

# <sup>F</sup> ~~C~~ARNARVONSHIRE

J E Thomas "A Geog. descrip of Carn; with special ref to its quarries, mines, & mineral products. (A Prize Essay) London (1875)

S. Haughton J Geol Soc Dublin p 128 (1854) Fe ores of Carn.

FW Rudler (1905) the "well-known jasper of Caern-shire"  
R Foster-Smith (1977) "The mines of Anglesey and Caernarvonshire" British Mining No 4. Northern Mine Research Soc.



## Mineral Occurrences in Snowdonia

Epidote

The mineral occurs as an alteration product in the dolerite, where it forms elongated strips along with calcite. The strips can be up to nine inches wide and six feet long. Specimens have been collected at the following references:-

SH 563 503 a forestry road from Afon Hafod Ruffydd-in-af to

Cwm Ddu, has been cut through a dolerite intrusion at this point. The epidote forms small well developed crystals lining calcite filled vugs. The calcite was removed by acid treatment.

SH 590 520 distorted  $\frac{1}{2}$ " crystals associated with quartz

veins collected from an isolated dolerite outcrop.

SH 593 522 weathered 1" crystals in a quartz vein associated

with a fibrous amphibole and calcite

Stilpnomelane (?)

SH 563 501 Thin coatings on dolerite joint faces, by the side of the above mentioned forestry road.

(a similar material was noted at Owenig Quarry.)

Asbestos

Apart from the mined locality near Ogof Owenig Glyneddwr. (SH 560 478) numerous thin veins can be found in lower Cwm Meillionen.

Magnetite

On area of magnetite rich rock occurs at SH 596 525 and is probably a reprecipitation from an associated dolerite, the richest areas appeared to be within a few inches of ~~rock~~ the many north-south quartz veins found in this area. Crystals are ~~very~~ quite visible under a hand lens, and crystal aggregates up to  $\frac{1}{4}$ " have been found in a nearby boulder.



## Opatite

✓ Sawed

a quartz vein carrying colorless opatite in small crystals occur on the ridge of Fleebog at S.H 594 541

## Anatase

The mineral occurs as small transparent grey-blue plates and octahedra in veins with quartz and pyrite. The country rock is a dense greywack grit (Quaternary grit) in the vicinity of a ~~top~~ large quartz vein, the boundary of this rock type with the lower Rhyolitic series (of Dröflehöna) is only 10 yds away. The occurrence is at S.H 566 483 on Noel Hebog.

Anatase also occurs at S.H 597 539 ~~in~~ where on acid intrusion

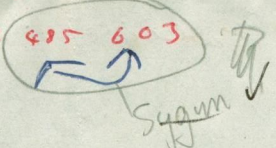
✓ Sawed

outcrops on the cliffs of Fleebog overlooking Cwm blogwyn. The outcrop is vein-crowned with many small quartz veins and the anatase occurs as singles and groups of transparent dark blue octahedra.

## Ilmenite

✓ Sawed

Found as minute plates on the margin of quartz veins at S.H 619 518 and S.H 485 603



## Rutile

✓ Sawed

occurs as rutile with Ilmenite at S.H 619 518, and as needles with anatase at S.H 597 539.

## Oxide

Noted in association with Epidote at S.H 563 503, no distinct crystals.

## Pyrite

occurs as cubic crystals in slates at S.H 567 573. Pseudomorphs after pyrite occur with Anatase at both localities.



Actinolite

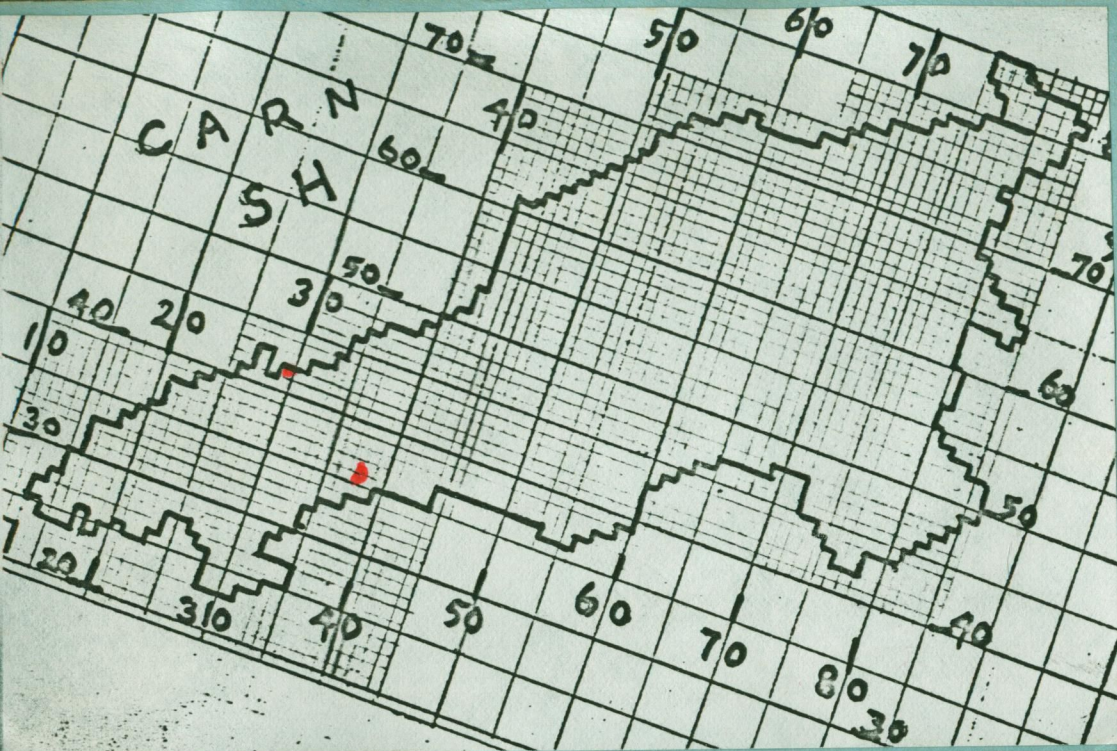
Carn

("Caradoc Caer" (?))

Pwllheli SH 3735

Monfa Nefyn 2941





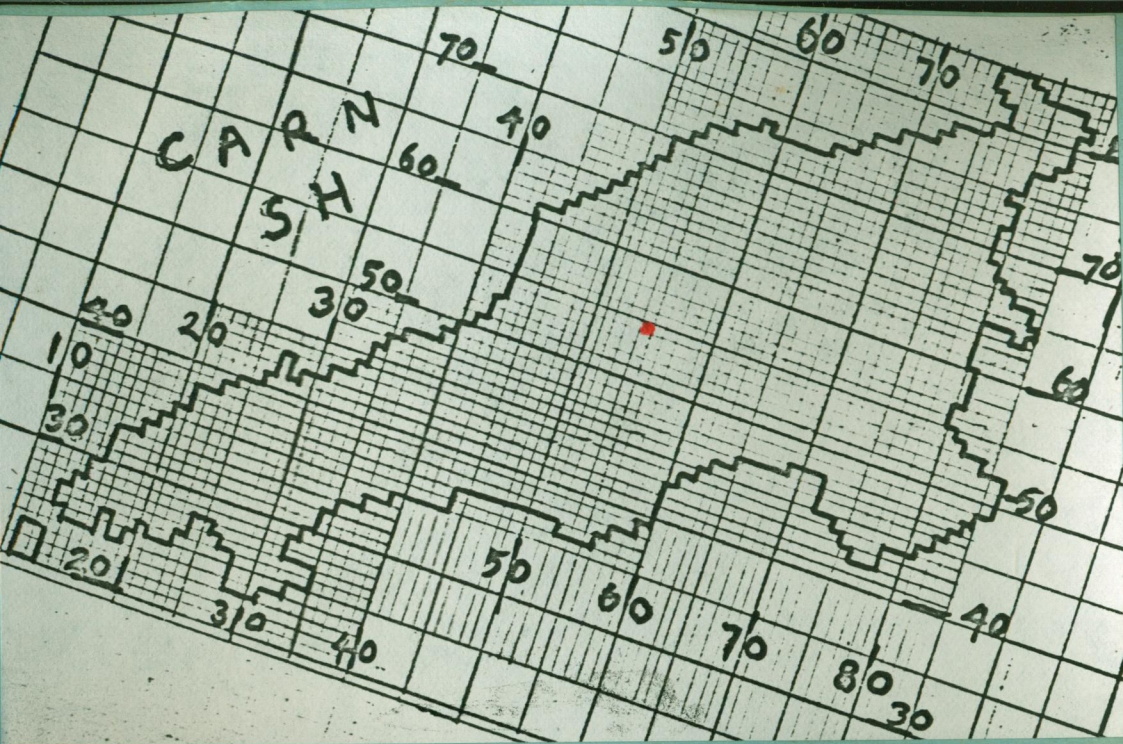


Aegirine  
"Acute"

Caern

Mynydd Mawr SH54 54





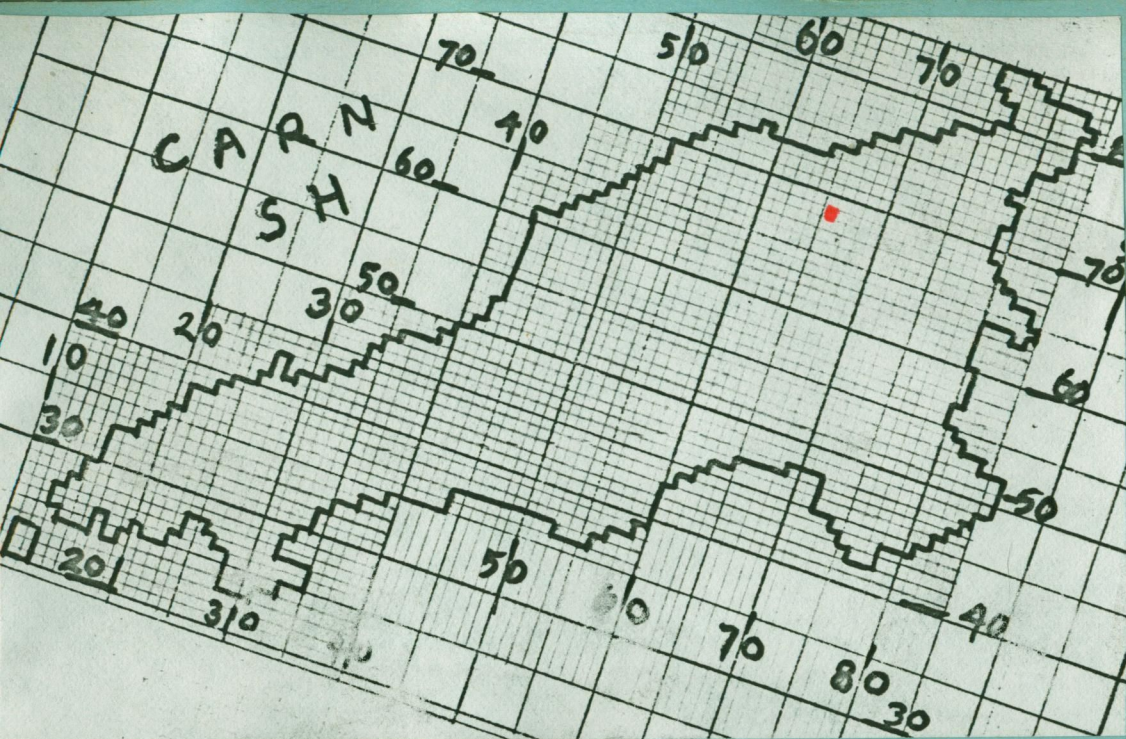
"AGALMATOLITE"

(Key = pinite, talc, or  
pyrophyllite)

CARN

Glyder Fach SH 6568





ALBITE

CARN

Gimlet Q SH 3834

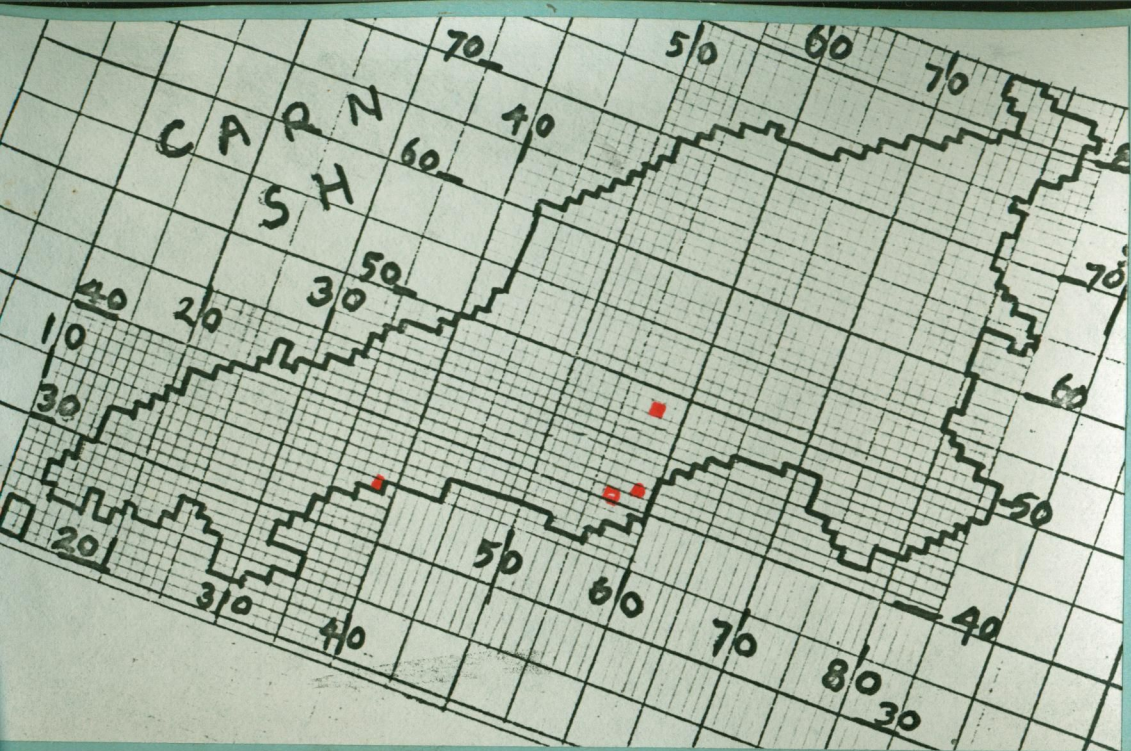
Tremadoc SH 5640 ?

Twll-maen-grisial SH 5841

Cwm Meillionen SH 5748

Fronoken SH 5841



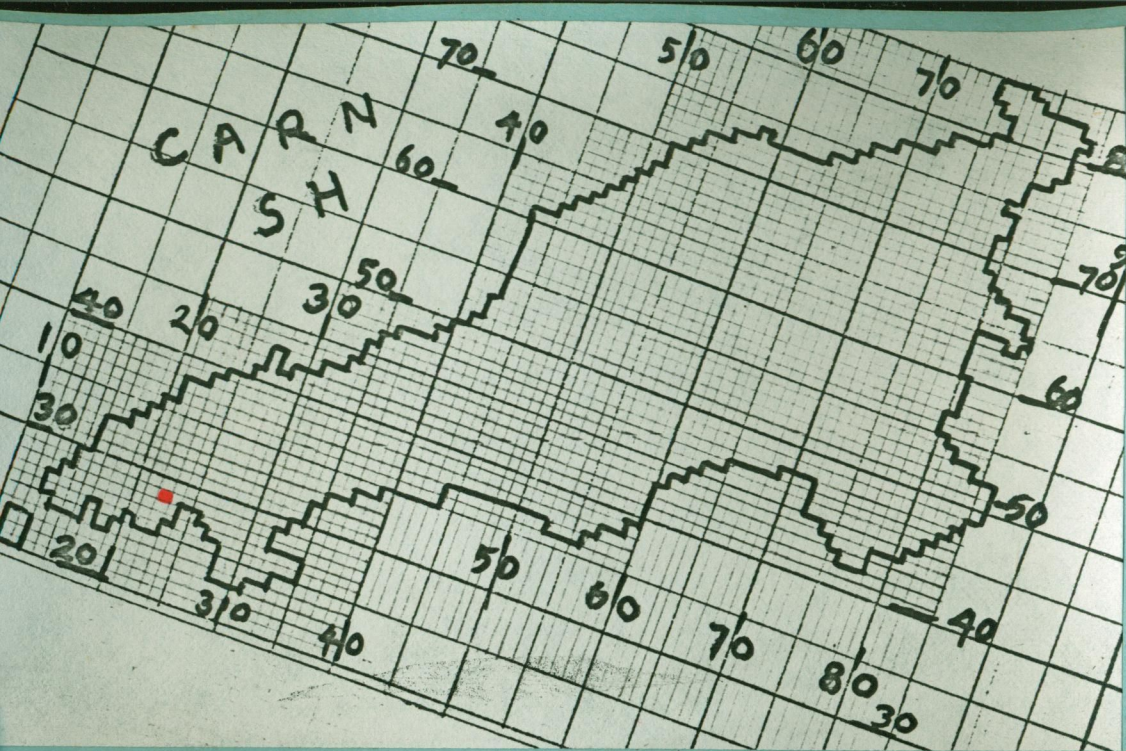


Alleghanyite

Caern

Benallt mine (Rhini) SH 22 28





ALLOPHANE

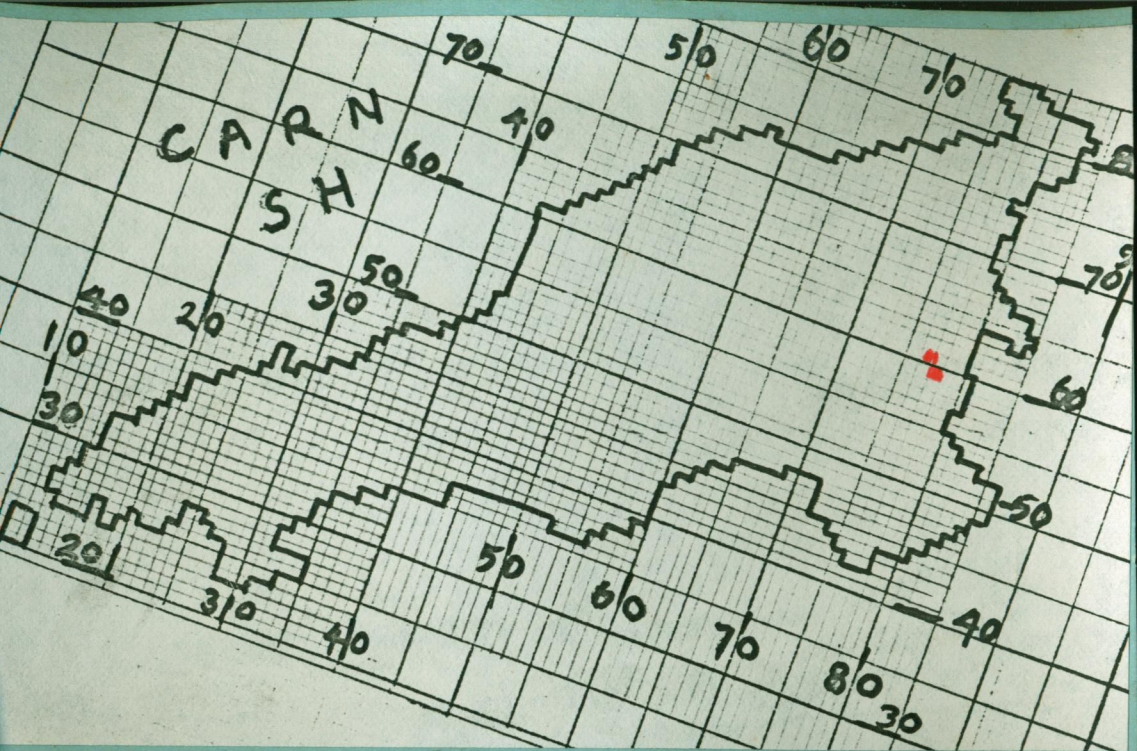
CARN

Gorlan M SH 77 59

Welsh Foxdale MSH 76 60

Cyffty M SH 77 58 77 59





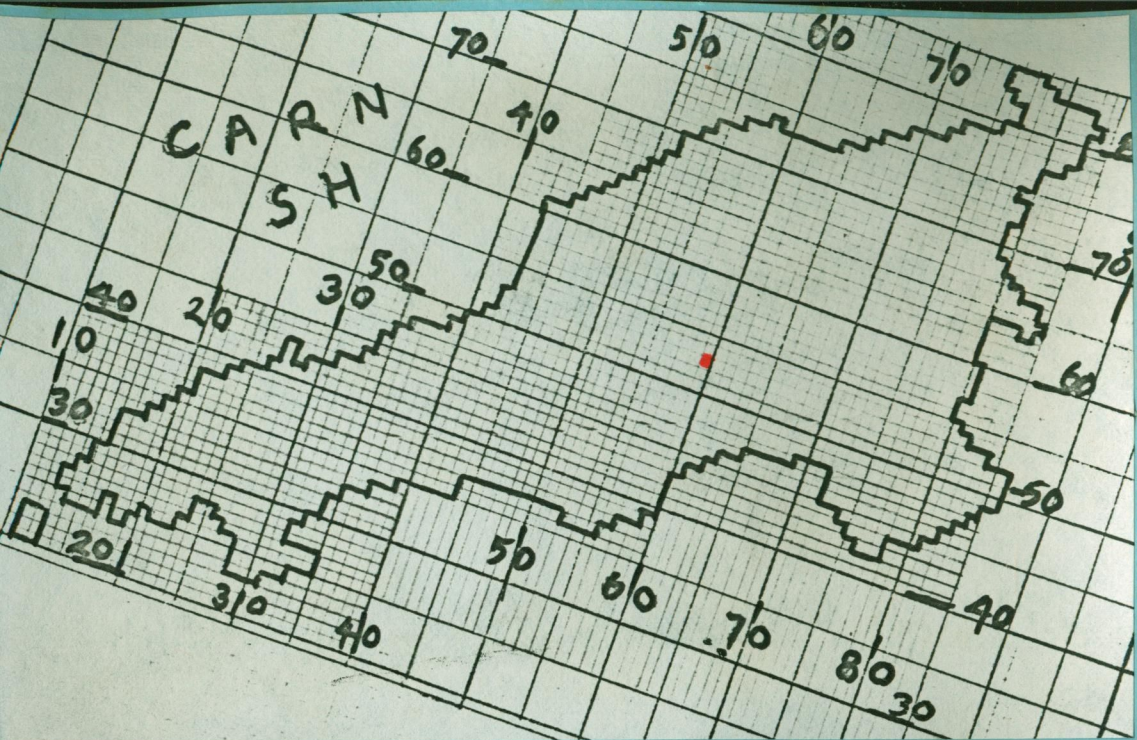
Amphibole (unspecified)

Caern

Snowdon 59 52

Y-Pennant SH 59 51





ANALCIME

CARN

Gimlet Q SH 38 34

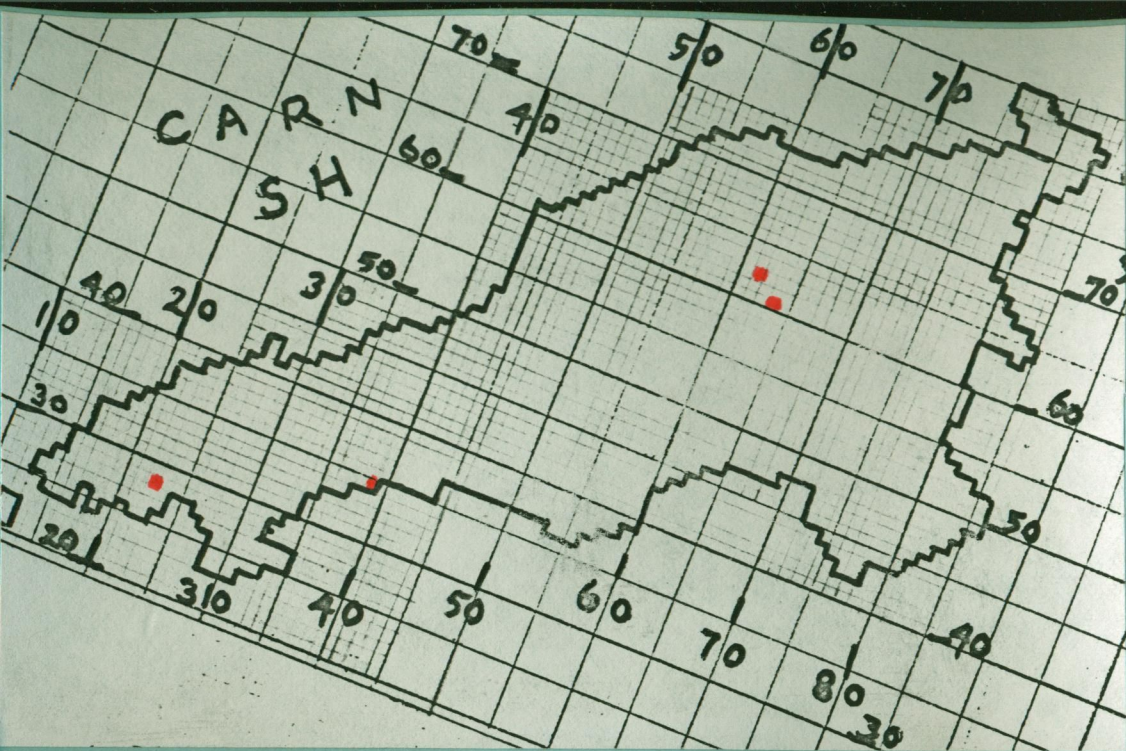
Marchlyn Mawr SH 61 62

Benallt mine (Rhino) SH 22 28

Bwlch-y-Cywion SH 63 60



CARN  
SH



ANATASE

CARN

Snowdon 59 53

Tremadoc + 5640?

