THE NON-FERROUS MINES

OF

DENBIGHSHIRE

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THE NON-FERROUS MINES OF WALES, PART TWO

DENBIGHSHIRE

BY

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NORTHERN CAVERN & MINE RESEARCH SOCIETY 1972

First Published 1972 by
NORTHERN CAVERN & MINE RESEARCH SOCIETY
Skipton, Yorkshire

Occasional Publication Number Five

Opinions or statements expressed in this publication do not represent the official views of the Society.

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INTRODUCTORY NOTES

Included in this survey are all the identifiable mines and trials that have been worked for any of the following minerals or ores;

Lead ores
Zinc ores
Copper ores
Cobalt ores
Gold
Barytes
Witherite
Fluorspar
Pyrite (where it is found in association with any of the above named ores or minerals).

In the descriptions of the mines the terms barite, and fluorite have been used to describe the minerals in situ in the veins and barytes and fluorspar are used only to describe the dressed products as shipped to market.

Mines and trials worked for iron or manganese ores, except when they occur in the same deposits as minerals named above, have been excluded from this survey.

In order to make the list of mines as useful as possible the National Grid reference for each site taken to a point as near to the centre of operations as possible, is given, together with the name of the Parish or Parishes in which the mine occurs. The mines are also numbered by County.

A short description of mining in the County is given before the detailed descriptions of the mines of the County, together with available information on output.

In order to permit a quick reference to the mines by name, a list of all the mines included within the County, arranged alphabetically, is given at the end of the volume. The County number for each mine is given in these lists, together with any alternative name that the mine has been known by.

Descriptions are arranged as follows: 1. The name generally used by the mine, 2; alternative names, 3; name of parish or parishes in which the mine occurs, 4; National Grid reference of the site, 5; short description of the mine and its history, and 6; references to published literature in which further information is available.

THE MINES OF DENBIGHSHIRE

INTRODUCTION

So far as the mining of non-ferrous metal ores and their associated minerals is concerned, Denbighshire is one of the more important counties of Wales, containing as it does a substantial portion of the North-East Wales orefield. Apart from this orefield area there are a number of scattered occurrences within the county which, although never of great importance in themselves, are nevertheless of some interest in demonstrating the widespread mineralisation of this part of the country.

History

Metal mining is probably one of the oldest industries of the county; some of the mines having been attributed to the Romans and although proof of their activities in the area is lacking it is quite possible that the Romans did carry on mining operations in this region. They almost certainly did so in Flintshire, so that it is reasonable to suppose that such activities extended to the neighbouring area where conditions are so similar.

Historical data provides evidence that the mining of lead ores continued upon a small scale and rather spasmodically during the middle ages. Activity increased during the seventeenth and eighteenth centuries and reached a maximum here as in other parts of Wales by the middle of the nineteenth century, after which mining gradually became of less importance until at the present time the industry is completely inactive.

Geology

Metalliferous ores and their associated minerals occur in rocks of Lower Carboniferous, Silurian and Ordovician ages in Denbighshire. In the Carboniferous rocks the deposits occur mostly in the limestone, though some ore has also been got from the overlying Cefn-y-fedw sandstone, as in Flintshire. The principal area in which these deposits have been found is to the east of the Clwydian ange of hills and to the West of Wrexham, forming the south-western parts of the North East Wales orefield. Outlying areas of Carboniferous limestone to the south and east of Abergele and north-west of Denbigh, on the west side of the Vale of Clwyd also contain some deposits, though these have always been of much less importance than: those which lie to the east of the Vale. Some minor occurrences have also been tried along the line of the Vale of Clwyd fault, which strikes about north and south on the east side of the Vale. In places this fault has thrown down wedges of Lower Carboniferous, rocks on its west wall, against the

Silurian rocks of its east wall and it is in these places where the trials have been made.

Deposits in pre-Carboniferous rocks are more scattered and generally of much less importance than those referred to above. Many small mines and trials occur in the Denbigh moors, especially around Llanfairtalhaiarn, where some copper ores have been worked in addition to lead ore. In the Clwydian range some trials for gold were, made on quartz veins which occur in. Silurian rocks near the summit of Moel Fammau. These trials were made at about the, middle of the nineteenth century when gold fever was at its height in Wales. They were highly speculative trials to say the least and it need hardly be mentioned that they were not successful.

An occurrence of zinc ore, associated with a subordinate amount of lead ore occurs near Llanrwst, where it has been worked to some extent at the Cilcenus mine. This deposit is in Ordovician rocks and is strictly speaking a part of the Llanwrst orefield, of Caernarvonshire, but since this mine lies in Denbighshire it is considered here. The line of the Bala fault, where it occurs in rocks of Ordovician age has also been tried for lead ore, but. these trials were not successful.

