

Introduction

That area of North Wales which is included in the new county of Gwynedd has long been renowned for its outstanding scenic beauty; concealed within this (to a better or worse degree) there is also much of interest to the student of Industrial Archaeology. In view of the present heavy dependence on tourism it is perhaps fortunate that with some major exceptions, the county's industries have been conducted discreetly, and at a relative distance in the past. This has tended to make their remains more difficult to locate and interpret, but much more fascinating as a result. In the last few years also, man has intervened upon the healing powers of nature, but the distinction between items deemed worthy of preservation and enhancement, and those to be utterly obliterated in the name of "conservation" has in some cases been questionable. A description of the present scene, with particular regard to those more obscure features is thus timely.

The initial inspiration for this labour of love was born a long way from North Wales, in the heart of another area rich in industrial by-gones lying westwards from Penzance in Cornwall. Being on that occasion (summer 1973) accompanied by an excellent and detailed gazetteer to that district, we became inescapably aware that no corresponding guidance was available for the area that was much more familiar to us.

In attempting to fill this need, the present work should be regarded as a mere introduction to the vast wealth of material which is available, both in archive form and on the ground. Some indication of this is given by the variety of subject categories included in the appendices, some 28 in number, each of which could form the basis for an individual study. Very few such have yet been undertaken, and the appearance of further detailed works in future would be most welcome.

The industry for which the area has been best known is of course that of slate quarrying. Despite the almost total substitution of manufactured tiles for traditional roofing slates in the building trades, there is still a wealth of evidence of past working methods, in addition to the few quarries that survive in operation albeit somewhat modernised. Less well known, perhaps, are the other mineral extraction activities once carried on here: mining for copper, lead, iron, gold, silver and manganese; and the quarrying of limestone and granite. In the case of the metal mines, the story is often one of thousands of pounds of speculators' money "poured down holes in the ground", with very little gained by anyone in return. Much evidence of the lavish facilities provided out of the optimistic but unwary shareholders' capital is to be seen today.

For those not employed in the quarries and mines, the choice of work lay principally between farming and the sea. The county possesses, for its size, a very long coastline, and many small ports were developed not only as quarry outlets, but to serve the needs of agriculture and the community in general. Thus coal, lime and machinery were brought in, quarry and agricultural produce taken out, predominantly by sea until the end of the eighteenth century. It was not until this time that a good local road system was developed, with the initial components of what was to become a complex and varied network of tramways and railways following closely upon it. Some of these railways were certainly distinctive, for the development of the concept of narrow-gauge railways in Caernarfonshire as a means of opening up difficult mountainous country created worldwide interest throughout the nineteenth century.

Contrasting with the situation in South Wales, where small standard-gauge railway companies proliferated alongside feeders from many of the bigger national concerns, mineral transport in the North remained in the hands of the private narrow-gauge railways, usually owned or sponsored by the quarries served, right up to the end. Three of the national companies eventually infiltrated the inhospitable terrain of Gwynedd, although of these but one had anything approaching "main-line" status. In this case, however, the primary purpose was not to serve the locality, but to provide a quick through route from England to Ireland.

Extensive use was made of natural resources on the farms and in the quarries. Waterwheels fed from the mountain streams of Caernarfonshire powered the corn and maize mills, the fulling stocks and looms of the woollen factories, machinery for slate dressing and the crushing of mineral ores. On the Island of Anglesey, which in contrast is relatively flat, there is still much evidence of the use of windmills, although the last of these ceased work many years ago.

The area covered by this book is best described as "North Gwynedd", comprising the old counties of Anglesey and Caernarfonshire, together with that part of Merioneth around Blaenau Ffestiniog, and parts of the Conwy valley formerly in Denbighshire, which are geologically and historically inseparable from them. We include not only the many well known industrial landmarks, but also those that are somewhat more obscure, and perhaps requiring more initiative to trace, but no less interesting. It would not be desirable to try to describe them all fully, since there have been, for example, over 200 slate quarries in operation in the area covered, of which perhaps only a quarter are nowadays worth examining in detail. Most concerns were small, employing less than thirty men, and the slate may have been taken elsewhere for dressing, leaving only a few overgrown workings with little trace of former buildings or machinery. The more interesting sites described include ample buildings, tramway remains, ironwork etc., and other features enabling the methods of working to be easily traced.

The same criteria apply also to other stone quarries and the metal mines; at the latter especially, the lavish provisions of the later reworkings have ensured the long survival of buildings and suchlike but the removal of machinery and ironwork which invariably followed closure can lead to difficulties in identification of the various structures.

Watermills and windmills are described in cases where all or part of the machinery is intact, not merely being the site or shell or the building unless this is of unusual interest. Stations and railway remains are noted where they are of especial historical or architectural importance, and other items where they survive in an easily recognisable form. We have interpreted the scope of Industrial Archaeology broadly to include numerous fringe items. It is hoped that they will appeal to the supposed wider interests of the average "I.A." addict, in addition to giving some insight into the local characteristics and traditions upon which the various industries were superimposed, and those which resulted therefrom. Even the newest of Gwynedd's industries, that of tourism, has already left its mark on our fields of interest; Trefriw Wells and Bangor Pier being worthy survivors from a vanished era.