Cwm Meillionen 5648 5748

Twll-Maen-Gwial 5841

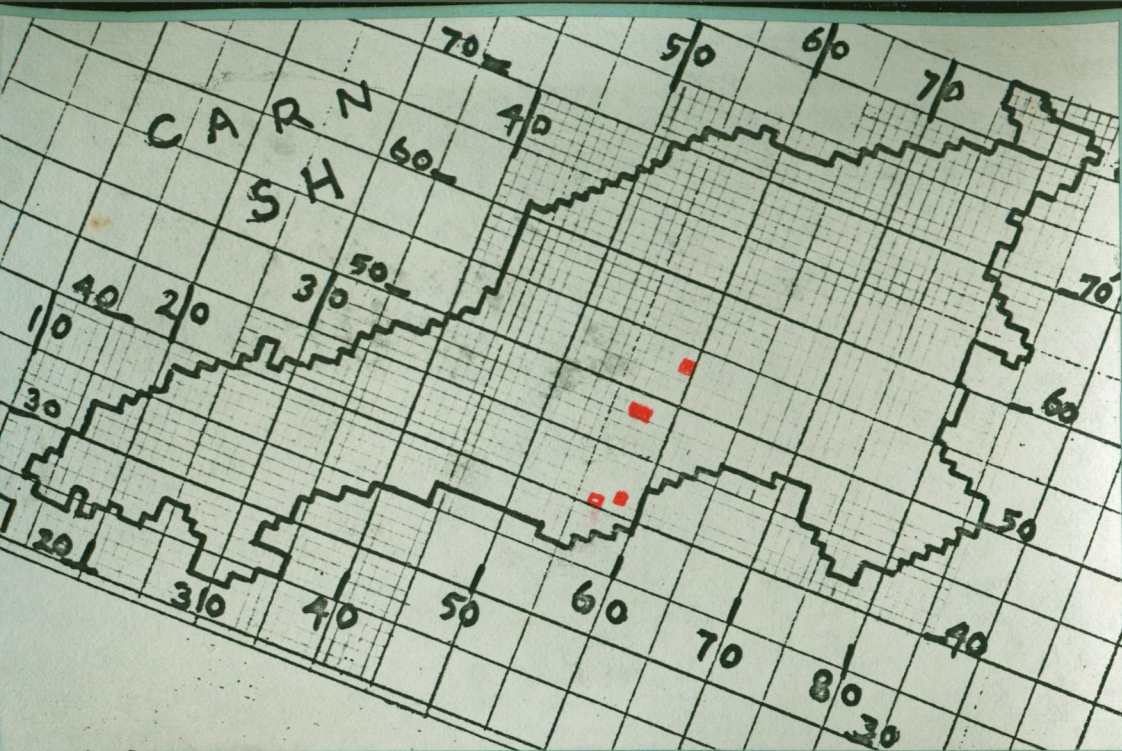
Fronoleu 5841

(Beaut blue platy (low pyr) xls w rut qtz somewhere  
in diggings for new railway, mid 1970's)  
prob MERIONETHUS

Moss Hekog



CARN  
SH



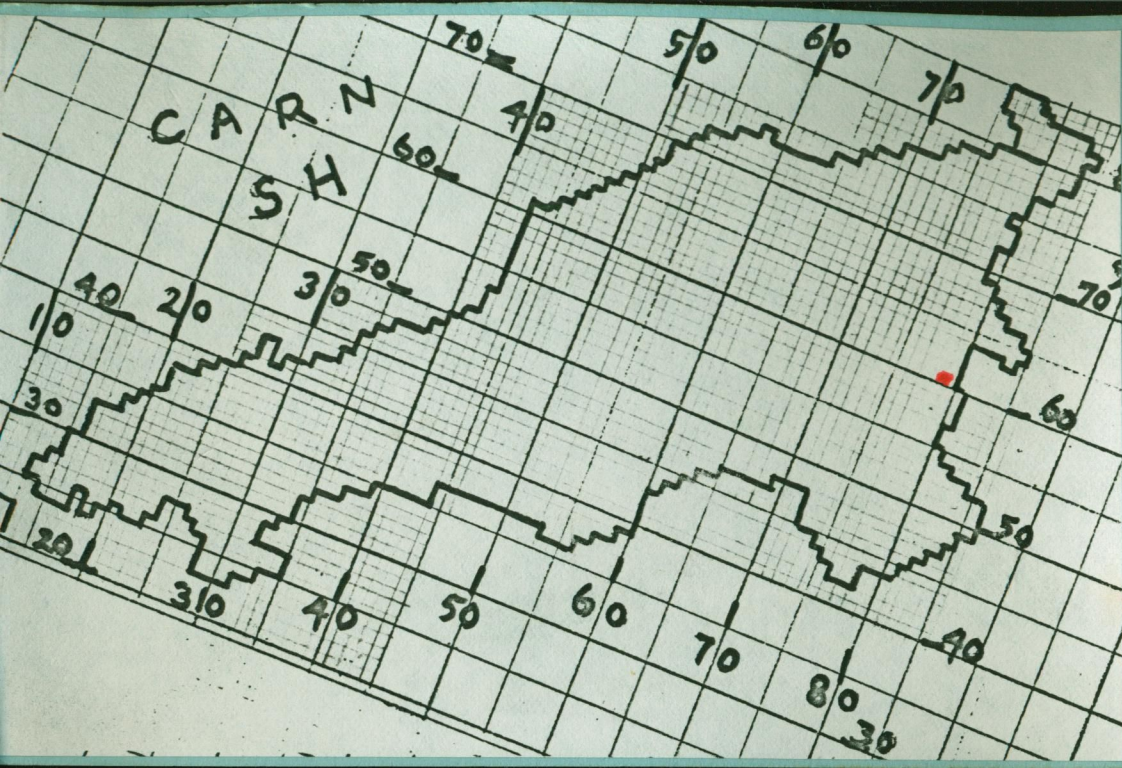
Andradite

Caern

Parc mine 7860



CARN  
SH



ANGLESITE

CARN

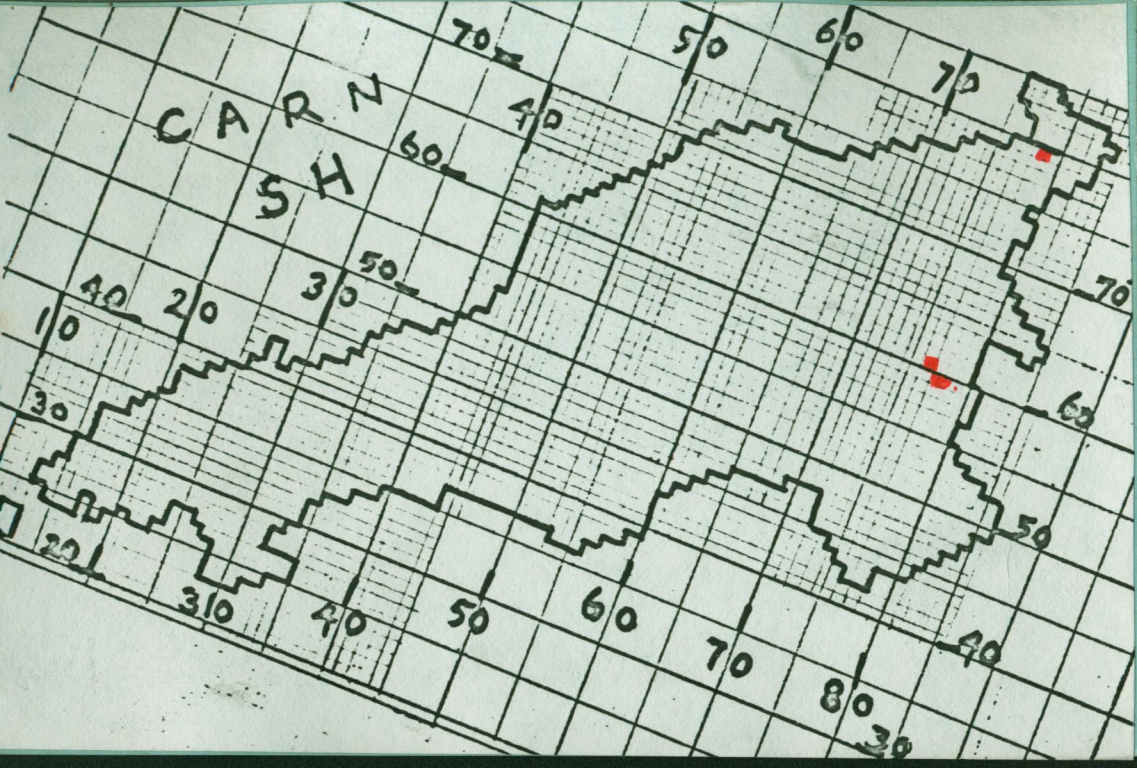
Bwlch M 7879

Gorlan M 7759

Welsh Foydale M 7660



C A R N  
S H



ANKERITE

CARN

Bwlch M 7879

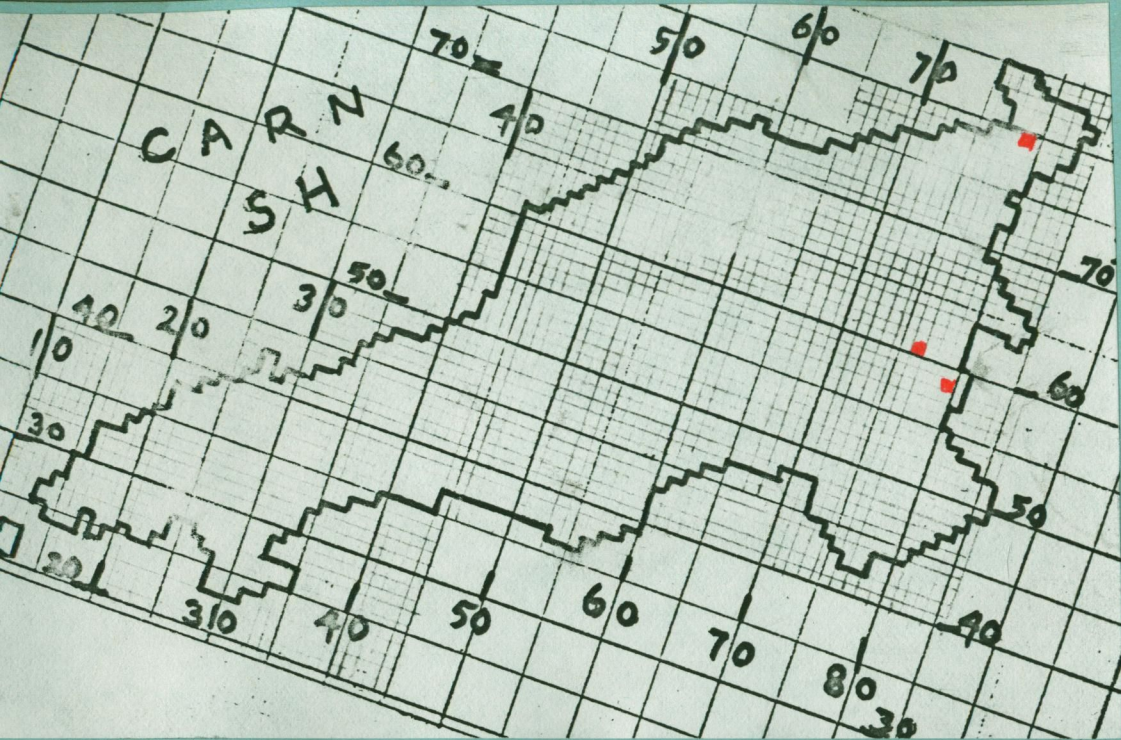
"Llanriost" one field

Welsh Foxdale M. 7660

Abelllyn M 7958



CARN  
SH



APATITE

(See also hydroxyapatite)

CARN

Graig Lwyd Q 71 75

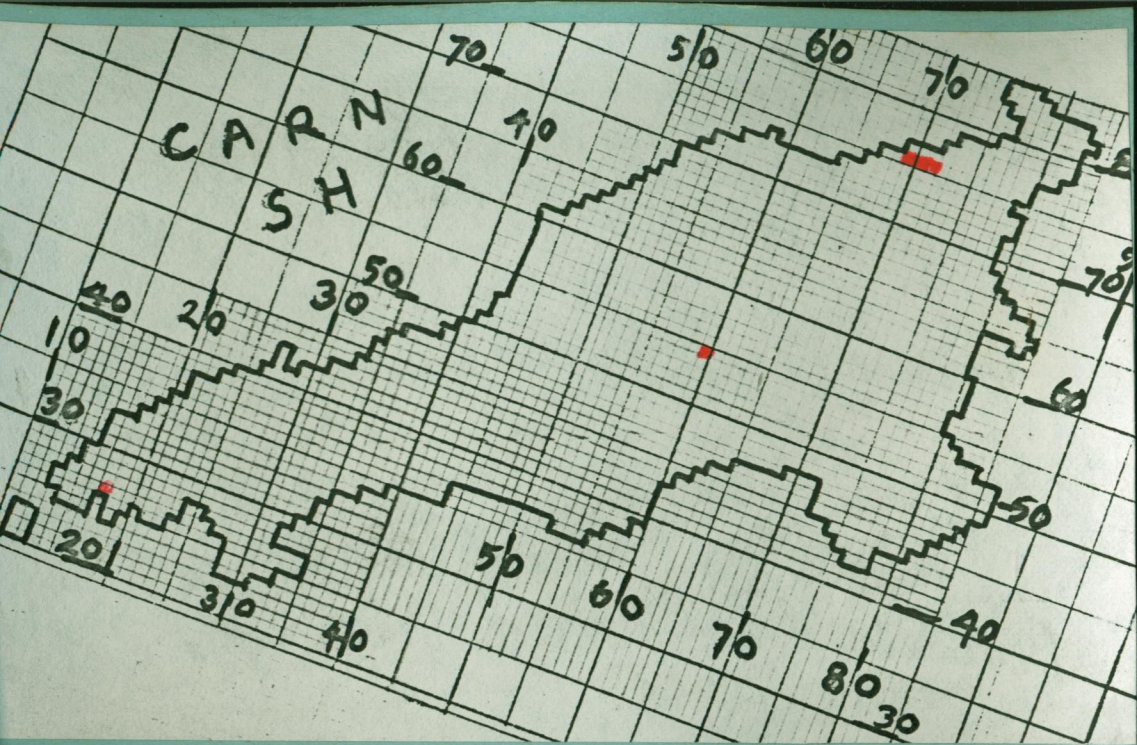
Penmaenmawr Q 6975 7075

Snowdon 59 54

Tioll-maen-grisial (fluor-, hydroxy-)

Nant M (fluor-) 20 26

Benallt M.



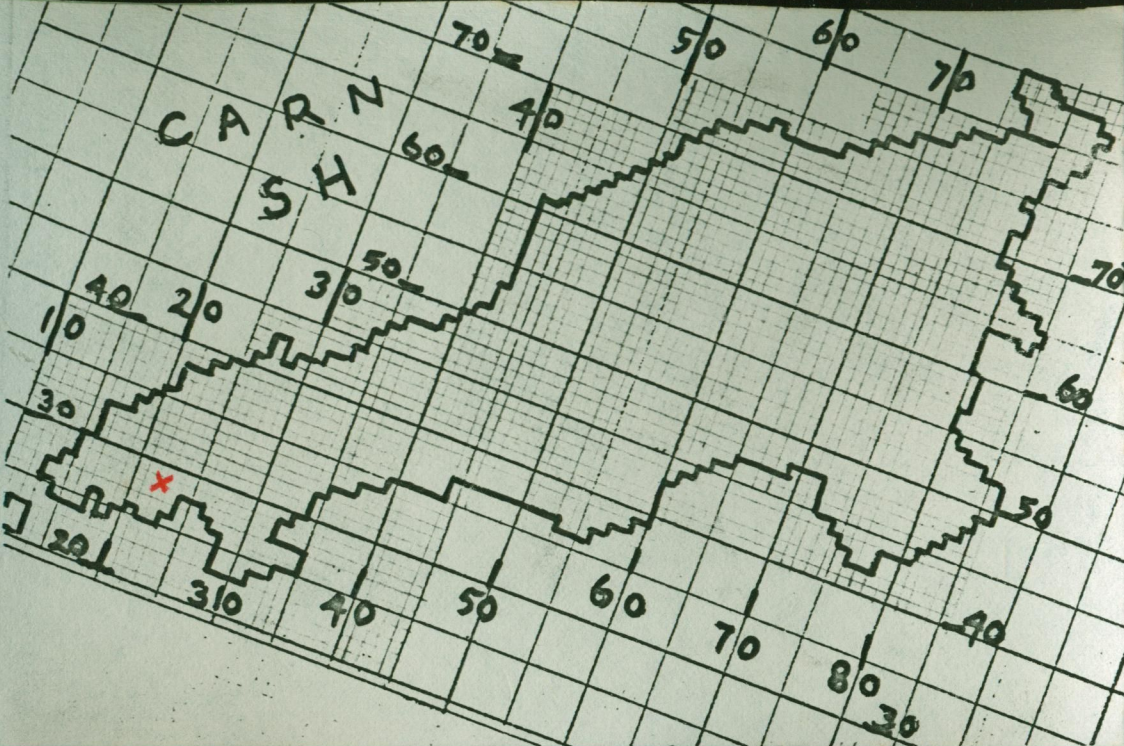


"Collophane" (var. of Apatite)

Rhin ~ 2228

Caen

CARN  
SH



ARAGONITE

CARN

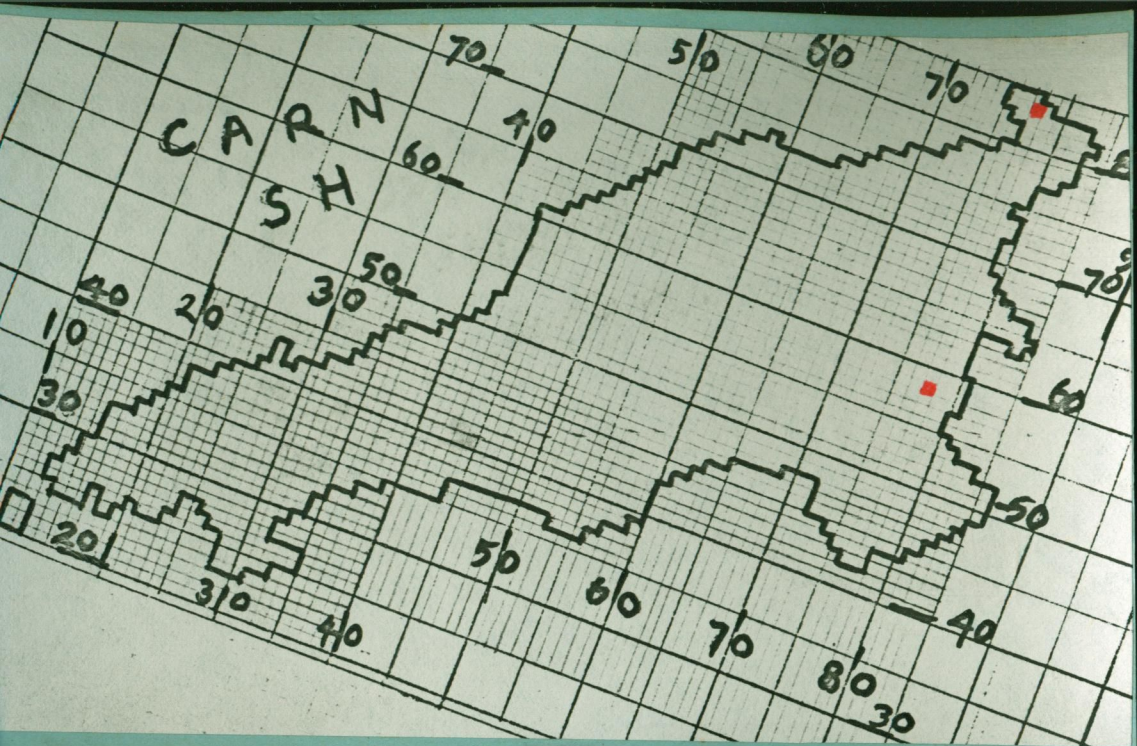
Gt. Ormes Head

Pandora M 7758

Llandudno M 7783

Britannia M SH 6154





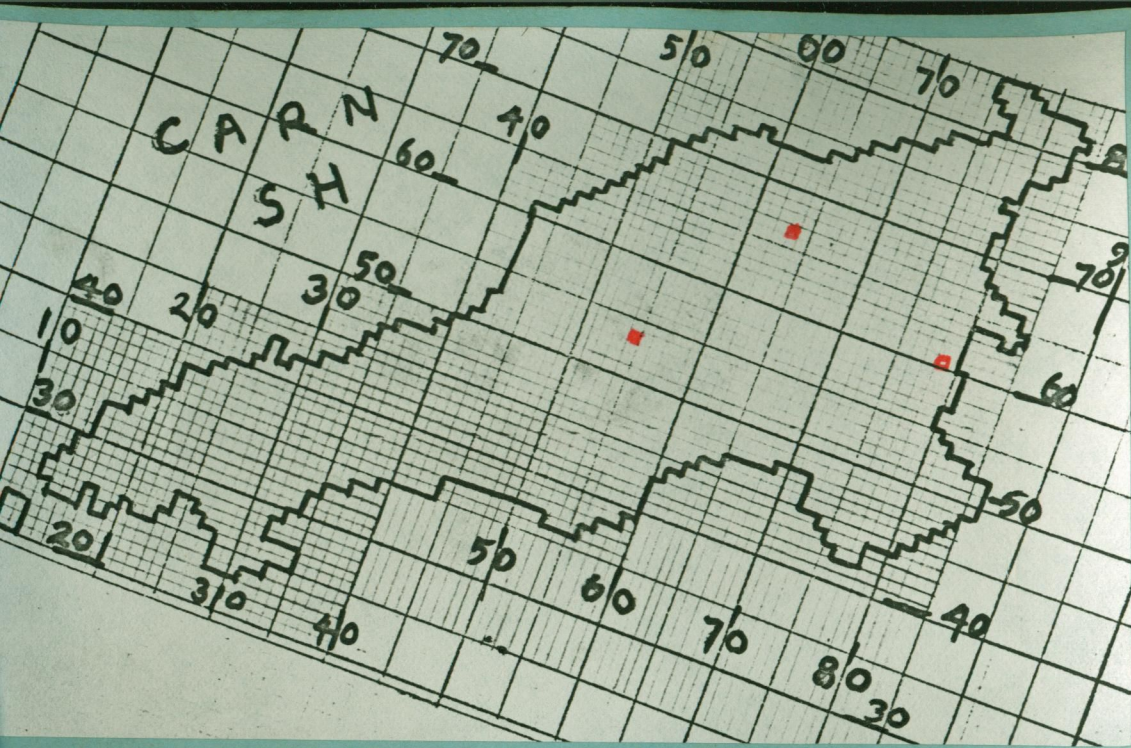
Arrenopyrite

Carn

Drosg-y-Coed M 5453

Panc M (?) 78 60

Tan-y-Garth M 63 66





"Asbestos"