Mineralisation

In the Carboniferous limestone areas the chief ore minerals are galena and sphalerite, with some pyrite and occasionally traces of chalcopyrite. The principal gangue mineral throughout these deposits is calcite, but quart; also occurs fairly commonly. Some barite is found in a few of the deposits, but is not normally one of the commoner minerals, though it has been worked on a small scale in one or two places. Traces of fluorite have also been found in some of the veins to the east of the Vale of Clwyd.

In. the areas of pre-Carboniferous rooks the chief vein minerals are again galena and sphalerite, but chalcopyrite is more common and this ore has been worked from some of the veins in the Llanfairtalhaiarn district. Barite. has also been recorded in this district, though it seems to be uncommon there. At Ty'n-y-celyn, near Llangollen however, barite is the chief mineral in the veins and a small mine was worked there for this mineral.

The veins tested for gold near Moel Fammau are apparently narrow quartz veins and no details of their actual value are known. They are not considered to be of any importance.

Mining

Most of the mines in the western part of the county are small and

many were in fact little more than trials, as mentioned earlier. Some of the mines in the Abergele district are reputed to have been large producers of lead ore doing the eighteenth century and earlier, but none of them have been worked upon a large scale since that time, though there was a slight revival of activity in the middle of the nineteenth century. In the Silurian rocks of west Denbighshire Llanfair mine was the was the last operation for lead, zinc and copper ores, ceasing work in 1907. The mine was never a large producer, however, Barytes was produced on small scale for a few years from some veins in limestone near Eyarth, and recorded above, from, Ordovician rocks at Ty'n-y-celyn..

The larger and more important mines of the county all lie to the east of the Vale of Clwyd, centred around Llanferres, Llanarmon and Minera. Minera mines, as finally developed, were probably one of the most extensive and productive operations for the production of lead and zinc ores in Wales. These mines sustained a substantial production over a very long period, especially during the nineteenth century. This mining area is already well documented and no attempt will be made to describe it in detail here; instead reference is made to the previously published material.

Output

Lead and zinc ore have been the principal minerals produced from the mines of this county, though some production of copper ore and barytes has been recorded at times. The records of output are far from being complete, even since 1845, when the more or less systematic records were first commenced, and much ore has probably been sold from the smaller mines of which no record now remain. The recorded figures from 1845 to 1950 are as follow: (These figures have been obtained from various, sources, many being from records made at the time of working and apparently not included in the official statistics).

Lead ore	————————	186,353	long tons.
Zinc ore	————————	189,635	" "
Copper ore	————————	145	" "
Barytes	————————	531	" "

The greater part of the output of lead and zinc ores was derived from the Minera veins, as will be seen from the figures given later:-

Future resources

So far as the future is concerned there are unlikely to be any substantial resources in the area of scattered occurrences on the western side of the county.

In the Minera area a large potential for zinc and probably also for lead ore remains. The most promising lines for future search in this area lie in two directions; Firstly the virgin ground ahead of the south-eastern foreheads in the Minera Main vein system, where the productive zone lies beneath a thick cover of newer rocks, offers very good chances of success for future prospecting. Secondly the area of Llandegla moor, to the north of the Bala fault is considered to be worthy of further investigation. Here the productive zone lies beneath a cover of Cefn-y-fedw sandstone and seems to offer fair chances of success for future prospecting. In this case the line of veins which are known to have been productive to the west of the moor, in limestone, should be tested in depth to the south-east. Both the above prospects offer fair chances for the discovery of a substantial future potential, but both would undoubtedly involve a large expenditure.

No other potential for any substantial amount of lead or zinc ores are known in, Denbighshire.

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DETAILS OF THE MINES

1. **CILCENUS**
   (Llanrwst Rural Ph.) SH/810582

The vein here strikes about east and west through black mudstones of Bala (Ordovician) age. The vein filling consists of brecciated country rock cemented with quartz in which sphalerite and some galena occur. Calcite and pyrite also occur, but are generally not very common.

This mine, is actually situated in the area of the Llanrwst orefield, of Caernarvonshire, but, since it lies within Denbighshire it is considered here. The mine, which was never more than a small scale operation, was developed through levels and was active during the 1914-18 War, when a small amount of ore was produced. It is not known to have been active since that time.

Ref.: SR.23., p.78.

2. **TAN-YR-YWEN**
(Llandrillo-yn-rhos Ph.) SH/906767

A vein has been found here, striking north-east in Carboniferous limestone. The vein filling consists of barite in which some galena occurs. The workings at this place consist of nothing more than a few trials and no production is known to have been obtained. The line of the vein is shown on the Old Series Geol. Surv. Map, one-inch sheet 79 NW.; and on a sketch map in SR.9., p.24.

3. **CEFN-YR-OGOF**
(Abergele Urban Ph.) SH/915776, west end, SH/927775, east end.

