bibliography was produced for the course, but students were referred to Roger Burt and Peter Waite's *Bibliography of the History of British Metal Mining* (University of Exeter Press, 1988) and updates of it produced by Lynn Willies and published by the Peak District Mines Historical Society. The latter have been updated and consolidated into a format similar to Burt and Waite's Bibliography by Mike Gill and are archived for public use on the University's World Wide Web server at:-

URL=http://www.ex.ac.uk/~RBurt/MinHistNet.

At the end of the first term, students were required to produce a 3000 word essay on a subject of their own choice and at the end of the second term a substantial piece from a specified list (Appendix B). The work from this second essay was used, together with the results of a three hour examination (Appendix C), to arrive at a final assessment for the course.

ACHIEVEMENTS

At the end of the course, three students achieved a First Class standard and all produced respectable results. They had acquired a good grasp of the many diverse aspects of the subject and had been introduced to the significance of geological, legal and technological influences on industrial development. They had seen the considerable relevance of field work for industrial history and had been introduced to issues of preservation and heritage protection – not reflected in other areas of their course work. Above all, they were introduced to popular, non-academic history and the high levels of enthusiasm and expertise which surround it. Hopefully this will encourage them to explore their own historical enthusiasms and indicate ways in which they might continue and develop their interests after graduation.

PROBLEMS

Three main difficulties were met in teaching this course at degree level.

1) The lack of analytical vigour and debate in much of the literature. The basis of research, publication and teaching in the social sciences (of which Economic and Social History at Exeter is part) is theory-driven analysis and criticism. From a teaching point of view, this often comes down to the historiography of academic debates – how historians over time have looked at, interpreted and explained events and how those explanations have changed. Mining history, which in recent years has largely been developed by non-academics, tends to be simply descriptive in style, saying what happened rather than why it happened. This kind of work is clearly essential in establishing the initial outline of a "new" subject area like mining history, but it can sometimes be difficult to defend from the academic accusation that it is the intellectual equivalent of train spotting, with anoraks swapped for miners' lights, and the course probably did not stretch the capacity of the students to understand the concepts involved and handle complex issues.

2) The availability of the literature. Much important material is in the journals of specialised societies and these are rarely available in continuous series in University libraries. Similarly, many of the monographs are on very local themes and have been produced by specialised local publishers. They are unlikely to have been "seen" by academic libraries. Alternative use might be made of public local studies libraries. These often have very good collections, but they are explicitly local and provide only a very limited basis for a nationally-orientated course. A few good national collections of mining history literature exist in private hands, but I know of no comprehensive public collection – possibly even including the British Museum.

3) Difficulties with field visits. This seems odd to say, since many parts of the country – particularly the South West – have lots of interesting and informative sites to visit. However, educational institutions have few, if any, funds these days to facilitate these visits and the poverty of students is legendary and increases by the day. It becomes a particular problem in visiting sites beyond the immediate region which, again, is really quite important for a nationally-orientated course. These problems clearly can be overcome. The student caving club travels – why not the mining history course, if they are sufficiently interested? Surely they can, but an even bigger problem then emerges – that of safety and insurance. If students are on a formal course, the institution is liable for their safety. Seeking permission to take them to look around the surface of old mining areas produces consternation – the suggestions that they might go underground into deserted workings, apoplexy. Exeter may be exceptional in these concerns, but I suspect not by much. It would, of course, be possible to ignore all of this concern, and take the group secretly, without informing the authorities. This would be to accept an enormous personal risk, however. We live in a litigious age and the smallest accident could result in unemployment and bankruptcy. Nevertheless, some way round has to be found. Teaching mining history without field visits is rather less than stimulating!

FUTURE COURSE IMPROVEMENTS

If the course is taught again at this level, it needs:

1) More careful selection of readings and better library provision.

2) A more explicit regional focus, though within a sustained national and international context, the latter especially if the course is not to deteriorate into local antiquarianism.

3) A more carefully planned and integrated programme of field work. This would also include archival and museum visits to see business records, mine plans, artefacts etc.

CONCLUSION

Mining history is an interesting subject to teach and it can be done in a way that stretches students beyond the normal confines of historical study and takes them into interesting adjacent areas. It offers great potential for being taught in many different ways to different groups and at different educational levels. Mining history groups interested in projecting their subject should put as much effort into this as they currently do for site preservation. It would pay good dividends in the longer term. It would also be very helpful if societies could scan backnumbers of their journals on to disk/cd so that they could be made more generally available. It is somewhat disconcerting and even depressing to teach a subject to people who are not always fired with enthusiasm for it. Can anyone *not* be interested in mining history?