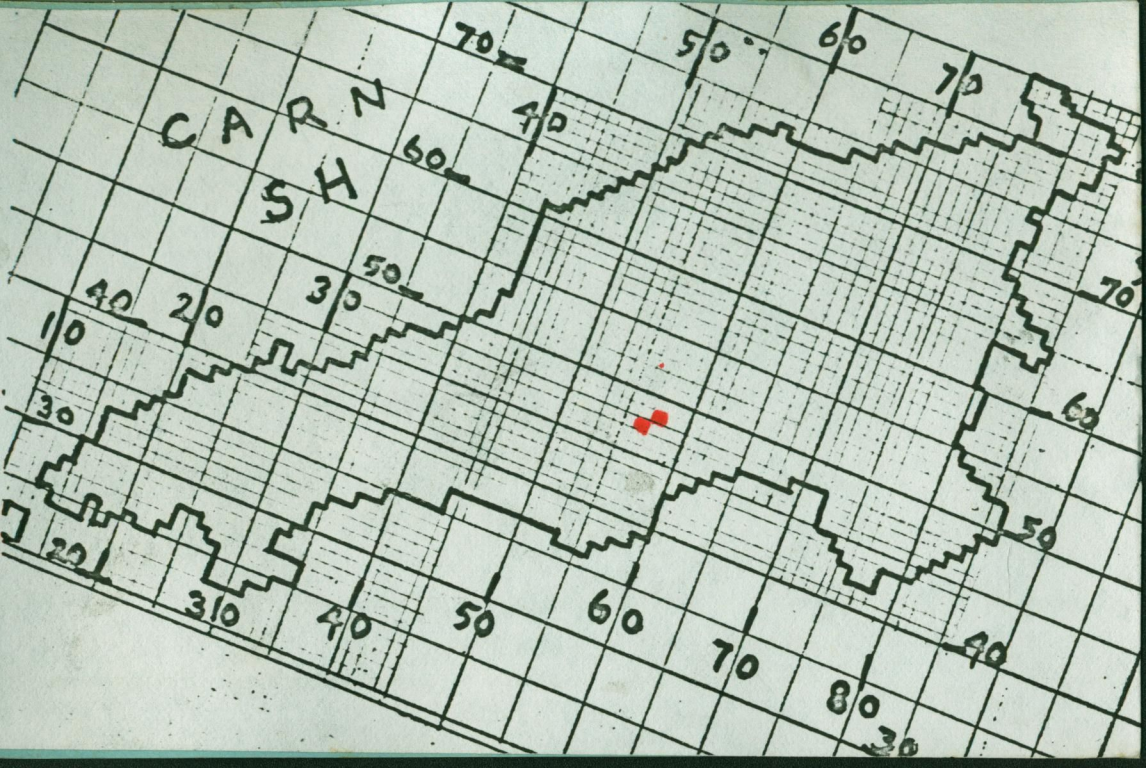
Caern

Moel yr Ogof 56 47

Moel Hebog 56 47

Cwm Meillionen 57 48

CARN  
SH



Atacamite

Caern

Abersoch



Aurichalate

Caern

Britannia M SH 6154

AUGITE

CARN

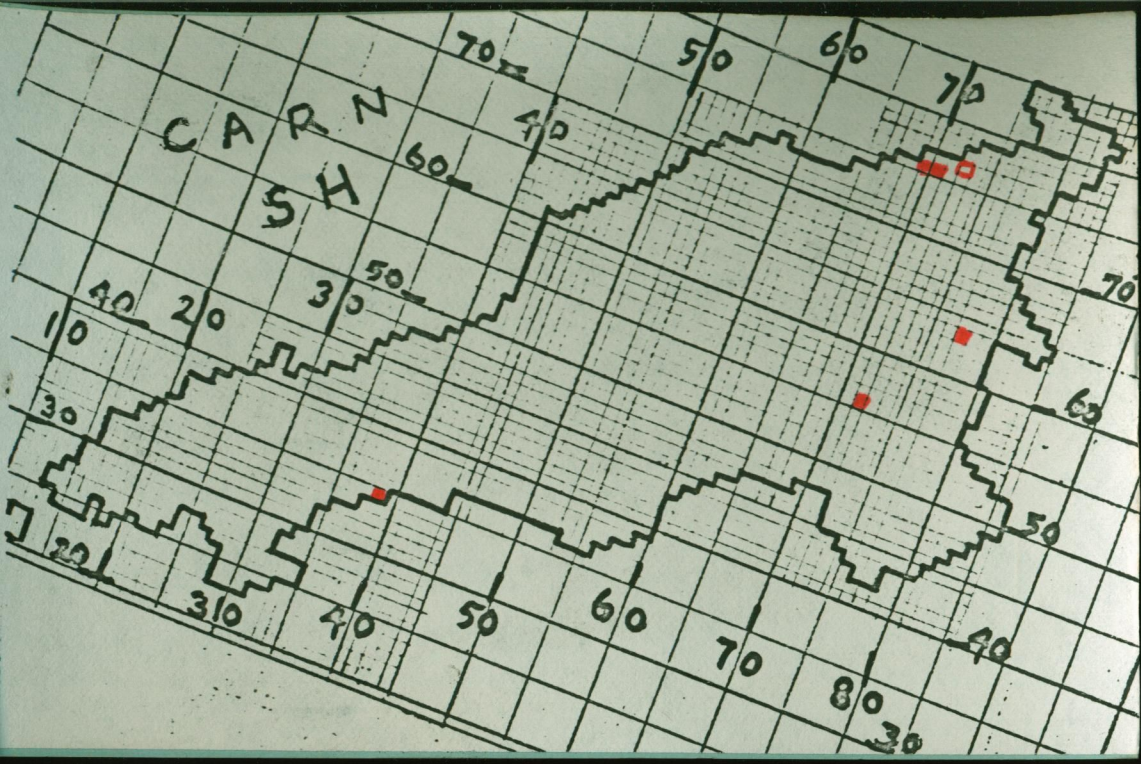
Penmaenmawr [7276](?)

Penmaenmawr Q 7075 6975

Gimlet Q 3834

Trefriw 7763

Moel Siabod 7155





AXINITE

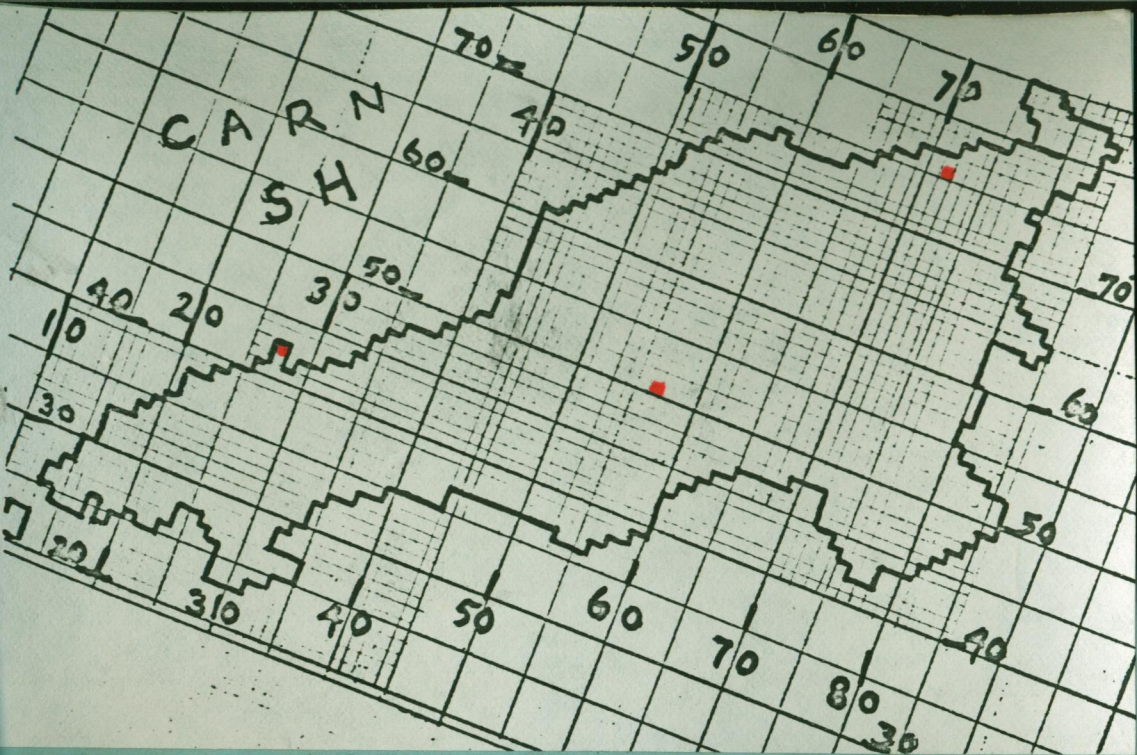
CARN

Graig Lwyd Q 71 75

Morfa Nefyn 27 42

Llyn Llewelyn 56 50

Parc Cae-Mawr 56 50



AZURITE

CARN

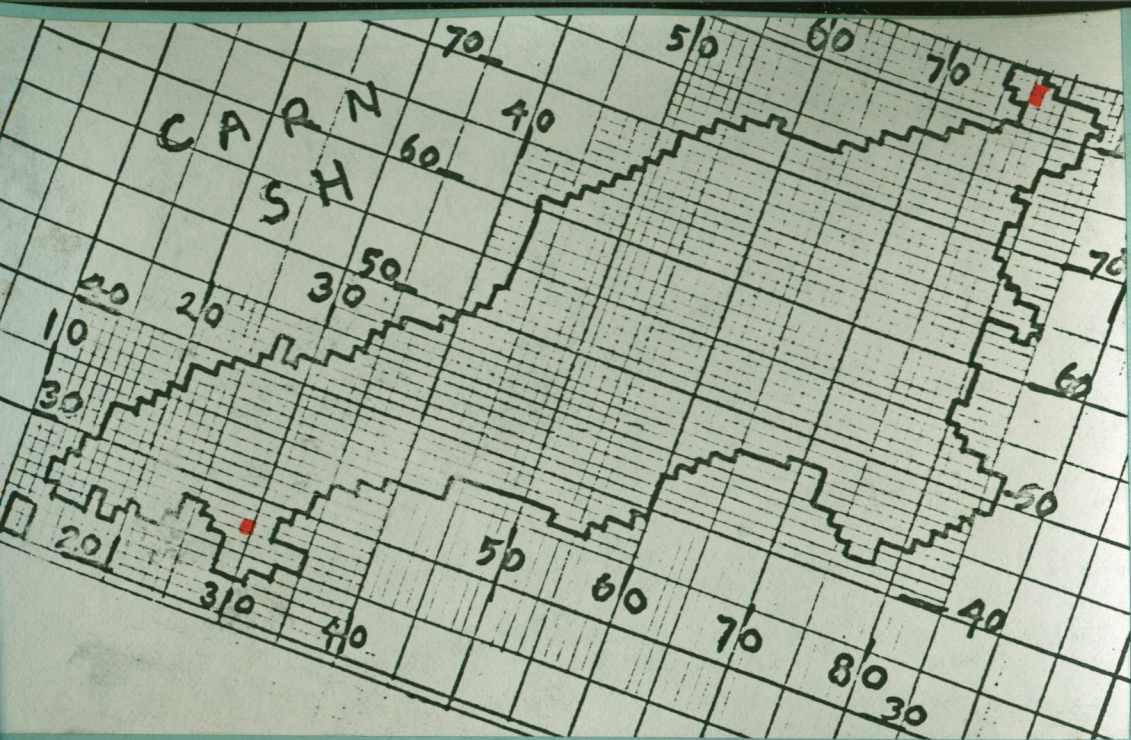
Gt. Ormes Head 7782 7783

Llanengan 29 27

Llandudno M 7782 7783

Benallt M 22 28

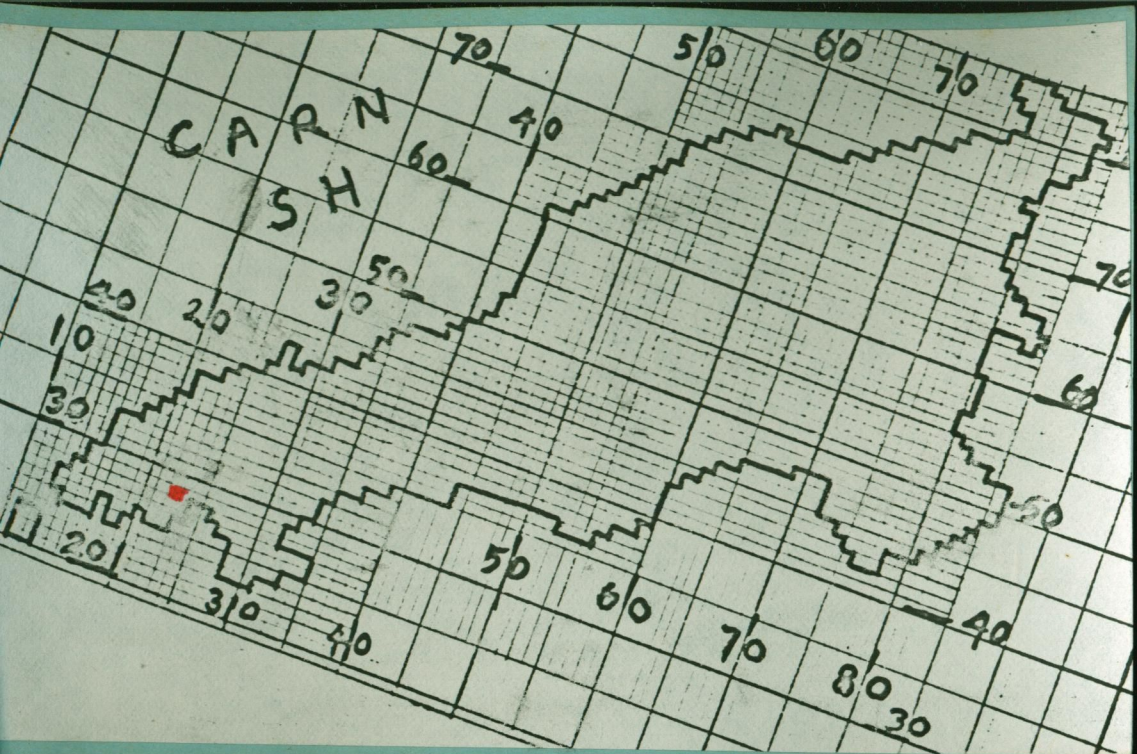




Banalsite

Caern

Benallt mine (Rhino) 22 28



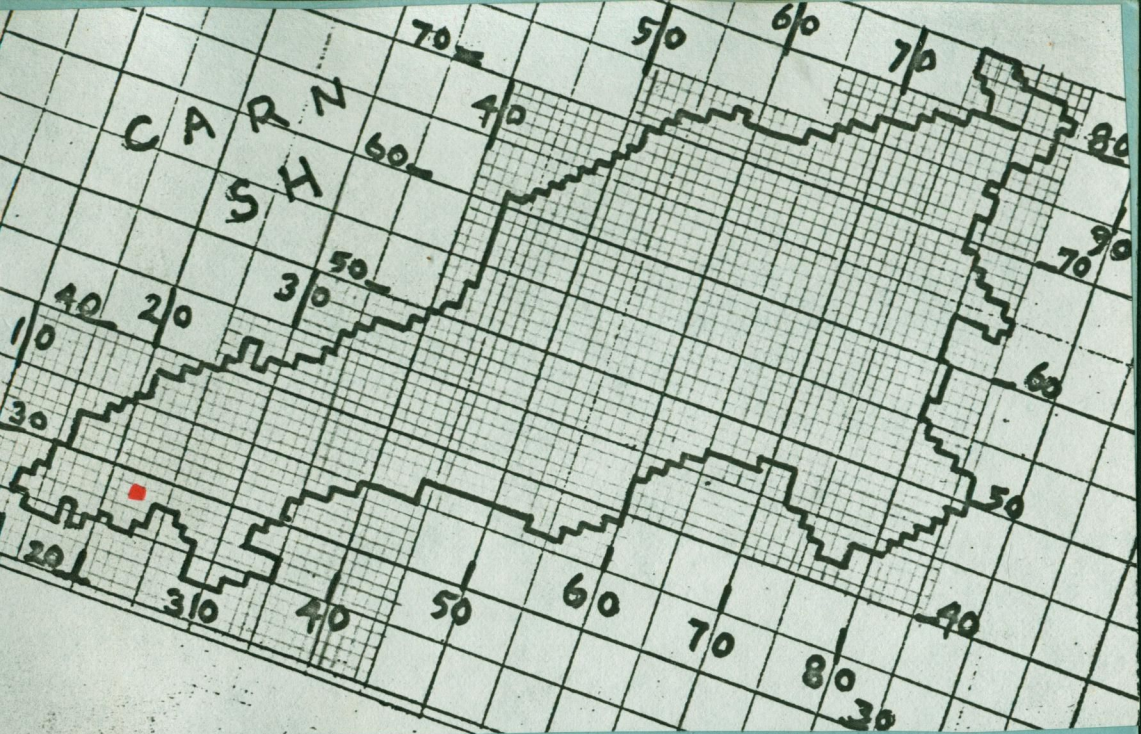


Bannisterite

Carn.