A vein strikes east-north-east through Carboniferous limestone at this mine and a considerable amount of work has been done upon it at some time. The limestone has a general dip to the north-west at 10 to 15 degrees. Mineralisation includes galena and calcite chiefly, but some sphalerite occurs and smithsonite has been found in the shallower workings. The mine has only been worked for lead ore and the original workings are evidently of considerable antiquity. A level has been driven on the vein from Ty-newydd, to the west and at an approximate elevation of 100 feet A.O.D. A crosscut level was also driven south to the vein from below the drive to Gwrych Castle and at an elevation of about 200 feet A.O.D.

Another vein occurs some 150 feet to the south of the main vein where it is seen in the east side of the Dulas valley. This vein strikes east-south-east and it was exposed in what appear to be natural Caverns which have later been enlarged by mining. Further east the strike of this vein curves round more, to the east and finally to north-east in the area of Gwrych Castle. Small shafts have been sunk on the vein at intervals over almost the whole of its proved length, which is about one mile. A level has been driven into the vein near the castle and at an elevation of about 300 feet A.O.D., and a deep level crosscut was driven from the sea shore probably to cut both veins. The portal of this level is about 900 feet east of Ty'r-Ogof. From old reports it would seem-that this crosscut never actually reached the veins for which it was aimed.

The mine was/reported to have been active and very productive during the eighteenth century, and little if anything seems to have been done since that time.

Refs.: SR.19., pp.32-3. AS., pp.5l-2. FJN, p.78.

4. **FFOS-Y-BLEIDDIAID**
(Abergele Urban Ph.) SH/935769

A powerful vein strikes east-north-east through Carboniferous limestone here, with a northerly dip. The vein carries galena and some sphalerite in a calcite gangue and has been worked for lead ore upon a fairly substantial scale at various times. The earliest workings are evidently of considerable antiquity and are reputed to be of Roman age due to the finding of some relics there. It is certain that this mine was at work during the eighteenth century and to a lesser extent as late as the middle of the nineteenth century. The mine is advertised for sale as a going concern in the Mining Journal of 3 May 1856, but nothing seems to have been done since that time.

The lower workings at the foot of the hill, known as Cae-yr-Gwaith seem to have been the site of the latest operations and were active until the influx of water overcame the ability of the management to carry the workings any deeper, (presumably in 1856.) During the operations of the late eighteenth century lead ore is reported to have been raised in solid masses weighing several hundredweight each from this working. The lowest level, driven to the south-west along the vein, occurs at about 150 feet A.O.D.

From the descriptions of this mine it would seem that some potential for lead ore remains in depth, provided that the influx of water is not too great.

Refs.: SR.19., pp.3l-3. AS., pp.5l-2. FJN., pp.12., 26 and 78. MJ., 3.5.56.

5. **TYDDYN MORGAN**
(Abergele Urban Ph.) SH/936765

A vein strikes about north-east through Carboniferous limestone here and has been worked for lead ore. These workings, like others in the Abergele area, were active during the eighteenth century, when they were reported to have been very productive, but little appears to have been done since that time. It seems possible that the workings were carried down to the drainage level only, and that deeper working was uneconomic, as at Ffos-y-Bleiddiaid mine.

Refs.: SR.l9., pp.3l-3. AS. pp.5l-2. FJN. p.78.

6. **PANT-IDDA**
(Abergele Rural Ph.) SE/923758

A shaft has been sunk here, as indicated on the 6-inch O.S. maps. This was a trial working for lead ore on a fault Whose strike is a little west of north. The fault has a downthrow to the east, with Wenlock shales on the west wall and Carboniferous basement beds on the east wall. No-other record of the trial has been found and it was evidently not successful.

7. **FFORDD-LAS-BACH**
(Abergele Urban Ph.) SH/955760

A vein striking a little west of north traverses Carboniferous limestone here and contains a considerable amount of sphalerite in a calcite gangue. Some trials were apparently made, but no mine seems to have been developed as far as is known.

8. **YSGEIRALLT**
(Abergele Rural Ph.) SH/943750

A level has been driven in Wenlock shales at this point, where a fault strikes to the north-west and can be traced northwards well into the overlying Carboniferous beds No records of the working have been seen, but on the 6-inch O.S. map it is named as having been made in search of lead ore.

9. **KINMEL**
(Abergele Rural Ph.) SH/977747

Galena and calcite have been seen in veinlets in an old quarry in Carboniferous limestone at this-place, and similar veinlets were found in the limestone cores from a borehole which was sunk for water in 1931. The occurrence lies within Kinmel Park where, the development of a mine would not have been permitted. The interest of the occurrence lies in the fact that it is on the line of continuation to the west of the veins worked at Bodelwyddan mine, in Flintshire.

Lead ore was also reported as having been found during the excavation of the foundations of the new Kinmel Hall as well as for the sunken road leading to the stables at the Hall.