Those who are not familiar with the area will be surprised by the apparent omission of canals, but there were indeed none (or almost none: several drainage cuts were contemporarily promoted to the status of "canal" but none were formally navigable). The terrain hereabouts, perhaps more so than anywhere else in England and Wales, had succeeded in deterring even the most imaginative of the canal builders; also, but perhaps a secondary consideration in the period concerned, the prospects for good trade were certainly far better elsewhere.

Where appropriate, a brief description and historical notes of the various industries and their processes is included at the point where they first occur in the text, although this would not usually imply that the items to be seen at the site concerned are representative of the whole or even major part of that industry. Such notes are indexed separately from the lists of locations at the end of the book.

The items are arranged geographically in sections, following "routes" roughly corresponding to the main roads of the area, so that all the features in one district appear together. They are located by means of the Ordnance Survey Grid Reference (that splendid system which we have also had occasion to use in informing a motoring organisation of the location of our breakdown!). Additional local information is given where thought necessary. Items of common type (e.g. watermills) may also be located by reference to the separate sections of the appendices. Thus, those with a general interest may wish to use the routes as they stand, as a basis for a holiday tour; no attempt is made to further organise these into convenient daily "trips", as each will wish to devote more or less time to individual sites.

Place-names are spelt throughout in their presently accepted form or a contemporary one more appropriate in its particular context, for example Caernarfon (in general), but "Bangor and Carnarvon Railway, 1852". In the more recent past the spelling seen was "Caernarvon". The traditional "Portmadoc" is now somewhat artificially "Porthmadog", and Conway has become Conwy. Holyhead (Caergybi) and Menai Bridge (Porthaethwy) are still somewhat more easily recognisable in their English forms, but "Port Dinorwic" has long been denoted "Y Felinheli" by the locals, ignoring its pre-eminence as a slate port and recalling an old salt-water tide mill thereabouts, long since vanished.

We should perhaps stress that many of the items described are private property (many of the surviving mills now being dwelling houses); although most are visible from the public road or footpath, due respect should be paid to the privacy of their owners by prior application in writing if a specific visit is intended.

The items as noted record the position substantially as it was in winter 1977-8, updated as appropriate where changes have come to our notice; there are undoubtedly a few parts which are already

out of date. In an area where preservation of the past has never been uppermost in the minds of its people (perhaps in some cases due to bitter lingering memories of worker-exploitation) the visitor should not be disappointed to find that the best examples in several categories are somewhat mediocre when compared with those in other districts, and in many cases becoming more so with each passing year. There is a fine Cornish Beam Engine, the only one in North Wales and until recently complete but now unprotected and vandalised, while her sisters in Cornwall are beautifully painted and opened to visitors. Windmills are rotting and crumbling, where elsewhere they are not only restored but also often workable; mill machinery is ripped out in favour of a living room extension, and the waterwheel pit becomes a rock garden or rubbish dump. There is a Victorian promenade pier (the last of its type) with grand sea views, and barbed wire across the entrance gates. The recent rapid escalation in the seemingly indiscriminate use of giant earth moving machinery emphasises how much more damage can be done by such equipment in just fifty seconds than time alone can achieve in fifty years. Sleek new roads cut through the country hedgerows and slice their way down once-wooded hillsides, so that the cars with their attendant caravans may go forth without hint of delay. The monumental orgy of destruction which has occurred in the neighbourhood of Llanberis recently* has caused this whole area to take on the appearance of a giant muddy construction site (immediately adjacent to the National Park no less) which is likely to remain for perhaps a further five years. In line with this "progress" the giant slate quarry concerns, once the mainstay of their districts, have all but vanished in the last ten years, likewise much of the standard gauge railway system.

But the forgoing paints a somewhat black picture: as we show there is still plenty to see off the beaten track, and it is perhaps not too much to hope that the major changes of the coming ten years may bring not further decay, but rather awareness, preservation and improvement of what remains of Gwynedd's industrial heritage.

** In connection with the giant pumped-storage electricity-generation scheme situated in the former Dinorwic Slate Quarries. In addition to the works themselves, a vast network of new roads has been found necessary in order to cope with the delivery of vehicles, machinery and equipment.*

Keith A. Jagers November 1978

Acknowledgements

I have been accompanied throughout the exploration and the writing by many friends; they tended to come and go with the passing of the college terms, but their influence is present throughout the book. Most of us were originally brought together through the activities of the University College of North Wales Railway Society, which has never quite recovered from the unwarranted trespass of the more diverse aspects of industrial archaeology upon the "straight and narrow". During this period, Iorwerth Jones of Bangor has created and developed the fine museum at Penrhyn Castle, providing a home for many items of local interest which may otherwise have been destroyed or dispersed elsewhere; and also provided us with somewhere to get our hands dirty in the name of preservation!