Benallt M. (Rhino) 22 28

CARN  
SH



## BARYTE

## CARN

Assheton M 32 26

Benallt M (Rhiw) 22 28

Bwlch M 78 79

Bwlch-y-Tocyn M 31 26

Dangoch M 30 26

Pant-Gwyn M 30 27

Pompren M 16 26

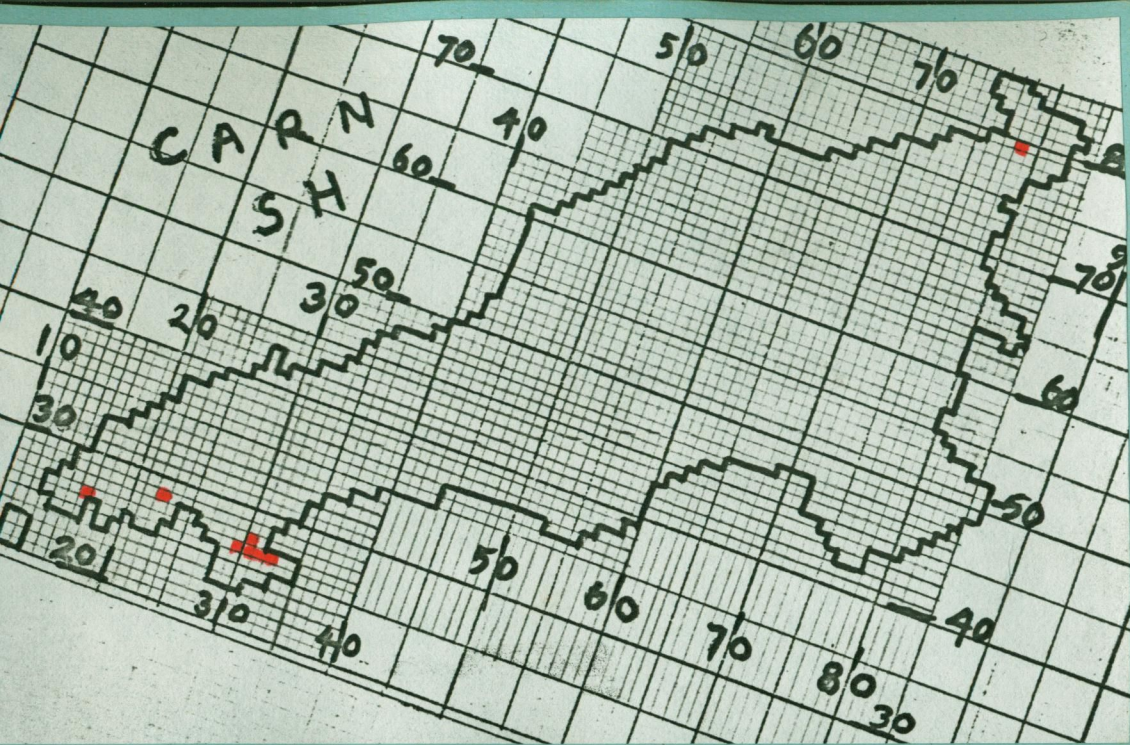
Porth Nigel M 29 26

Tan-y-Bwlch M 30 26

West Assheton M 31 26

Penrhyn M, Llanengan 32 26





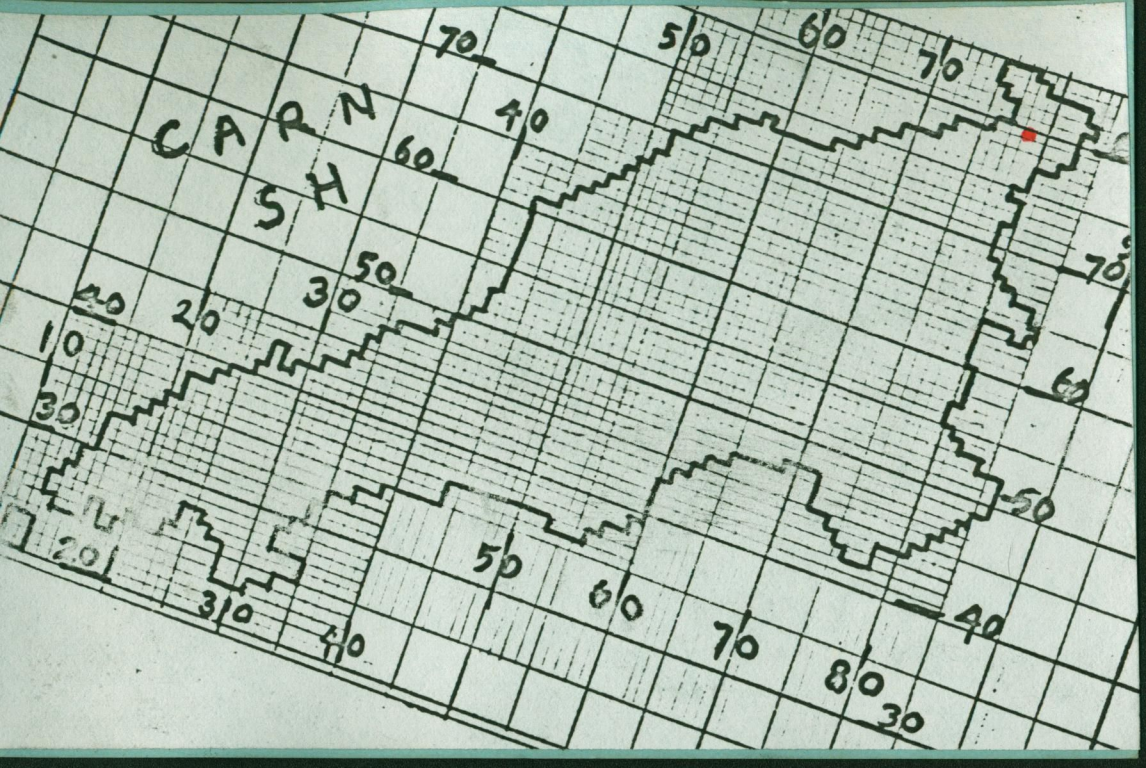
BINDHEIMITE

CARN

Bwlch M 78 79

CARN

SH





BIOTITE

CARN

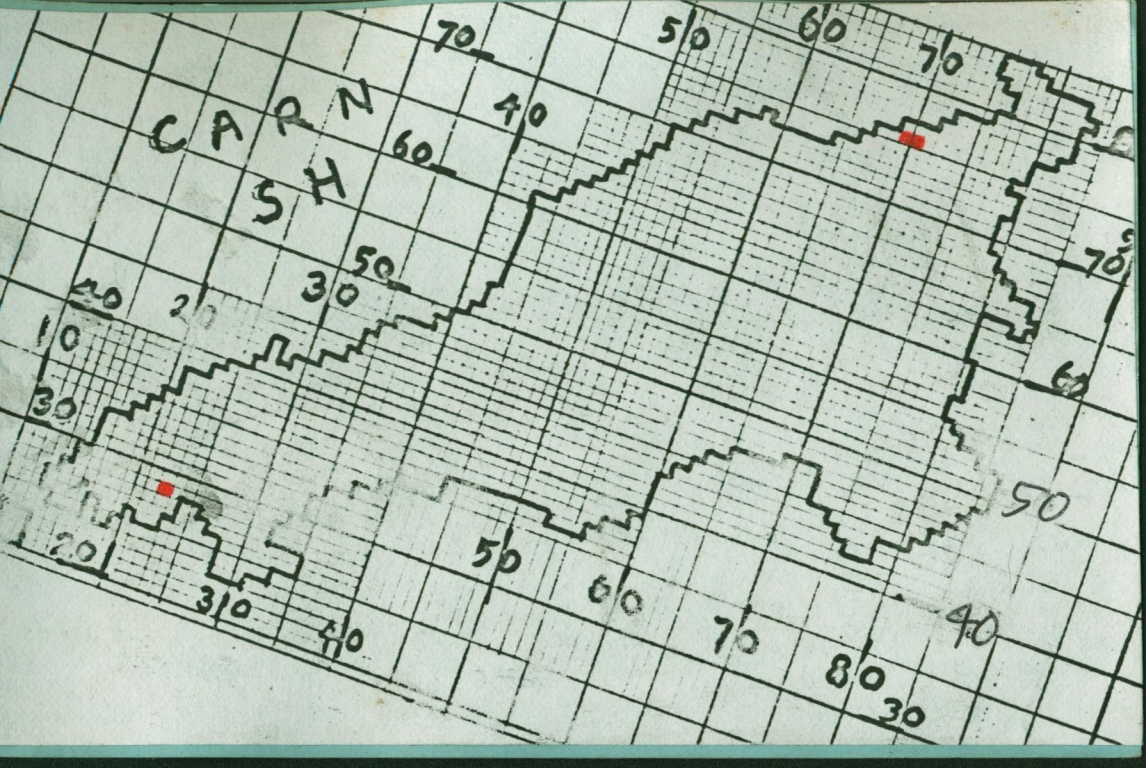
Penmaenmawr Q.

6975

7075

Benallt mine (Rhino) 22 28

CARN  
SH



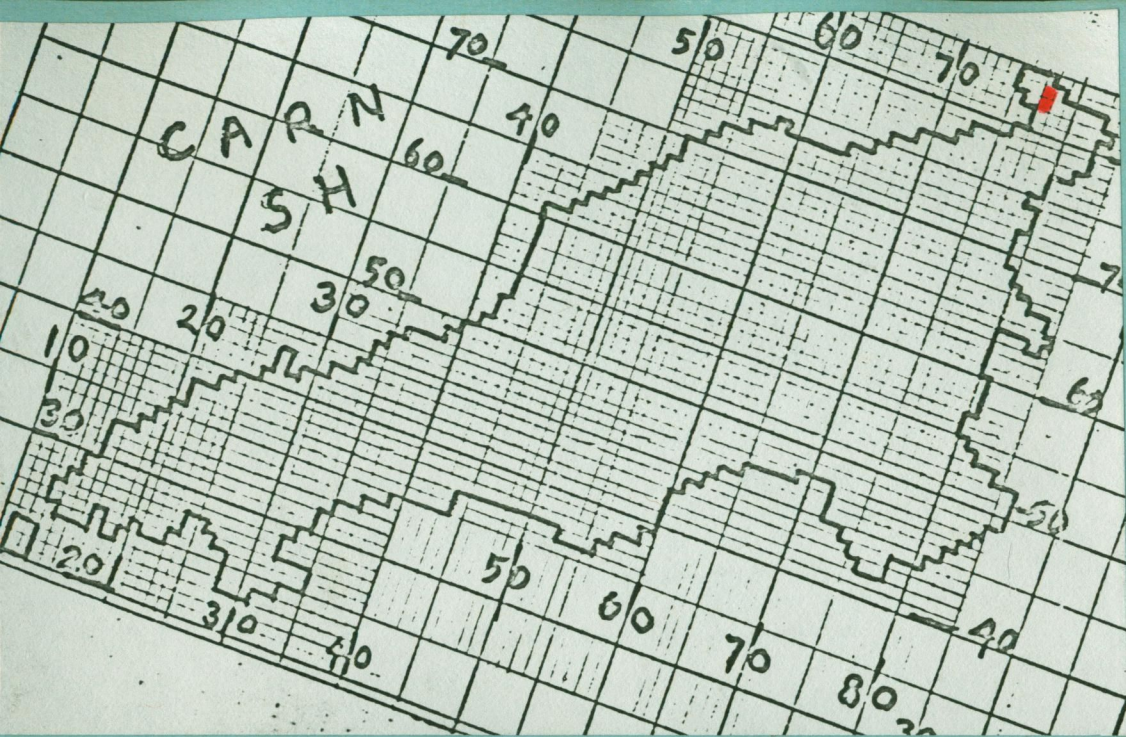
Bituminous Mass  
("HYDROCARBONS")

CARN

Great Ormes Head

7782 7783





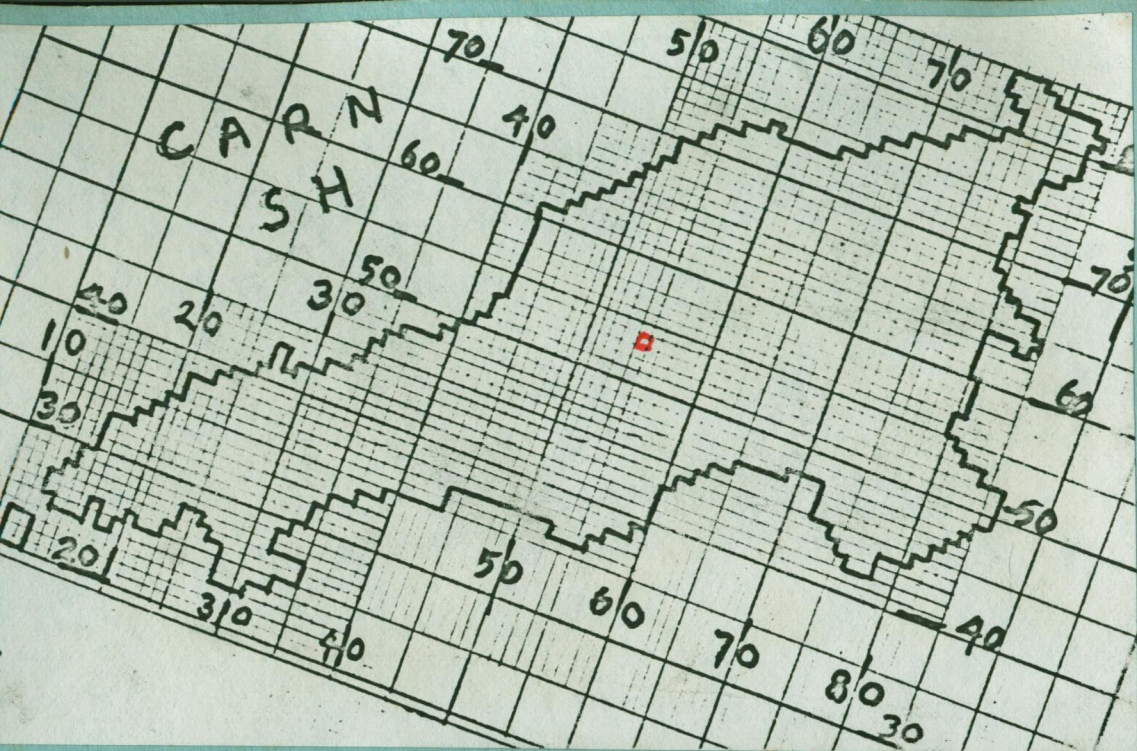
Bornite

Carn.

Droes-y-Coed M (?) 54 53

Abersoch

CARN  
SH





Botallackite

Caern

Abersoch

Boulangente

Caern

Bwlch M (?) 78 79

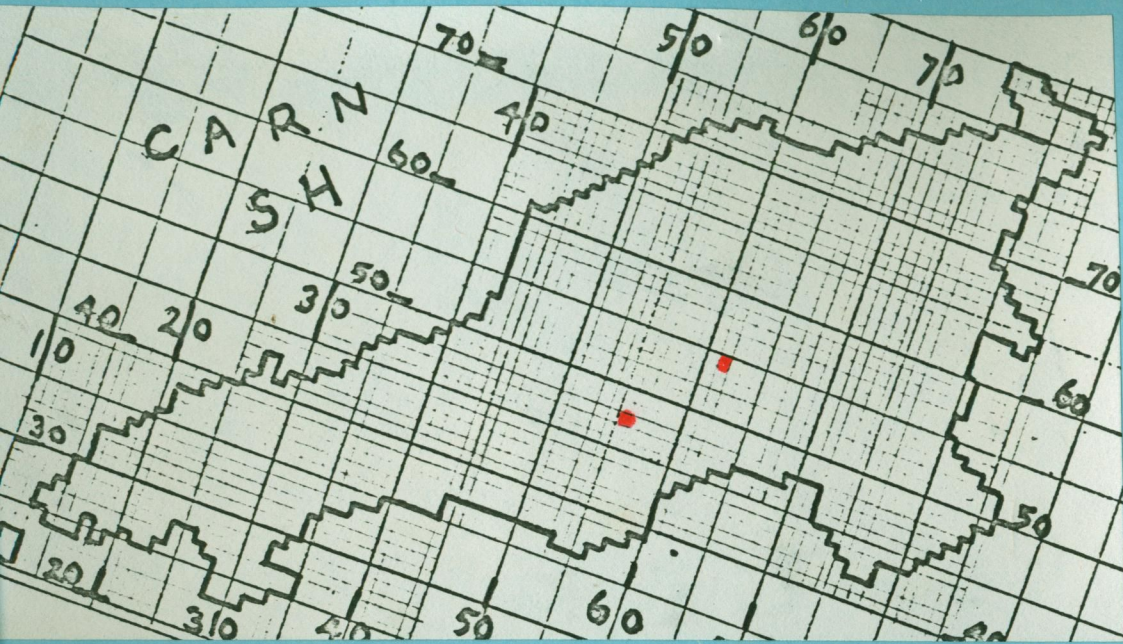
Brochantite

Caern

Cwm Llefrioth 55 47

Britannia M 54 61 54





BROOKITE

CARN

Beddgelert

5948[?]

Fronoleu

5841

"Snowdon" ↗

Tremadoc

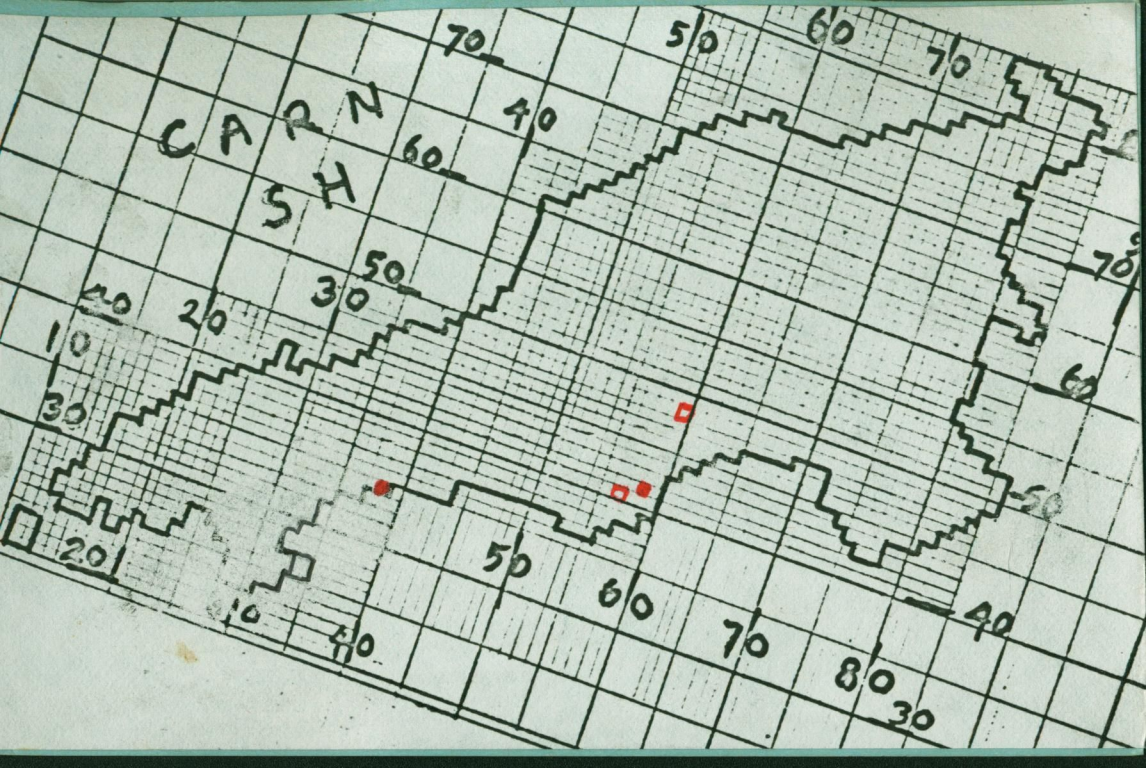
5640[?]

Twll-maen-grisial

5841

Gimlet Q

3834





# CALCITE

(I)

Cwm Merch M 63 53  
 Cyffty M 7758 7759  
 Dinorwic Q 59 60  
 Graig Lwyd Q 71 75  
 Gt. Ormes Head 75-78 82-84  
 Klondyke M 7662 (E. 7884)  
 Llandudno M 7782 7783  
 Llanrwst M 7759 7859  
 Llyn Llydaw 63 54  
 Morfa Nefyn 2741 2742  
 Parc M 7860  
~~Pol-y-Cochar~~  
 Pool M 78 58  
 Pwll-y-Cochion 76 74  
 Welsh Foxdale M 76 60  
 Benallt mine (Rhio) 22 28  
 Pwllheli (3735)  
 (3735)

# CARN

Gimlet Q 38 34  
 Nantlle (Mn-iferous) ~ 51 53  
 Drws-y-Coed M 54 53  
 Betws Garmon 53 57  
 Bangor ~ 58 72  
 "Llanrwst" one field  
 Tan-yr-Eglwys M 77 61  
 Pant-y-Carw level 78 62  
 Ty'n-Fwell 78 61  
 Cae-Côch M 77 65  
 Bwlch y Ddeufaen 72 71  
 P10

Ca

Trecastell M 7674

Llyn Llewelyn 5650

Twll-maen-grisial 5841

Penrhyn Slate Q's ~6265

Parc Cae-mawr 5650

Hafna M 7860

Bryn-Eisteddfod M 7859

Ffrith-Sian M 7860

Gelli-Lydan M. 7663

Coed-gwydr M. 7764 7863

Llanberis M 5958 6058

Y-Pennant 5951

Gwaith M 6363

Abellyn M 7958

Moel Fleiddiau 6749

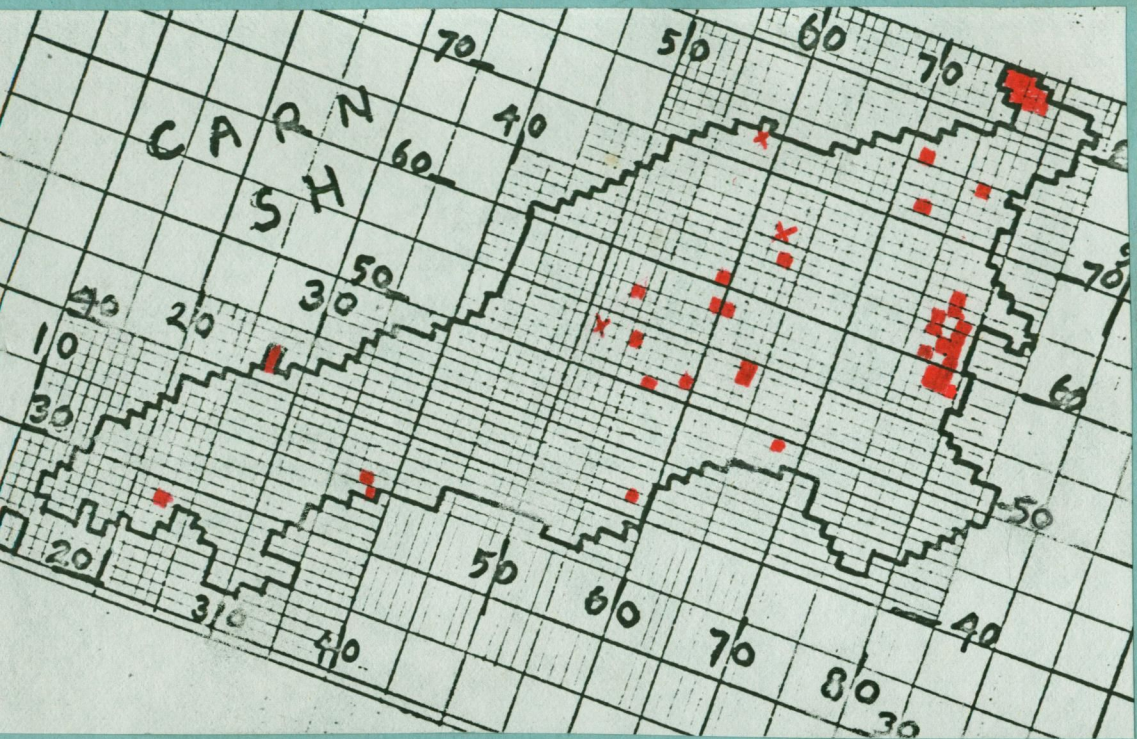
Calcite (II)