APPENDIX A – COURSE OUTLINE

COURSE	**METAL MINING IN ENGLAND AND WALES**
UNITS AND TERM(S)	30 units
LECTURER/COORDINATOR	Dr Roger Burt

AIM OF THE COURSE

To outline the rise and fall of British non-ferrous metal mining from the medieval to the modern world, giving attention to the wider international influences on the industry and its impact on the landscape of mining areas.

SYLLABUS

The course will start with a look at the geological conditions under which minerals are found, their ownership and the arrangements made for their working. Attention will be given to the machinery and methods used for mining, ore dressing and smelting, and the arguments of the labour force and its management will be considered. There will be a review of the changing geographical distribution of the industry and its variable development and an analysis of the evolving financial structure of the industry and its sources of capital. The course will conclude with an analysis of the decline of the industry during the last hundred years, its surviving heritage and the principal issues in its management and interpretation.

TEACHING AND LEARNING PLAN

There will be weekly tutorials of two hours duration during the Michaelmas and Lent terms at which students will make presentations on specified topics. Each student will make two presentations per term. There will be periodic field trips which students should make every effort to attend.

ESSAY SCHEME

One assessed essay of 3000 words in each of the Michaelmas and Lent terms.

Introductory Reading

R. Burt	*The British Lead Mining Industry*
A. Raistrick and B. Jennings	*A History of Lead Mining in the Pennines*
D.B. Barton	*Copper Mining in Cornwall and Devon*

METHOD OF ASSESSMENT

50% examination and 50% assessed essays. There will be an informal essay set for the first term and an assessed essay, of around 4000 words, for the second term. At the end of the course there will be a three hour examination, with a selection of three questions from twelve. The assessed essay, and the examination mark, will each represent 50% of the overall mark for the course.

BIBLIOGRAPHY

The comprehensive list of publications on British metal mining history found in Burt and Waite's *Bibliography of the History of British Metal Mining* (1988) has been updated and mounted on the World Wide Web. The following is a select list of general texts to introduce the reader to the subject and to provide background for the detailed discussion of particular topics.

D.B. Barton *History of Copper Mining in Cornwall*

D.B. Barton *History of Tin Mining and Smelting in Cornwall*

I. Blanchard *Russia's Age of Silver*

R. Burt *The British Lead Mining Industry*

R. Burt *Short History of British Metal Mining Technology in the Eighteenth and Nineteenth Centuries*

R. Burt *Short History of British Ore Preparation Techniques in the Eighteenth and Nineteenth Centuries*

A.H. Dodd *The Industrial Revolution in North Wales*

B. Earl *Cornish Mining*

C.J. Hunt *The Mines of the North Pennines*

A.K. Hamilton Jenkin *The Cornish Miner*

W.J. Lewis *Lead Mining in Wales*

A. Raistrick and B. Jennings *History of Lead Mining in the Pennines*

A. Raistrick *Quakers in Science and Industry*

J. Rowe *Cornwall in the Age of the Industrial Revolution*

C.J. Schmitz *World Metal Production and Prices*

Original sources used during the course will include:

G. Agricola *De Re Metallica*

T. Borlase *The Natural History of Cornwall*

D.C. Davies *Treatise on Metalliferous Minerals and Mining* (1881)

J. Farey *Treatise on the Steam Engine* (Newton Abbot: David & Charles, 1971)

W. Forster *Treatise on a Section of the Strata from Newcastle-on-Tyne to Cross Fell* (Newcastle-on-Tyne, 1883)

R. Hunt *British Mining* (1887)

J.R. Leifchild Cornwall: its Mines and Miners (1857) *Inst'n of Civil Engineers, Proceedings*

Institution of Mechanical Engineers, *Proceedings*

The *Mining Journal*, 1835-1994 continuing

J.A. Phillips and J. Darlington *Records of Mining and Metallurgy* (1857)

W. Pole *Treatise on the Cornish Pumping Engine* (1844)

W. Pryce *Mineralogia Cornubensis*

Report of the Commissioners Appointed to Inquire into the Condition of Mines in Great Britain to which the Provisions of the Act 23 and 24 Vict. c.151 do not Apply (The Kinnaird Commission) BPP, 1864 XXIV