Rob Palmer, partner to the original idea, provided the original draft text for the sections on Nantlle and the Festiniog Railway, the latter of which I must confess to knowing next to nothing beyond what is in the general public domain. He also carried out compilation of many of the lists of items requiring investigation, which now form the basis of the indexes in the appendix section. To David and Christina Mills, many kind thanks are due for endless and most welcome hospitality at their home in Anglesey, during my present exile in Cheshire, while the research was completed. To David also for the beautiful draughtsmanship in the maps, which are all his work, and many ideas for photographs etc. To Jonathan Riddell, without whose persistence the handwritten manuscript would never have seen the light of day; after reading through, checking, correcting and generally polishing up as appropriate, he typed up the whole from beginning to end, producing the necessary and long overdue comprehensive manuscript. To them all, and the others too numerous to mention individually who accompanied us on our travels and discoveries, I am eternally grateful.

Addendum – August 2007

Unbelievably, it is now nearly 30 years since our story was completed, and the first time since then that it has seen the light of day. The finished work was shown to several potential publishers during 1979; the general consensus was that while the idea was novel and the coverage comprehensive and much-needed, it was not publishable, since the research was not in sufficient depth to satisfy the academic market, but the volume of information was far too large as a "pocket-guide" book for the average visitor or resident. So there was no readily identifiable market, and thus no potential profit in the venture. No one would then have disputed this as a hard business-based assessment, and there was an additional problem in that some of the information was inevitably "out of date" as soon as it was completed, if not before. A copy of the manuscript was deposited with the Caernarfon office of Gwynedd Archives, and the project was laid to rest.

With the recent advances in electronic-based publishing and the internet, inconceivable in 1978, it is gratifying to know that this work can at last be made accessible to a wider public. Thanks are due again to David Mills for his unrelenting encouragement to "do something about it", and his painstaking scanning and editing of the original text into a much more easily-manageable electronic format, and for his offer to scan and help select from numerous contemporary photographs, some of which, in the form of black & white negatives, have never previously been printed up.

So, after all this time, should we attempt to edit, and bring the story up to date? On consideration, we think not - best to leave everything just as it was written, as a "snapshot" of the way things were at a moment in time, and now becoming as much if not more an item of historical interest and record, as a guide to the "present day" scene. I am aware there have been many changes, some unquestionably to the good, like the amazing revival of the Welsh Highland Railway and the restoration of the Llyn windmill to working order, the only one such in Wales, when all was thought lost. Other sites though, overgrown and derelict when we saw them, have disappeared completely or become totally inaccessible, and yet others have been so much tidied and sanitized by such requirements as Health & Safety, as to lose most of their curiosity and interest value. Therefore, one of the main aims of the original exercise, that of raising awareness and conservation activity so that not too much more should be lost forever, is as valid now as it always was.

Keith A. Jagers August 2007

Updates - Winter 2011 – 2012

Our work was first published on the Internet in late **2007**, hosted by Mike Mumford's "Landscape Guides" website and in its original format without updating. We thought then that to repeat and update the exercise in the same way would take probably another ten years, and would inevitably be out-of-date again long before it was finished! It was intended that the updating could instead be a "live" and continuous process, driven primarily by means of contributions from anyone and everyone interested.

The response was disappointingly small, but since that time the explosion of key information on the Internet, primarily the Google satellite and "Streetview" coverage, also the availability of the large scale OS maps and numerous subject-specific sites, has enabled this first major updating in over 30 years to be completed in just four months, with around 98% accuracy.

Our tour is arranged in 29 sections, such that each part constitutes a good day's exploration for these with broad, average interests, by car or bus, and by bicycle or walking (even *crawling* in a few cases!) as appropriate. It will become apparent that most of the sections have a specific, dominant theme, but not to the exclusion of other features of interest within their boundaries. Of course, those with more particularly

defined interests (or limited time) can focus on these to a greater or lesser extent, changing, expanding or combining sections as desired, but it is hoped that this basic geographical, rather than subject-based, format will prove helpful.

Hitherto all the sections have been grouped together as one document, with a general index and a subject index appended. The present updating splits the text into separate documents covering each of the 29 areas, adding in the originally intended sketch maps and our contemporary photographs. The updates are included at the end of each section, rather than in the body of the text, so as not to disturb the original format. They are shown in the order they appear in our original account, and thus further updates may be easily inserted as necessary or useful in future. The indexes are also changed to show the appropriate section number, followed by the new page number within that section of original text (the updates are not specifically included in the index).

Some useful websites:

Google maps, satellite images and Streetview for the current (or very recent) situation

www.old-maps.co.uk/index to look at old Ordnance Survey maps at 6" or 25" to 1 mile scales, overlay and compare with current situation

www.mine-explorer.co.uk with many excellent images underground in places inaccessible to the general public, with reports and status updates

www.penmorfa.com an excellent site with many photographs from 1970s onwards, and historical info

www.llechicymru.info/index.english.htm "Slatesite" with much history of the welsh quarries

<http://dave-mills.yolasite.com/> David Mills supplied the maps and many images for our articles; this is his own website, with a lot more information and splendid photographs

<http://www.riddellmapsandprints.co.uk/index.html> Jonathan Riddell supplied many of the old lithographic images for our articles, from his collection. This is his own website, with constantly changing material.