Calc

Mount M 2026



CARN  
SH



Caryopelite

Caern

Nant M SH 20~~0~~ 26

Cassiterite

Caern

Snowdon

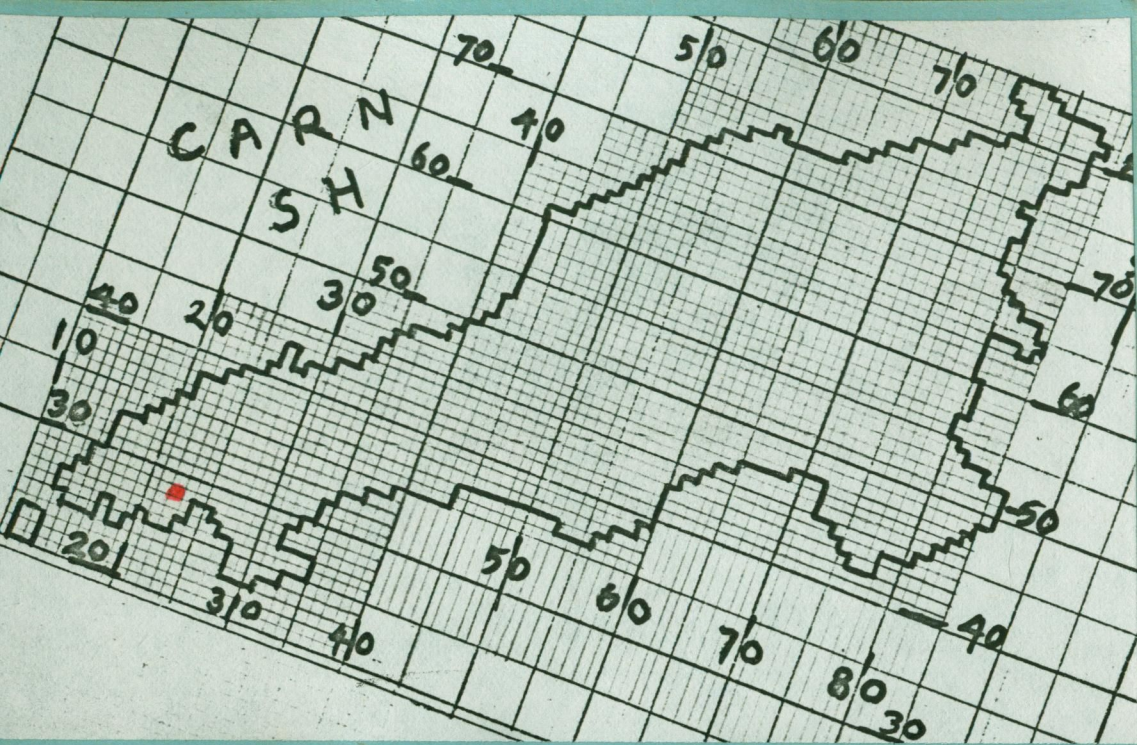


Celsian

Caern

Benallt mine (Rhiw) 22 28

Nant M 20 26



Cerussite

Cavern

great Ormes Head



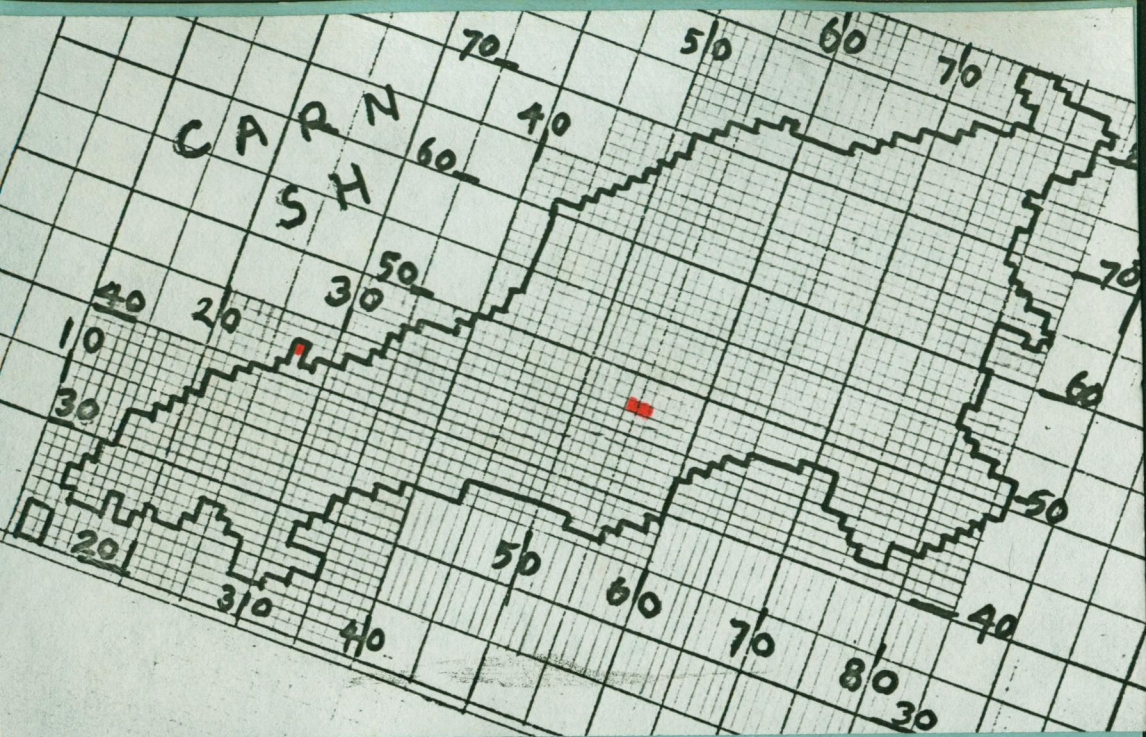
Chalcedonic silica

Carn.

Carn. (Jasper)

Monfa Nefyn (Jasper) 2742

Moel Hebog (Agates) 5547, 5647



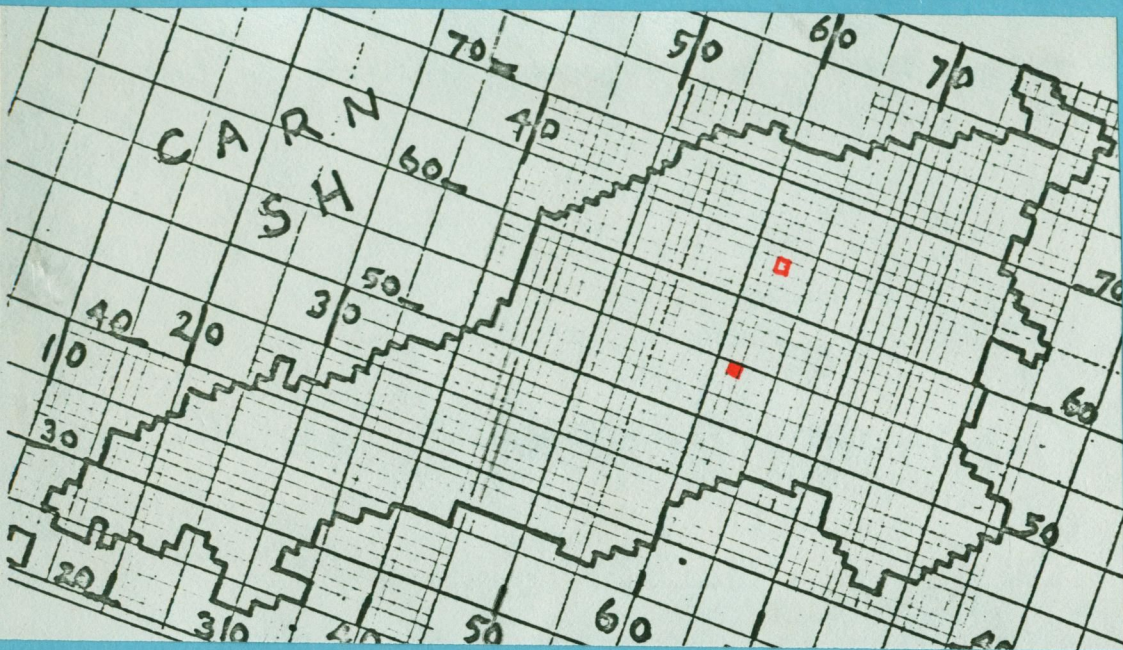
Chalcoalumite

Caern

Britannia M SH 61 54

Cunant M / Nant Ffrancon (??) 62 63





CHALCOPYRITE (See also "COPPER ORE")

(I)

CARN

Assheton M 32 26  
Beddgelert ~ 59 48  
Bwlch-y-Tocyn M 31 26  
Cernant M 62 63  
Cwm Merch M 63 53  
Dan Goch M 30 26  
Dolawyr ?  
Drws-y-Coed M 54 53  
Gt. Ormes Head 7682 7683  
Llanberis -  
Llandudno -  
Llandudno M 7782 7783  
Llanrwst M 7759 7859  
Llyn Llydaw 63 54  
Mountain Lode M 53 53  
[Nant Ffrancon (Cuore) 66-]  
Llanberis M 59 60

Pant-Gwyn M 30 27  
~~Pant~~ Aber-Glaslyn 59 46  
Porth Nigel M 29 26  
Snowdon -  
Tal-y-Sarn M 53 53  
Tan-y-Bwlch M 30 26  
West Assheton M 31 26  
Penrhyn M, Llanengan 32 26  
Britannia M 61 54  
Llanberis M 59 58 60 58  
"Llanrwst" orefield -  
Gilfach M's 52 46 52 47  
Elyn Llewelyn 56 50

Cuppy

Blaen-y-Nant 64 60

Cwm Bual 63 61

Maes Caradoc 63 62

Cwm Graianog 62 62

Gwath M 63 63

Dolawen 63 64

Tan-y-Garth M 63 66

Hendreddu 51 44

Blaen-y-Pennant 54 46

Cwm Llefrith 55 47

Dinas M 53 47

Cwm Clpwrth 52 47

Sygun M 60 48

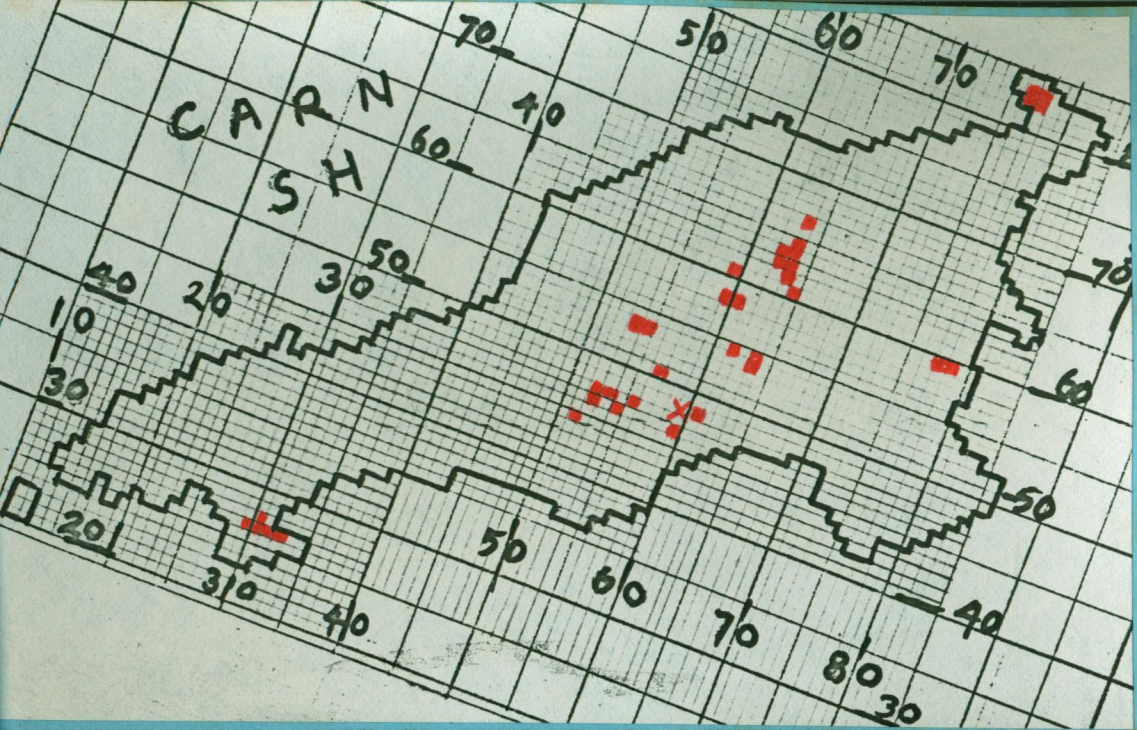


Chalcopyrite (II)

Carn

Abersoch

Benallt M.



Chamosite.

Caern

Twll-maen-gristal (Al-)



CHLORITE, unspecified

CARN

Drws-y-Coed M 5453

Llanberis 5 6

Marchlyn Mawr 61 62

Nant Ffrancon 64 60

Penrhyn Q's ~ 62 65

Trefriw 77 63

Rhuw ~ 22 28

Nant M (Mn-chlorite ? = pennantite) 20 26

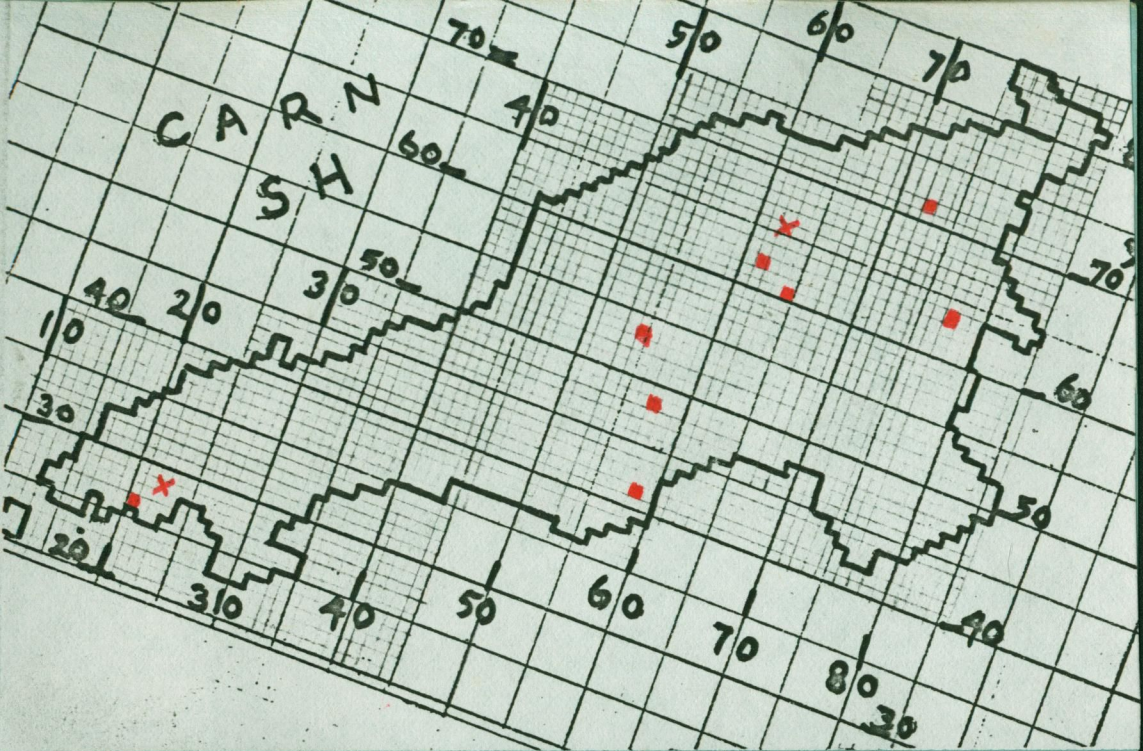
Bwlch y Ddeufaen 7271

Tioll-maen-grisial 5841

Cwm Meillionen 57 48

Blaen-y-Nant 64 60

CARN  
SH

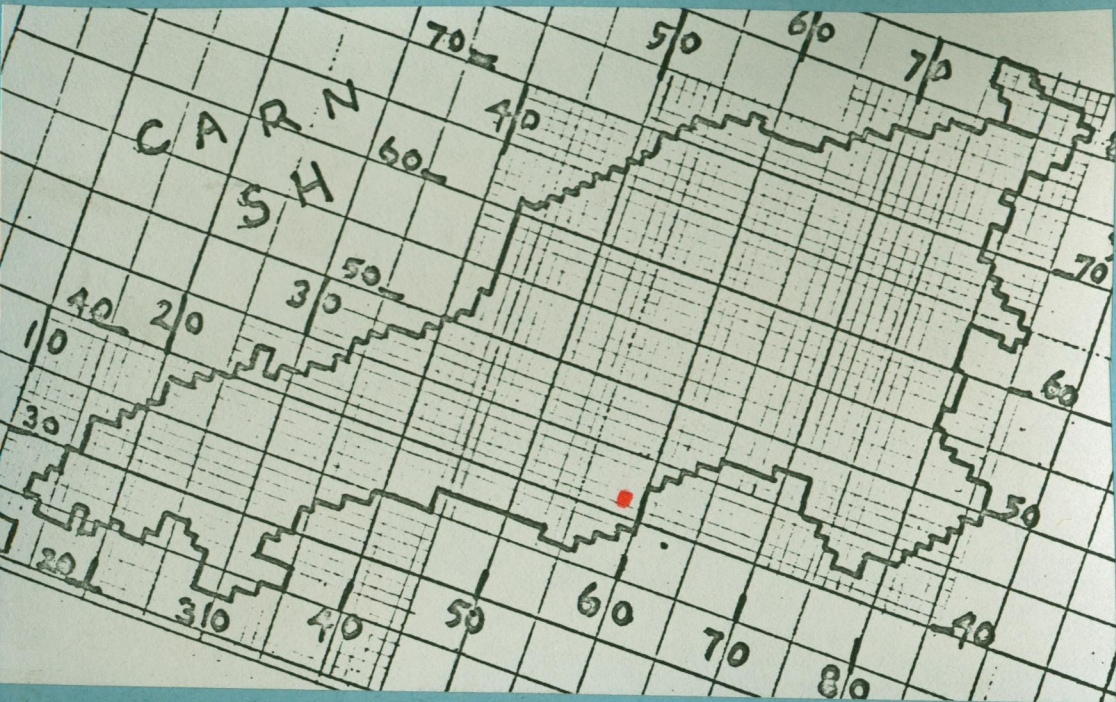


CLINOCHLORE-Fe

Ripidolite (Fe-CLINOCHLORE) Caen

Tremadoc 5841



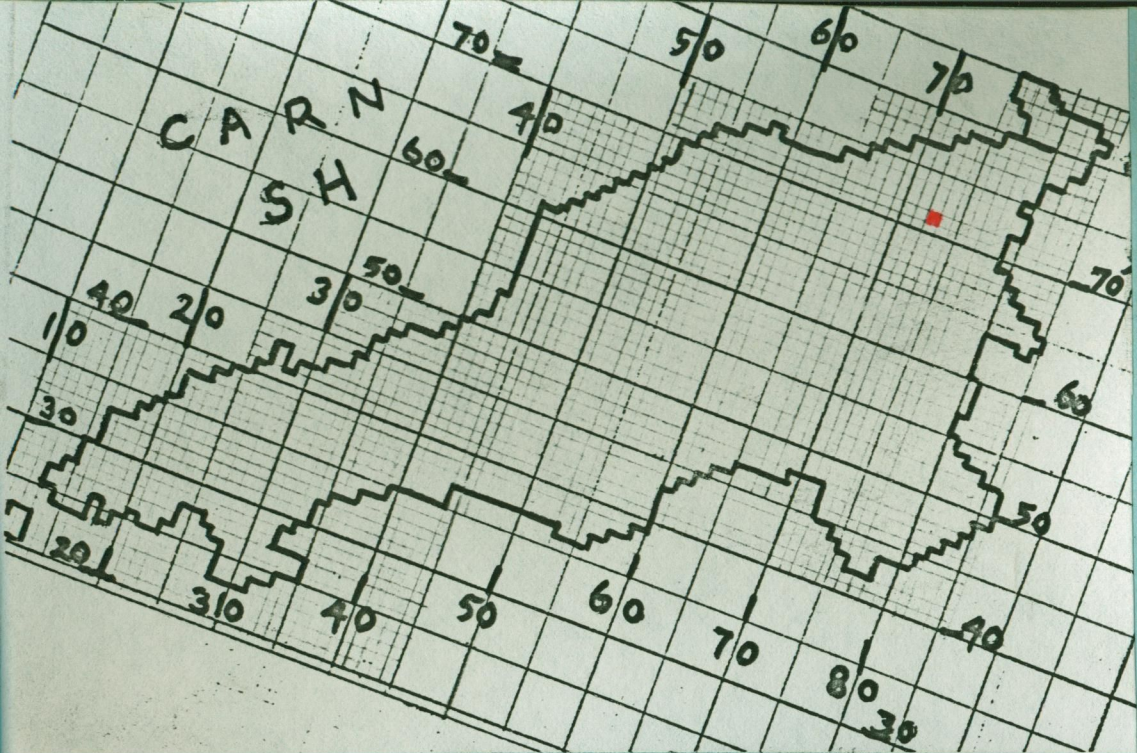


Clinzoisite

Caern

Bwlch y Ddeufaen 7271

CARN  
SH





Cobaltite

Caern

Great Ormes Head (?)

Connellite

Carn

Britannia M (carbonation) SH 61 54  
Abersoch (?)

Copiapite,

Caern.

Caec-Côch M



Copper, Native

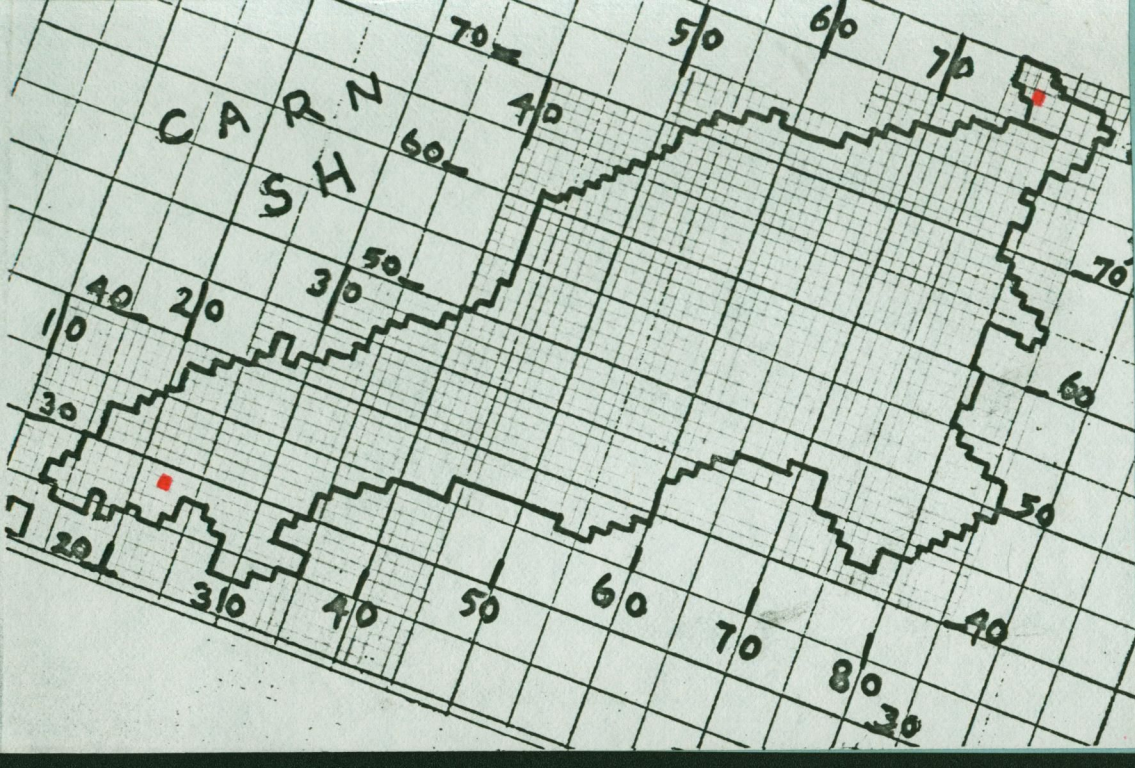
Carn

Benallt M (Rhio) 22 28

Llandudno M 77 82

Great Ormes Head

CARN  
SH



"COPPER ORE"

(See also chalcopyrite, etc) (I) CARN

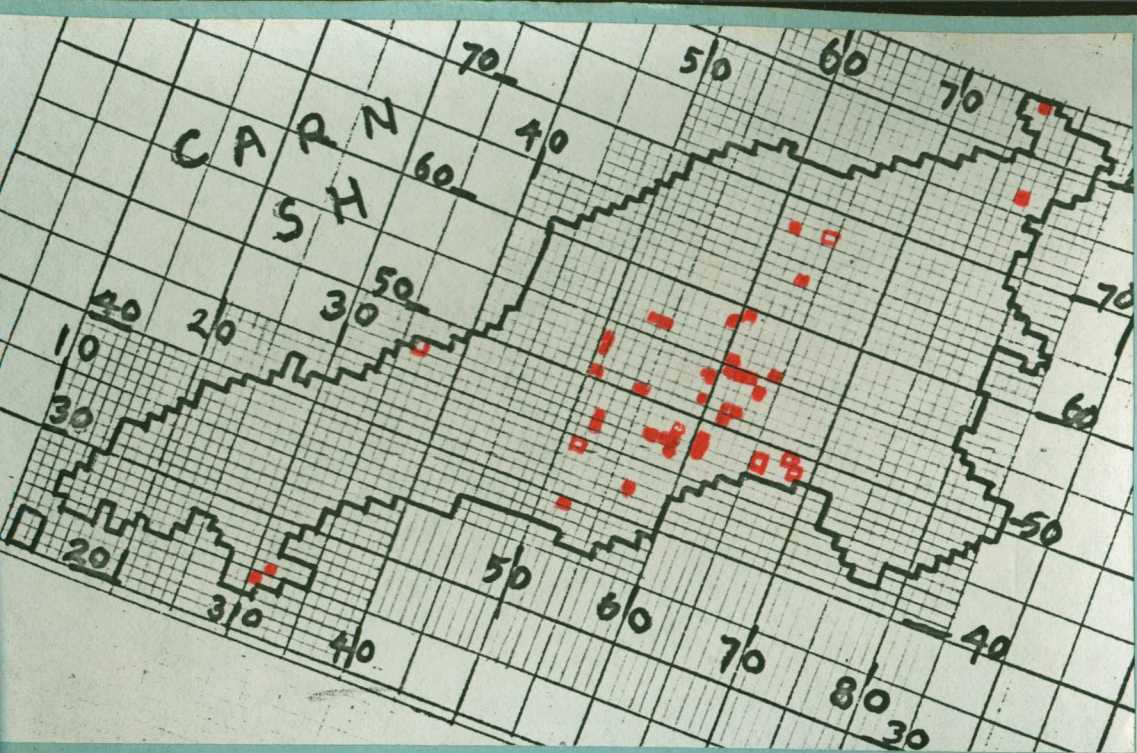
Britannia M 6154  
 Bron-y-Gadair 5239  
 Bryn-y-Felin M 5847  
 Clogwynboeth M 5953  
 Coed-y-Dinas 6167  
~~Gwyn-Gornant~~  
 Gilfach M 5246 5247  
 Glaslyn M 6254  
 Glistening Valley M 5647  
 Gwaith M 6363  
 Llanberis M 5958 6059  
 Lliwedd M 6353  
 Sygun M 6048  
 Gyffin 7776  
 Hafnant M 7684

Terflyn 6150  
 Dorlan-Du (?) 5951  
 Y-Pennant (?) 5951  
 Hafod-y-Llan 6251  
 Y-Guallt 6151  
 Pen-y-Pass 6455  
 Llyn-du'r-Arddu 6055  
 Clogwyn-Coch 6054  
 Gyrn-Wigau (?) 6467  
 Gallt-y-Mawr (?) 6467



"Copper Ore" (II)

Carn



COTUNNITE

Caern.