Report on the Circumstances Attending the Breaking of a Man-Engine which Occurred at Levant Mine, Pendeen in the County of Cornwall on the 20th October 1919, BPP, 1920, XXI

Report of the Commissioners on the Employment of Children in Mines, BPP, 1842, XVII

Royal Geol. Society of Cornwall, *Transactions*

Royal Cornwall Polytechnic Soc., *Annual Reports*

Northern Mine Research Society, *British Mining*

Peak District Mines Historical Society, *Bulletin*

APPENDIX B

Michaelmas Term 1994 – Seminar Topics

Mondays, 10.00 - 12.00 noon

1st Meeting - October 10th
An overview of the development of the industry from the mediaeval to the modern period.

2nd Meeting - October 17th
The geographical structure of the industry. The what, where and when of the industry.

3rd Meeting - October 24th
The geological conditions in which metallic ores were found. Their effect on the technological and economic development of the industry.

4th Meeting - October 31st
Mining methods and machinery. The changing techniques and technology of metal mining during the period.

5th Meeting - November 7th
Ore dressing methods and machinery. The changing techniques and technology of surface ore concentration processes.

6th Meeting - November 14th
Smelting and metal manufacturing industries. How the concentrated ore was reduced and who were the main consumers.

7th Meeting - November 21st
The ownership of minerals and the arrangements made for working them: Customary Law districts. The elements of mining law in Britain.

8th Meeting - November 28th
The ownership of minerals and the arrangements made for working them: Private ownership. The elements of mining law continued.

9th Meeting - December 5th
The mining companies and sources of finance: Partnerships and cost book and script companies. How they were organised and where their Capital came from.

10th Meeting - January 9th 1995
The mining companies and sources of finance: Joint stock companies. The development of corporate law, the rise of the rational capital market and speculative promotions.

11th Meeting - January 16th
The management of mining companies and mines. The evaluation, training and competence of senior and middle management.

12th Meeting - January 23th
The organisation of the labour force. Cope and tribute, tutwork and day labour.

13th Meeting - January 30th
The social condition of miners and their families, their changing standard of living and style of life.

14th Meeting - February 6th
The international setting for the metals industries. Growth of output in other countries, changing import and export performance. Changes in market prices.

15th Meeting - February 13th
The British response to increasing competition 1860-1914. Rationalisation and decline

16th Meeting - February 20th
British metal mining in the 20th Century. Survival and performance. Future potential.

17th Meeting - February 27th
The surviving archaeology of mining. Its management and interpretation.

18th Meeting - March 6th
Backward review of the course. Re-assessment of the various subjects and issues raised and their integration.

19th Meeting - March 13th
Mining history and economic history. The role of mining in proto-industrialisation, industrialisation and de-industrialisation.

20th Meeting - April 24th
Empty slot: to account for cancellations or over-runs in the course. Opportunity for revision session and examination discussion.

APPENDIX C – EXAMINATION PAPER

METAL MINING IN ENGLAND AND WALES FROM THE EARLY MODERN PERIOD

May/June 1995

THREE Hours

Answer THREE Questions

1. Account for the emergence of deep, large-scale metal mining from the 17th century.

2. What evidence is there for the view that "the prolatarianisation of mine labour in the eighteenth century resulted in its immiseration"?

3. 'The institutional structure of metal mining directly reflects the conditions under which the minerals were found.' Discuss.

4. Consider the view that "customary mining law was at first an advantage and later a hindrance to the exploitation of mineral deposits".

5. How was the productivity of metal mines improved in the 300 years after 1660?

6. Why was steam technology adopted more rapidly in the copper and tin mines of the south west than in the lead mines of Wales and the Pennines?

7. 'Metal mining played a leading role in the nineteenth century managerial revolution in British industry.' Discuss.

8. In what ways did a large and successful metal mining industry assist the wider process of British industrialisation?

9. How and why did methods of mining company organisation change during the second half of the 19th century?

10. Why was the tribute system so popular with mine owners and miners?

11. Account for the failure of British mines to respond positively to increasing foreign competition after 1860.

12. What are the principal problems encountered in the presentation of mining heritage sites?

Paper submitted - August 3rd 1995: Dr R. Burt,
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