Penrhyn (Du) Mine.



Covelline

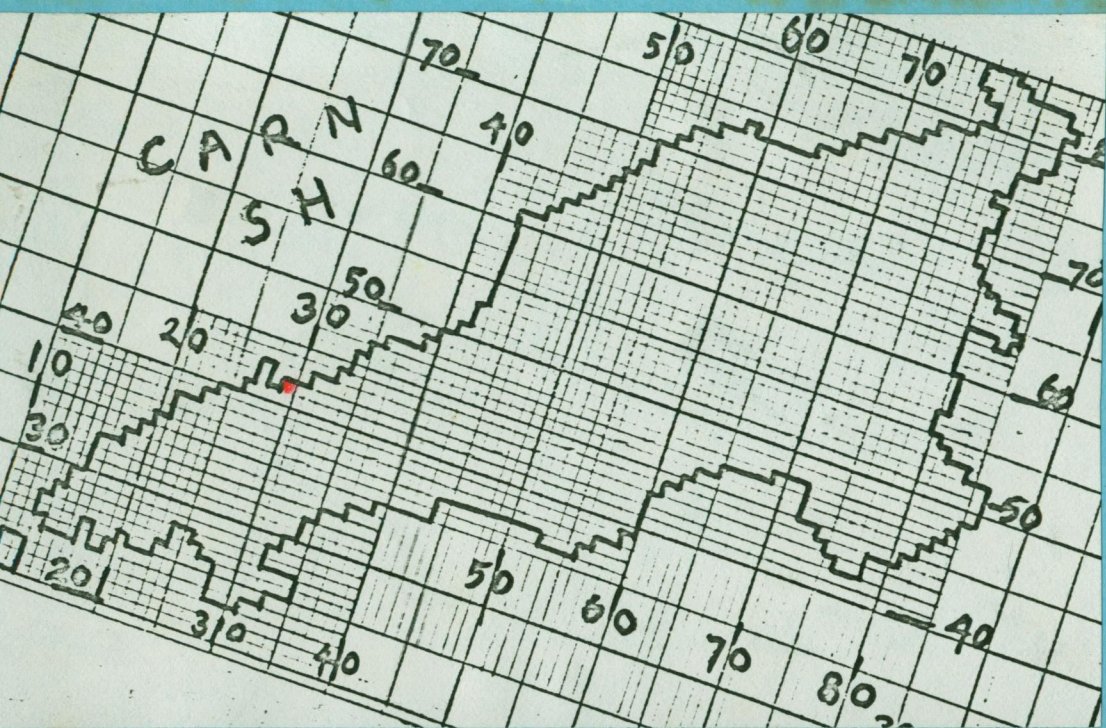
Caern

great Orms Head

CROSSITE

Carn

Monfa Nefyn SH 2941





Cumengeide

Caern

Abersoch

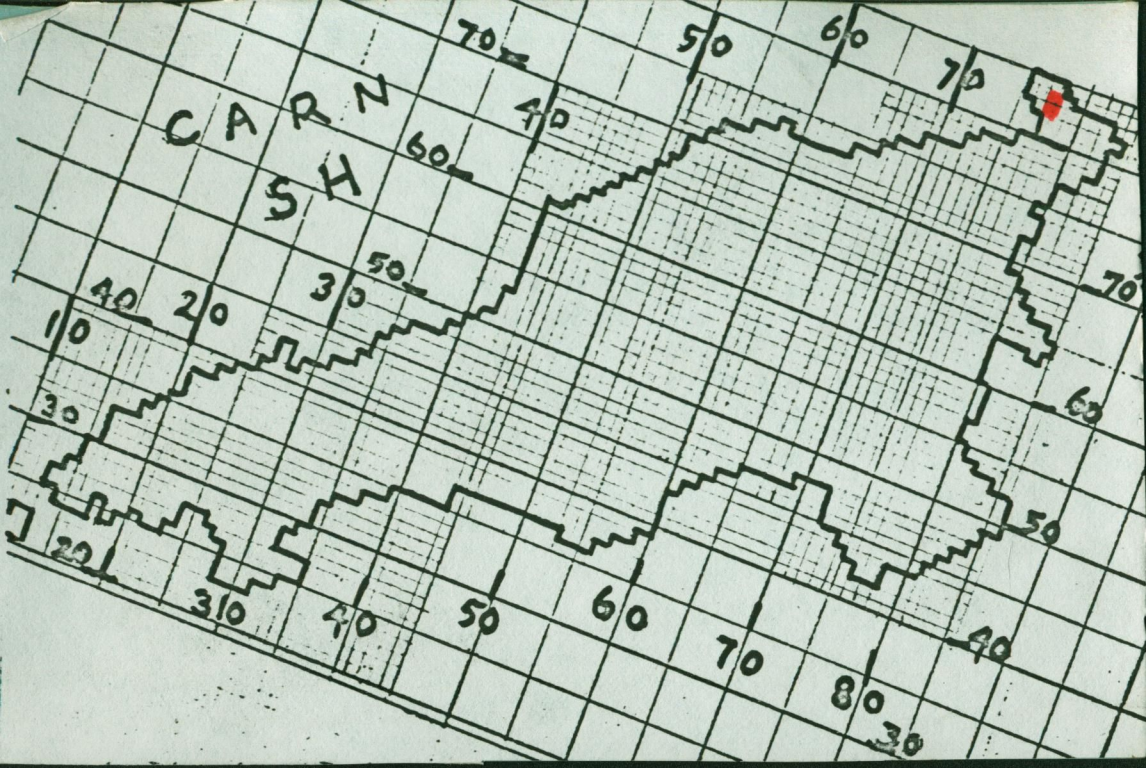
CUPRITE

CARN

Gt. Ormes Head

Llandudno M 7782 7783

CARN  
SH



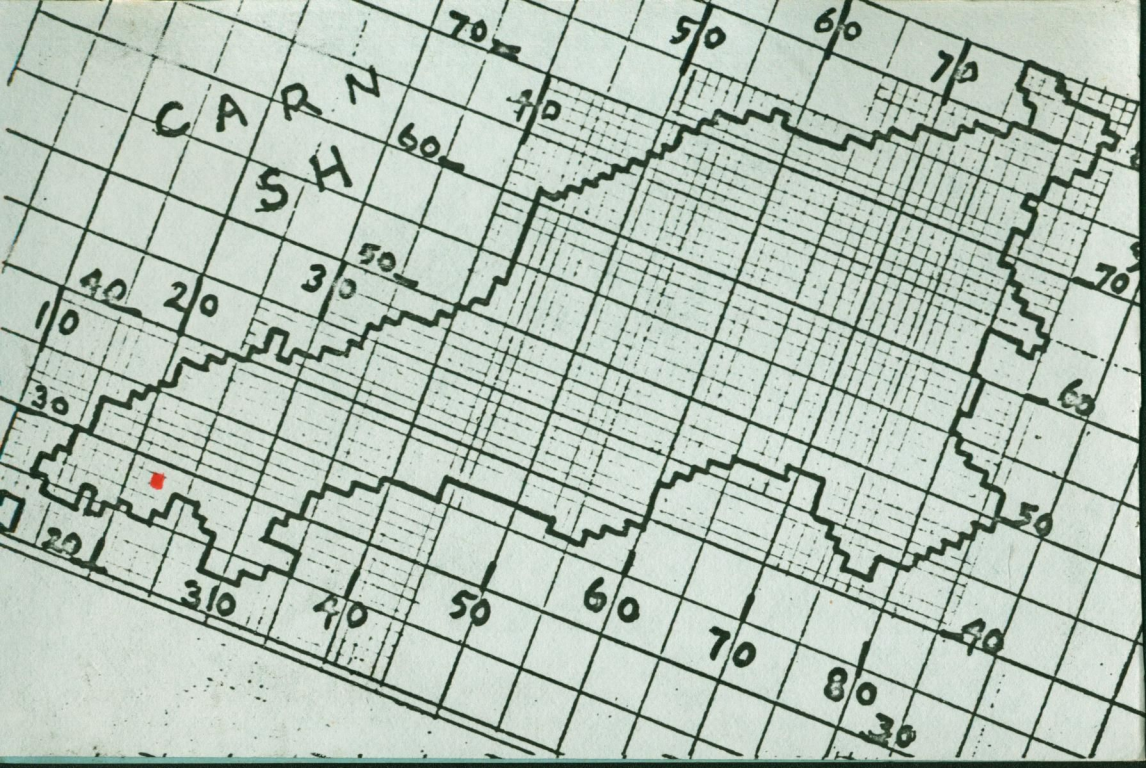


Cymrite

Caern

Benallt mine (Rhio) 2228

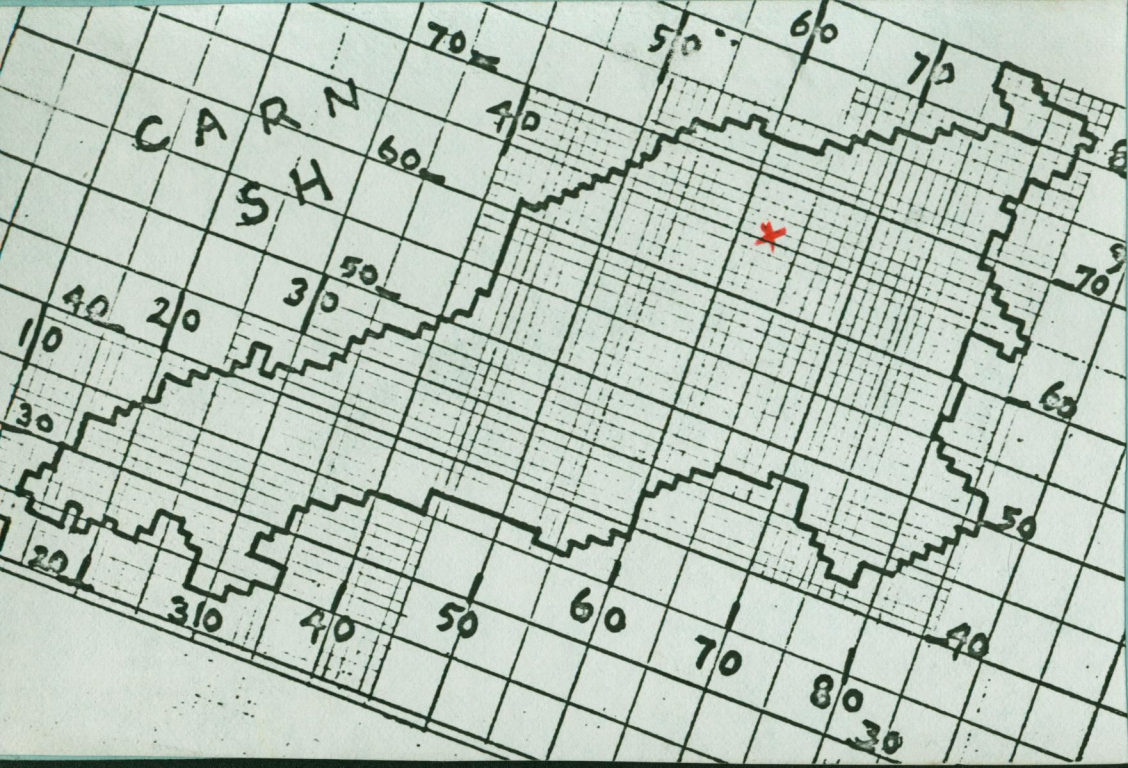
CARN  
SH



"Daphnite" (Mg-chamosite) Carn  
(See also Chloite)

Pennsylv. Slate Qs ~ 6265

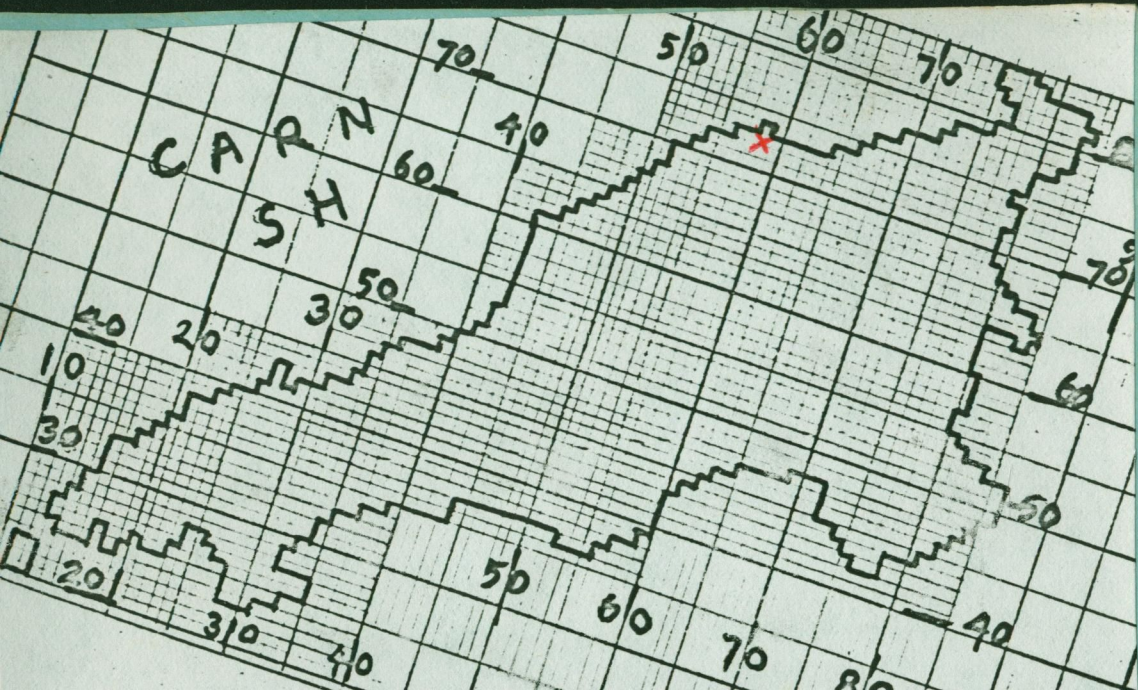




Dickite

Caern.

Bangor ~ 5872





Digenite

Caern

great Ormes Head

Djurleite

Caern

great Ormes Head

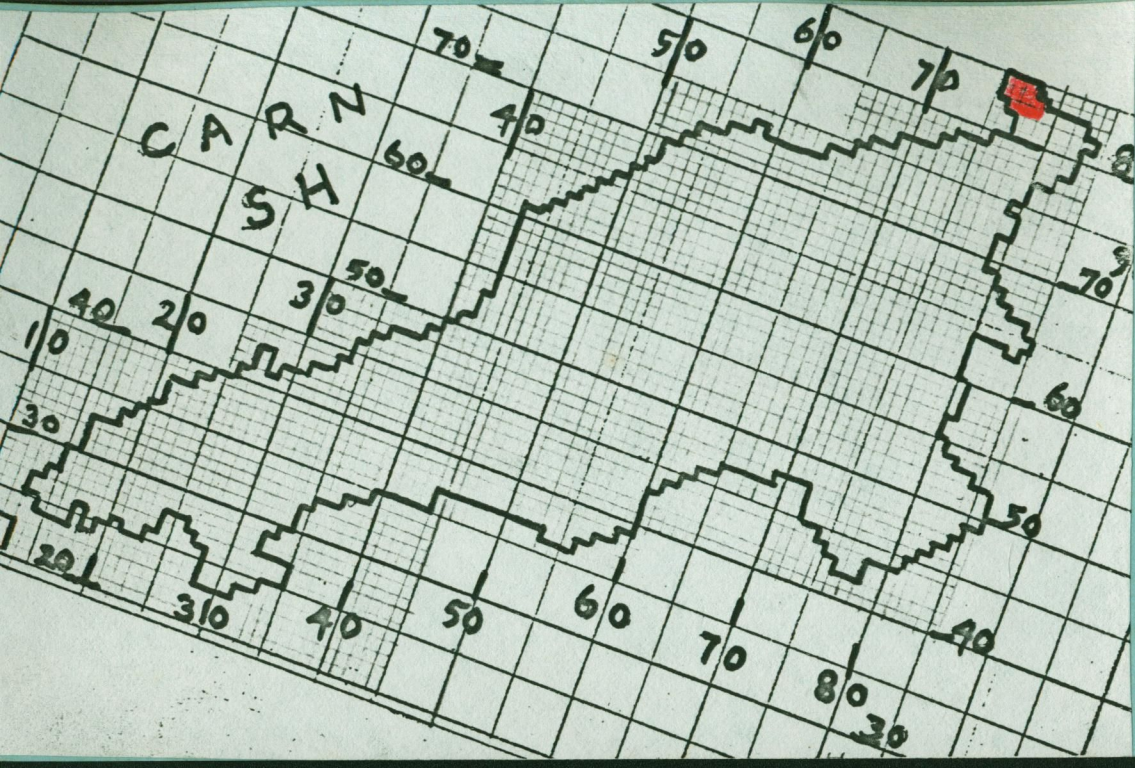
DOLOMITE

CARN

Gt. Ormes Head 7583 7584 7682 7683 7684 7782 7783  
Llandudno M 7782 7783 7882 7883



CARN  
SH



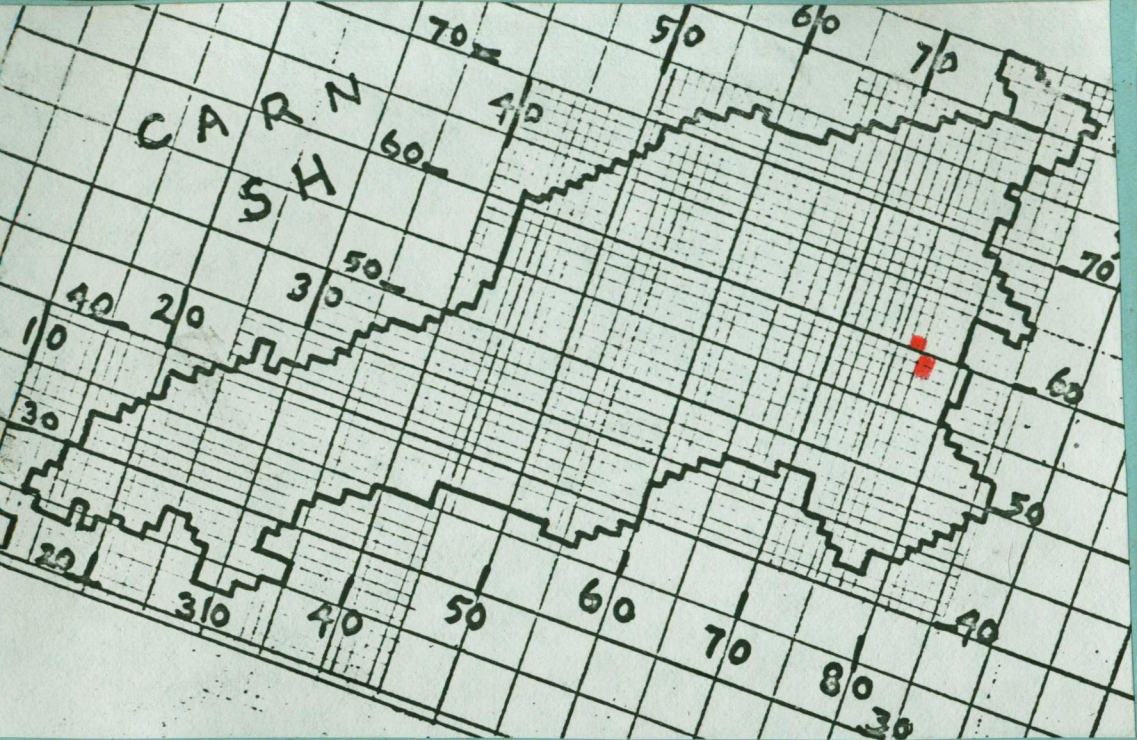
DUNDASITE

CARN

Cyffty M 7758 7759

Gorlan M 7759

Welsh Foxdale M 7660





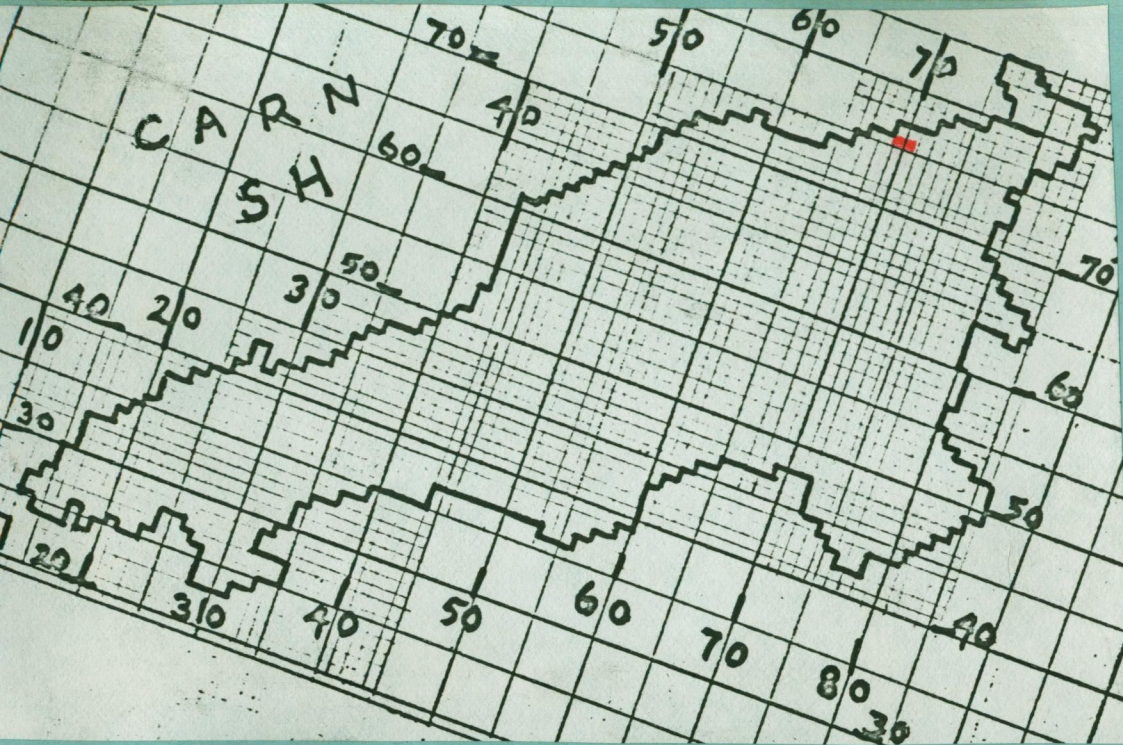
ENSTATITE

CARN

Penmaenmawr Q ~

6975  
7075

C A R N  
S H



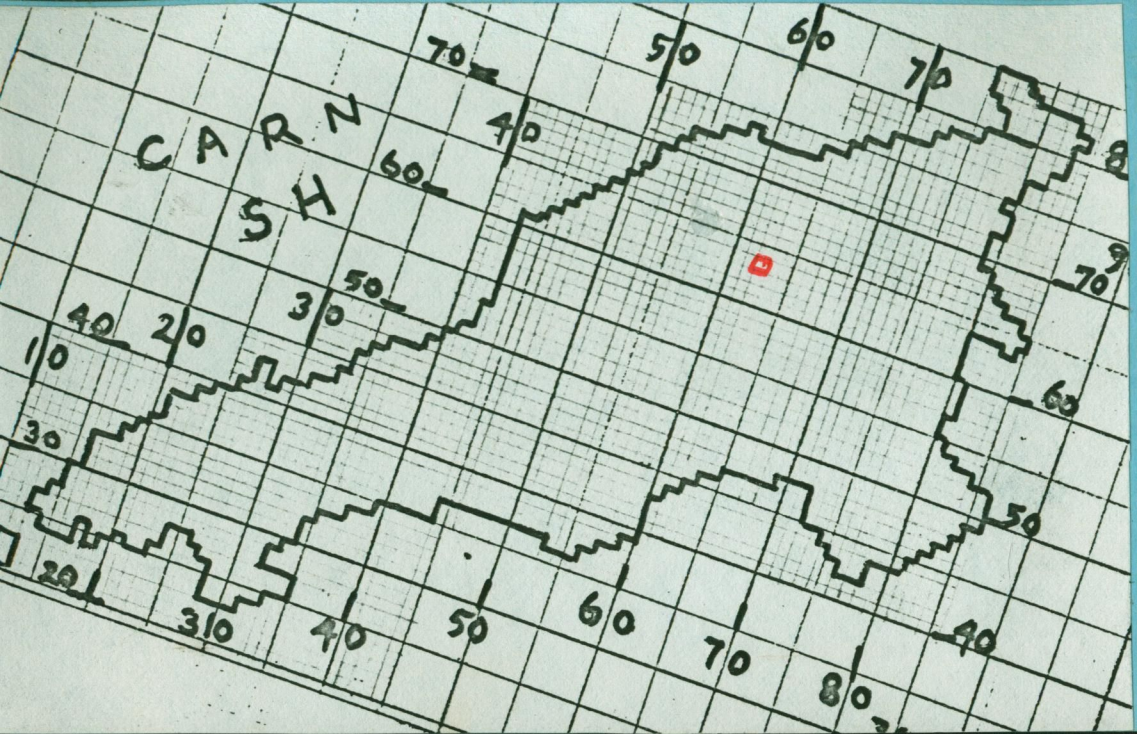
"Eupithe"

Coarct

Cernant M; Nant Francon (??) 6263



CARN  
SH



EPIDOTE

CARN

Dinorwic Q ~ 5960

Graig Lwyd Q 7175

Llanberis ~ 5760 ?

Llanberis Valley 5-6-76-5-1

Morfa Nefyn 2741-2742

Rhiw ~ 2228

Llyn Llewelyn ~ 5650

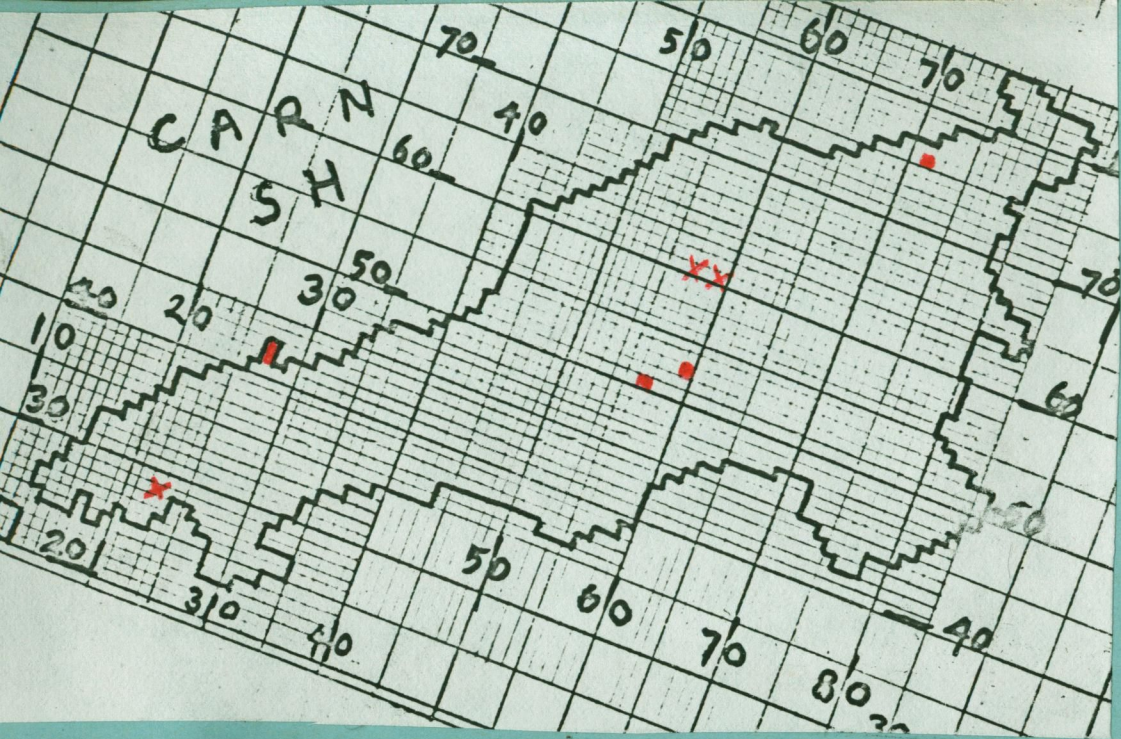
Parc Cae-mawr 5650

Snowdon ~ 5952

Y-Pennant ~ 5952

Benallt M.

CARNSH



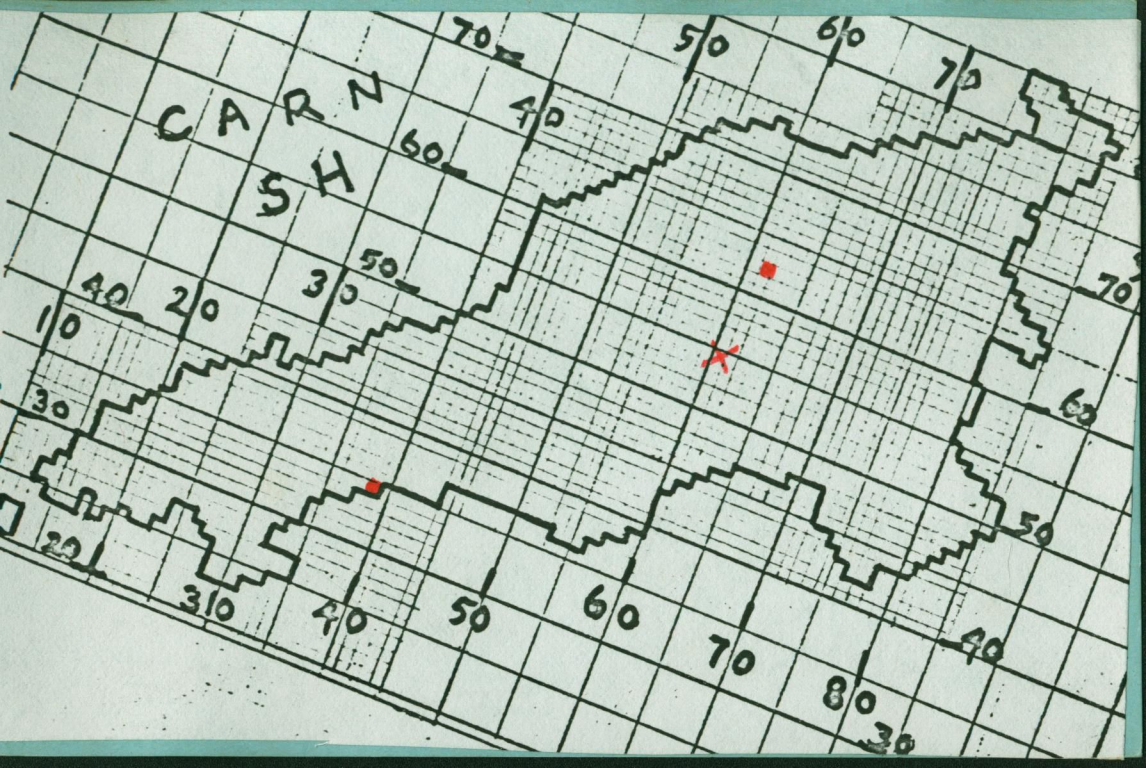


"FELSPAR"

CARN

Gimlet Q 3834  
Marchlyn Mawr 6162  
Snowdon ~ 6054 (55 → 65)

CARN  
SH



Fibroferrite

Caern.

Caecoch M



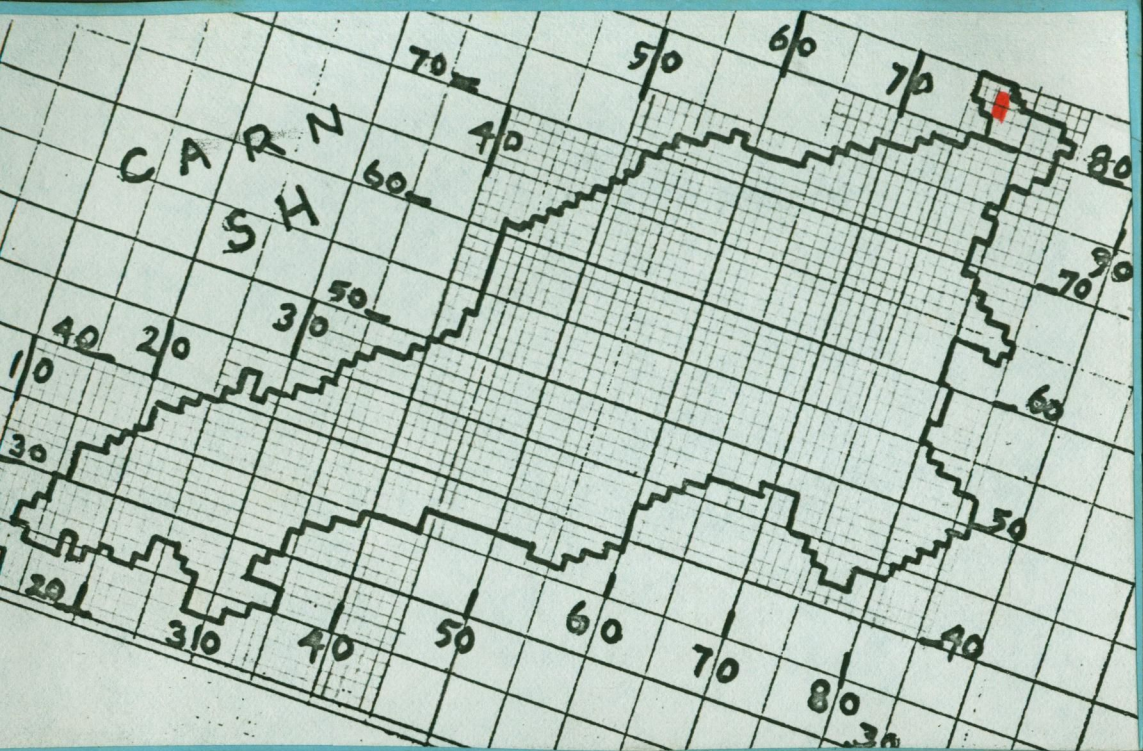
Fluorite

Caern

St Orme's Head.

St Orme's Head 7782 7783

CARN  
SH



Franckweite

Carn

Bwlch M. 78 79



# GALENA and "LEAD ORE" (Pb) (I)

CARN

Assheton M 3226  
 Beddgelert M (5948?)  
~~Benallt M (4815)~~  
 Bryn-Eisteddfod M 7859  
 Bwlch M 7879  
 Bwlch-y-Tocyn M 3126  
 Clogwynboeth M 5953  
 Cwm Merch M 6353  
 Dangoch M 3026  
 Drws-y-Coed M 5453  
 Gorlan M 7759  
 Great Ormes Head 7782 7783  
 Hafna M 7860  
 Klondyke M 7662  
 Llanberis M 5958 6058  
 Llandudno M 7782 7783

Llanrhwst M 7759 7859  
 Lliwedd M 6353  
 Mountain Lode M 5353  
 Pant-Gwyn M 3027  
 Parc M 7860  
 Penrhyn Du 3226  
 Pen-y-Gaer M 2928  
 Pen-yr-Allt M 7957  
 Pool M 7858  
 Porth Nigel M 2926  
 Tal-y-Sarn M 5353  
 Tan-y-Bwlch M 3026  
 Trefriw Ms 7763  
 Welsh Foxdale M 7660  
 West Assheton M 3126 PTO  
 Terfryn (Pb) 6150

Pb,

Tynewydd (?) 29 24

Nant-pig ~ 31 25

Marchrös 31 26

Penrhyn M, Llanengan 32 26

Llanengan (Ag) 29 27

Benallt M, (Llandwrog) 53 53

Glyn M. 75 57

"Llanrwst" one field -

Tan-yr-Eglwys M 77 61

Trecastell M 76 74

Gest M. (5438, 5439, 5538, 5539 ?)

Hafod-y-llan 62 51

Cae-côch M 77 65

Coed-Gwydir M <sup>77 64</sup> 78 63

Jelli Lydan M 76 63 <sup>78 62</sup>

Pant-y-Carw level

Ty'n Twll 78 61

Ffriith-Sian M 78 60

Akellyn 79 57 79 58

Ffridd M ("Pbone") 78 58

Llanrhychwyr <sup>77 61</sup>

Lledwigan ("Pbone") 75 62 <sup>76 62</sup> 76 63

Caerkegla M ("Pbone") <sup>76 65</sup>

Tai-Isaf-Arddal ("Pbone")

# GALENA, "Lead ore" (Pb) II

Caern

Britannia M 6154

Gwaith M 6363

Pared-Mawr (Pb) 3024

Clynnog (Pb)(?) 4347

Trwyn-y-Tal (Pb)(?) 3647

Bron-y-Gadair (Pb)(?) <sup>52</sup><sub>39</sub>

Portmadoc M. (Pb) -

Bryn-y-Felin M (Pb) 5847

Nantmor (Pb)(?) 6548

Craig-y-Gorn (Pb)(?) 5144

Blaen-y-Rennant 5446

Dinas M 5347

Cwm Ciprwth (?) 5247

Cwm dwyfor (Pb) 5450

garnedd-goch (Pb) <sup>50</sup><sub>50</sub>

Moel Lledr (Pb)(?) <sup>68</sup><sub>48</sub>

Moel Ffleiddiau <sup>6749</sup>

Sygun M 6048

Cyffty M (Pb) 7758 7759

Twll-maen-gwisal

Abersoch



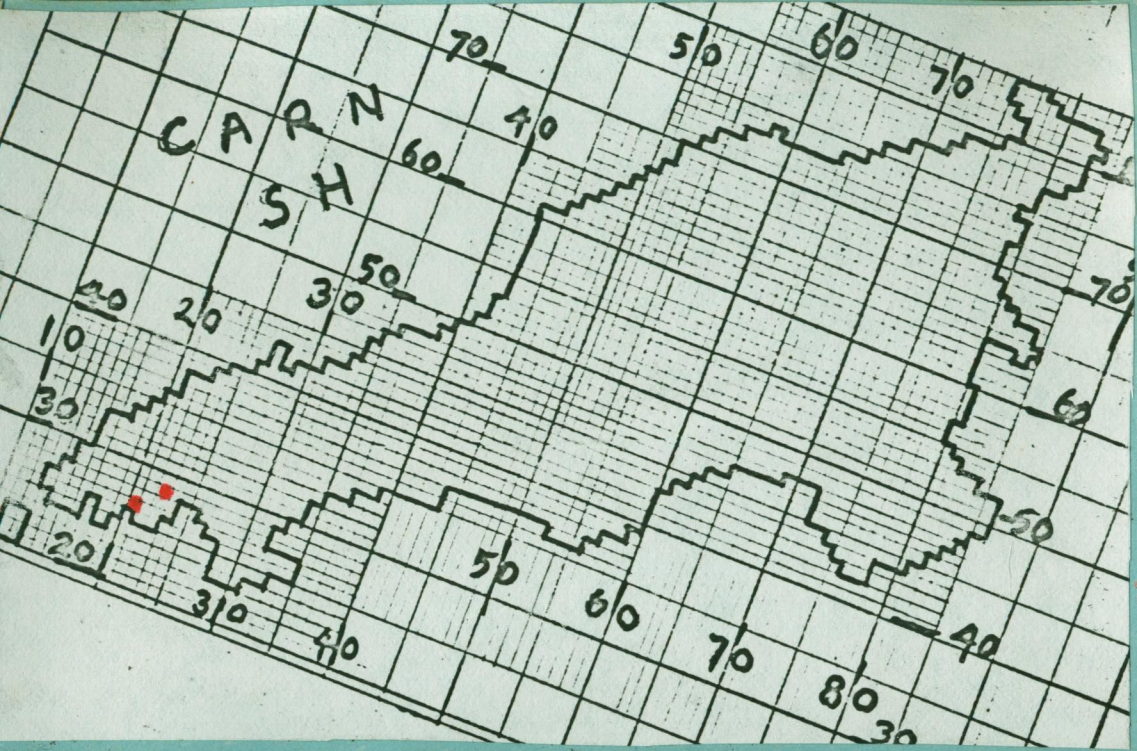
A hand-drawn map on a grid, likely a coordinate system. The grid has numerical labels along the edges, such as 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100. The text "CARN SH" is written in the upper left. The coastline is irregular, with a large bay on the right side. Red dots and crosses are scattered across the map, with a cluster of dots in the upper right and a cluster of crosses in the lower left.

Ganophyllite

Caern

Benallt mine (Rhio) 2228

Nant mine 2026





"GARNET" (unspecified. See also species) CARN

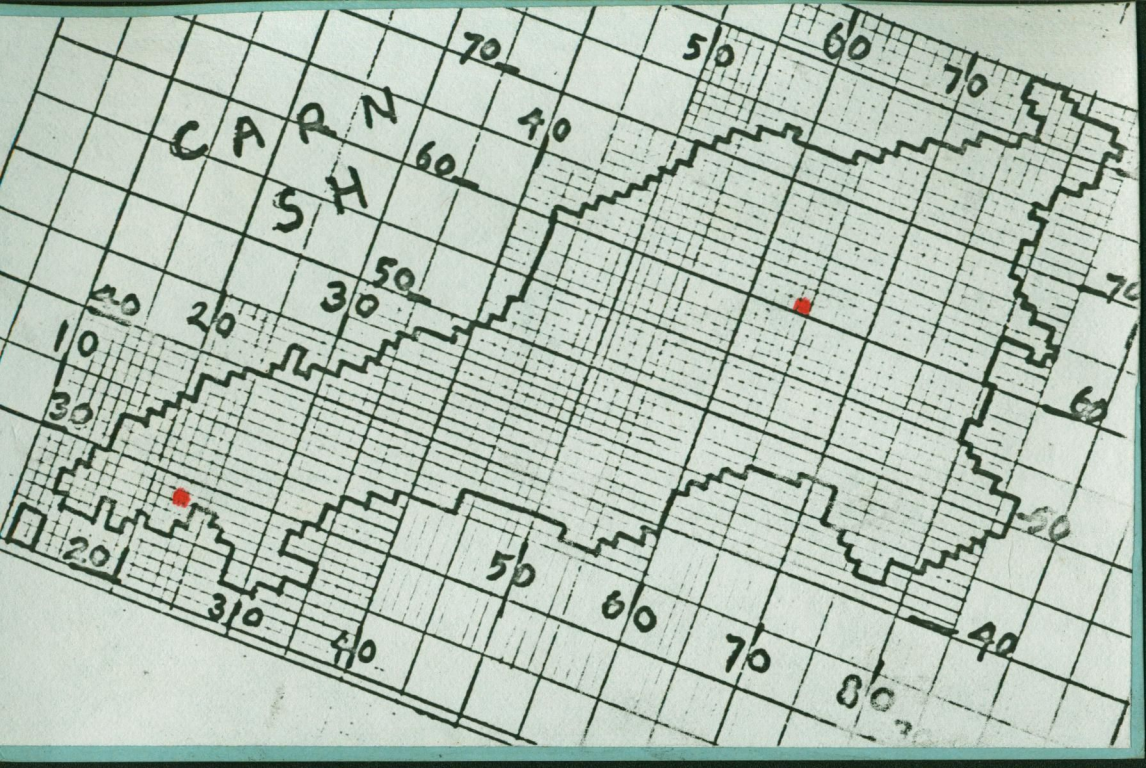
Nant Ffrancon 6460

Benallt mine (Rhio) 22 28

Blaen-y-Nant 6460

CARN

SH



Georgeite

$\text{Cu}_2\text{CO}_3(\text{OH})_2$ , amorph.

Caern

Britannia mine.



Gersdorffite

Caern

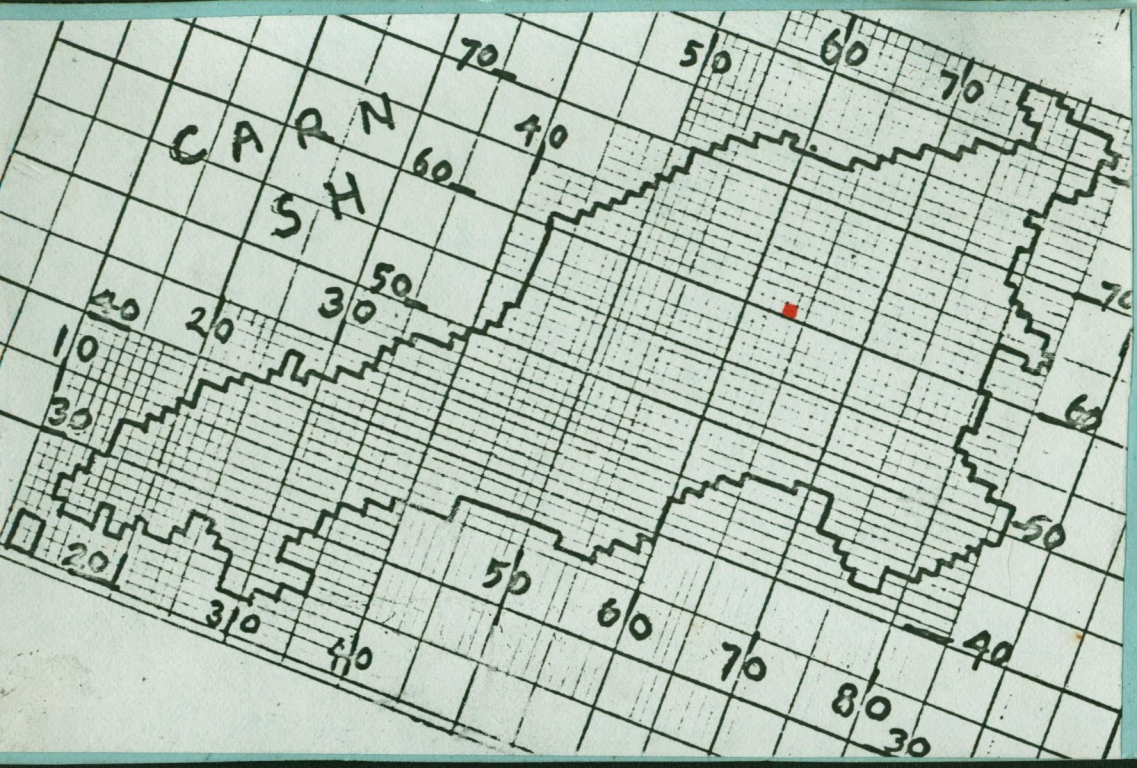
Great Ormes Head ~~XX~~

coatings in "hydrocarbon"

Gibbsite

Carn

Bwlch-y-Cywion 63 60





Glaucozerinite - (Cu) Caen

Tal-y-Sarn M. (Error for hydrowoodwardite)  
Dru-y-Coed M.

(L) (O)

GOETHITE including "LIMONITE", "OCHRE" &c. CARN

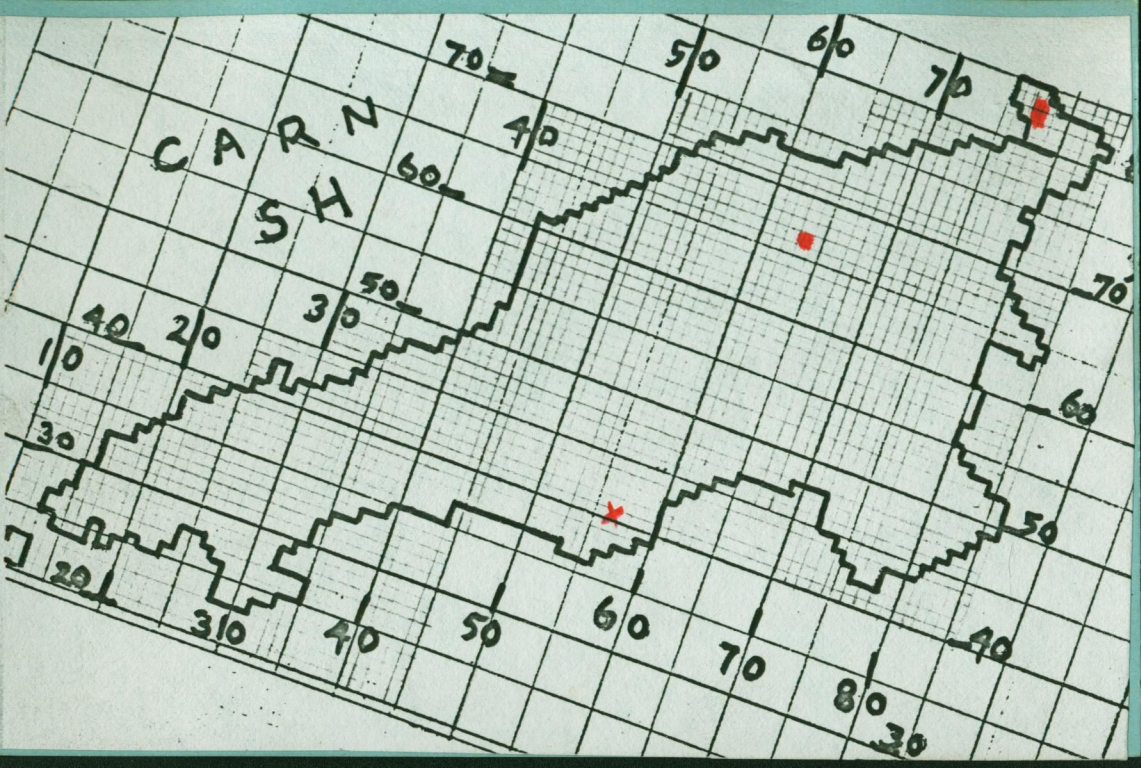
Great Ormes Head }  
Llandudno M (L) } 7782 7783

Tan-y-garth M 63 66

Tremadoc (L) ~ 5640

"Llanrwst" orefield (O)-

CARN  
SH



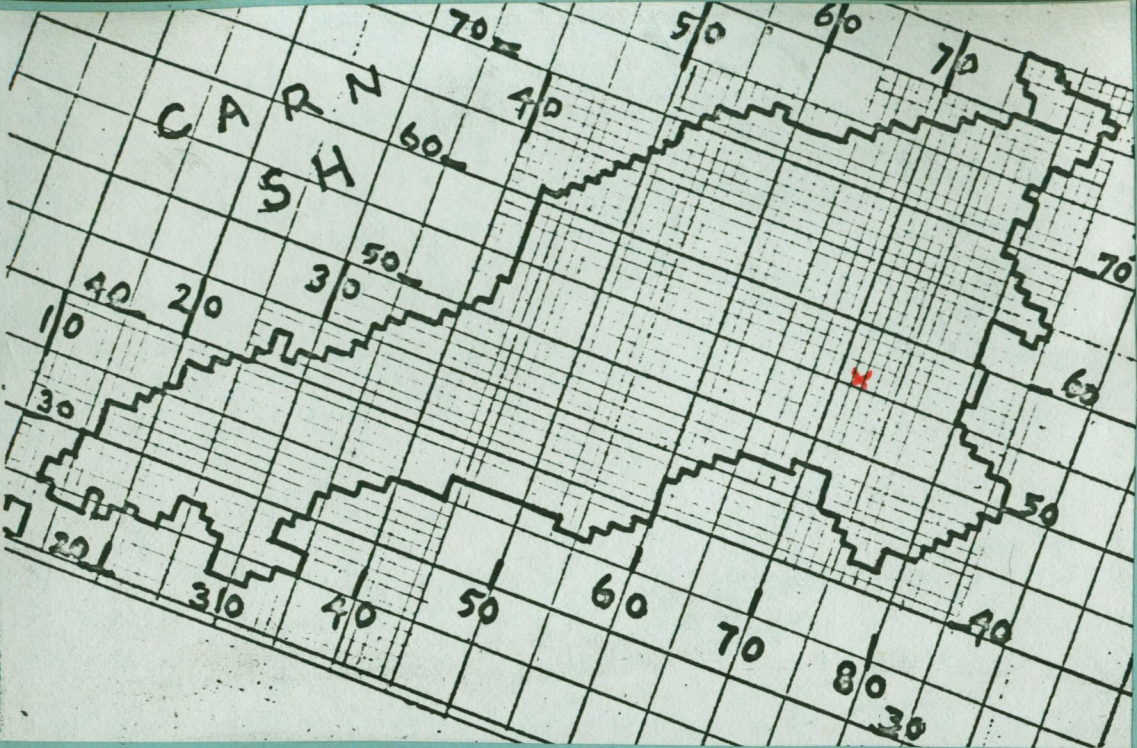


GOLD

CARN

Moel Siabod ~7155(?)

CARN  
SH



Gorceixite

Caern

Benallt M.



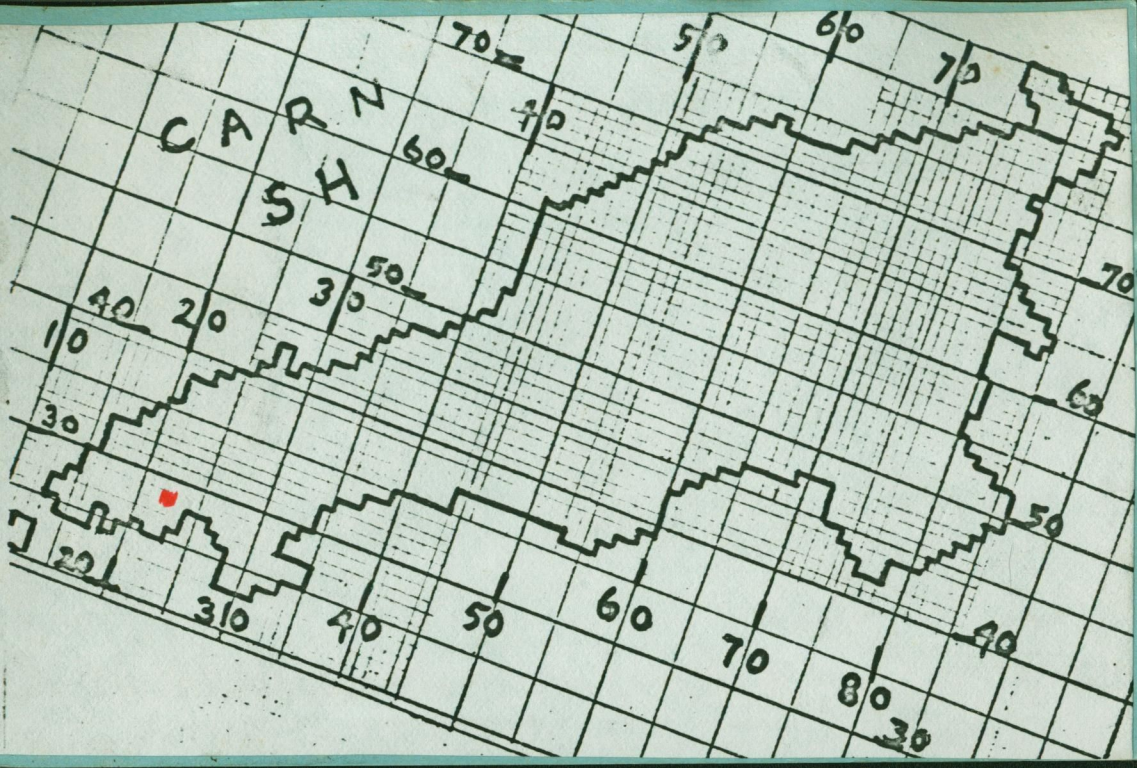
"Grovesite"

DISCRED.

Caern

Benallt mine (Rhio) 2228

CARN  
SH



Gypsum

Caern

Britannia M. SH 6154

Caen-Côch M. SH 7765



Haematite

Carn

Bethus Garmen

54 57-5558

Banger ~ 5872

Pare mine 7860

Snowdon

Halloysite

Caern

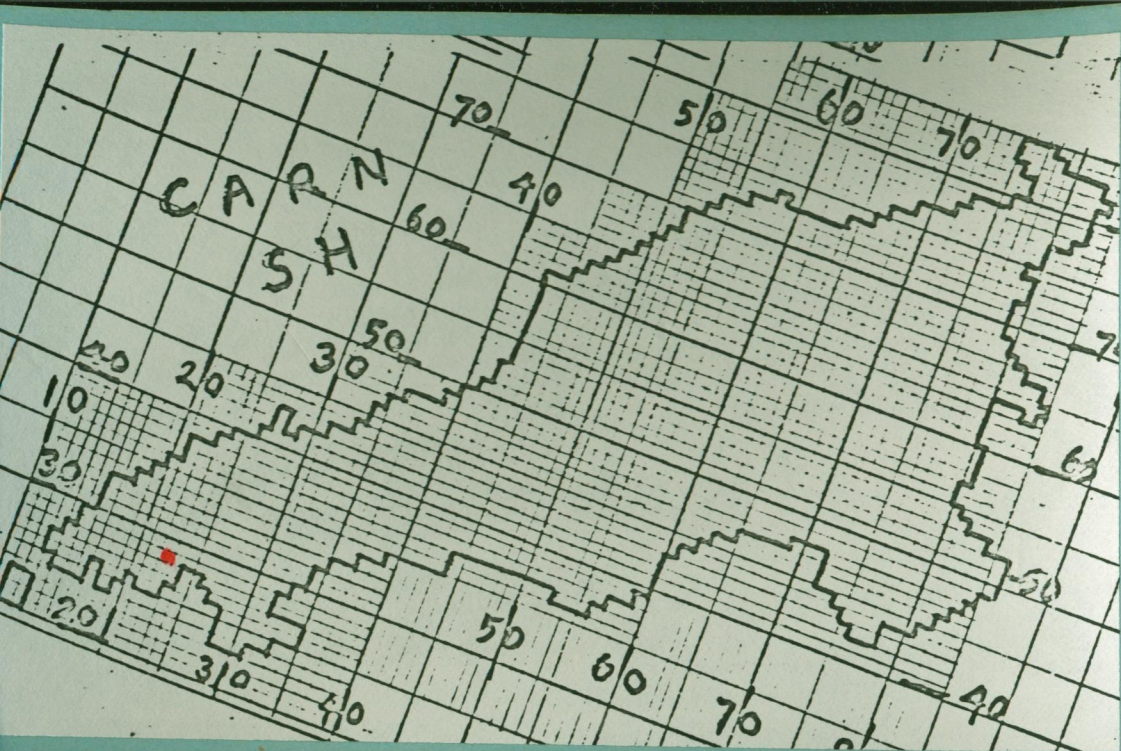
Twll maen-gisial

Harmotome

Caern

Benallt mine (Rhio) 2228



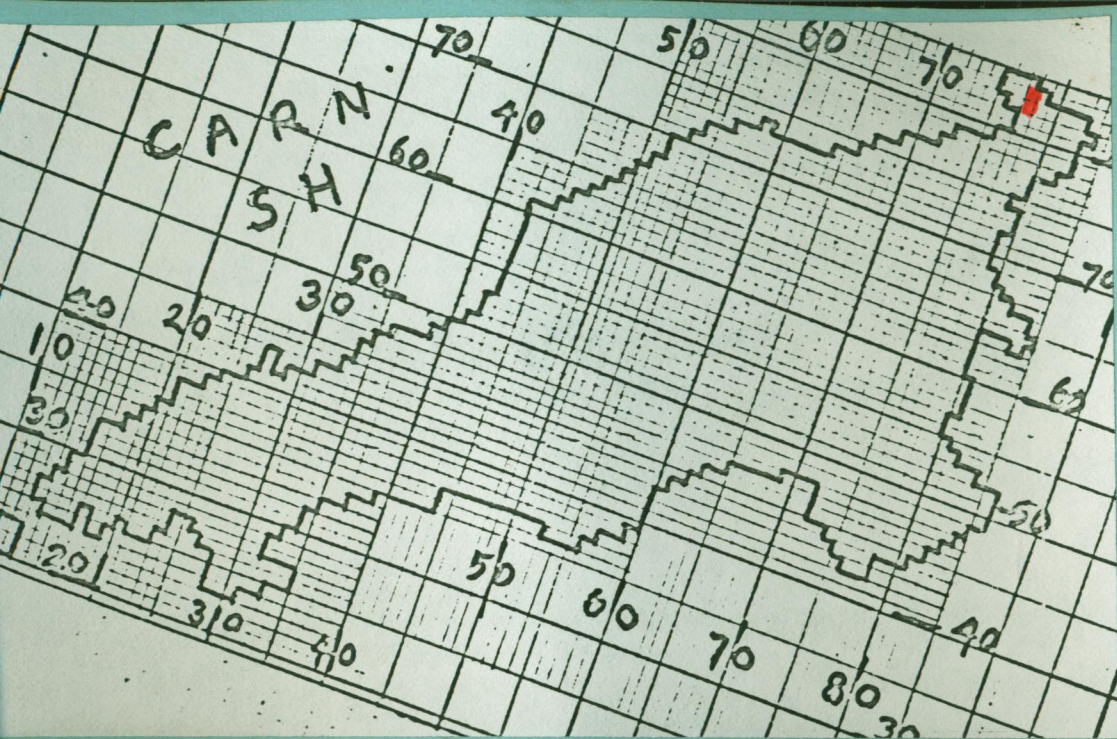


HEMIMORPHITE

CARN

Great Ormes Head

7782 7783





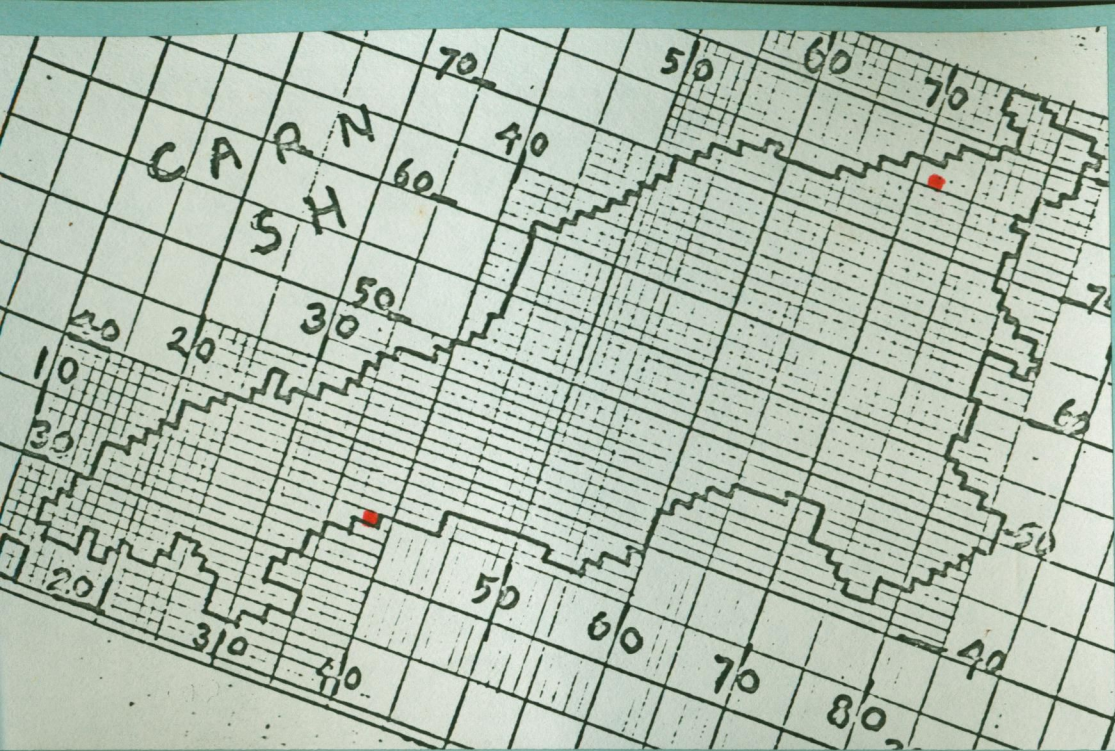
HORNBLENDE

CARN

Gimlet Q 38 34

Graig Lwyd Q 7175

Mynydd Mawr [error for Rebeckite]



Hydrowoodwardite

Caern

Tal-y-Sarn M.



Hydroxyapatite

Caen

Kvill-maen-grussial 5841



HYDROZINCITE

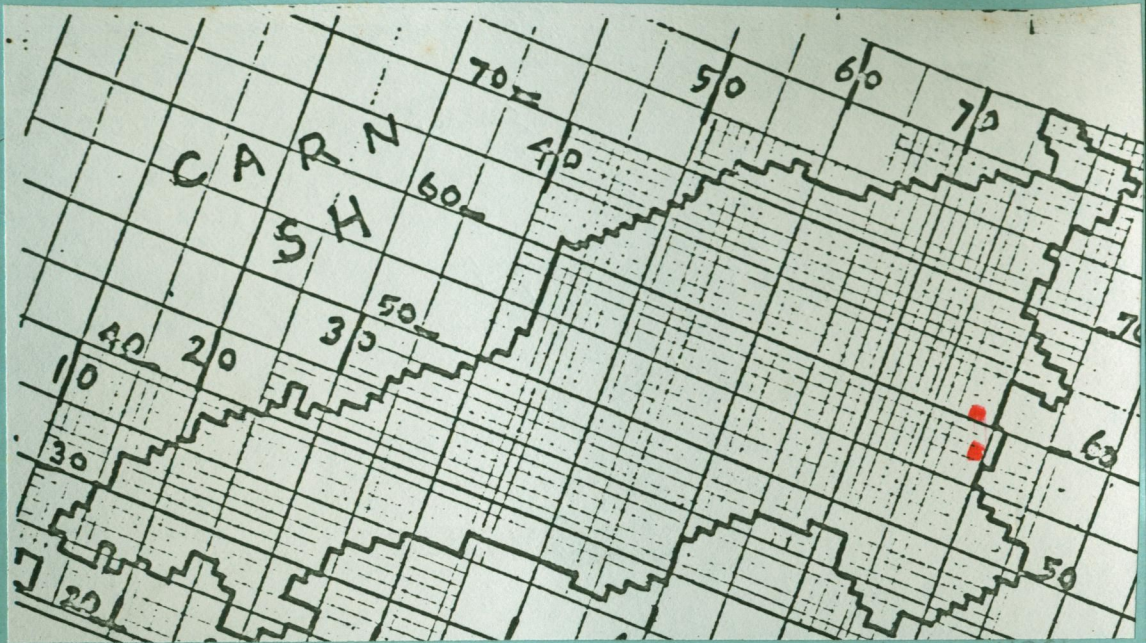
CARN

Abellyn M 79 57

Ffrith-Sian, M 7860

Pare mine (including  
nickeloan) 7860





Contour

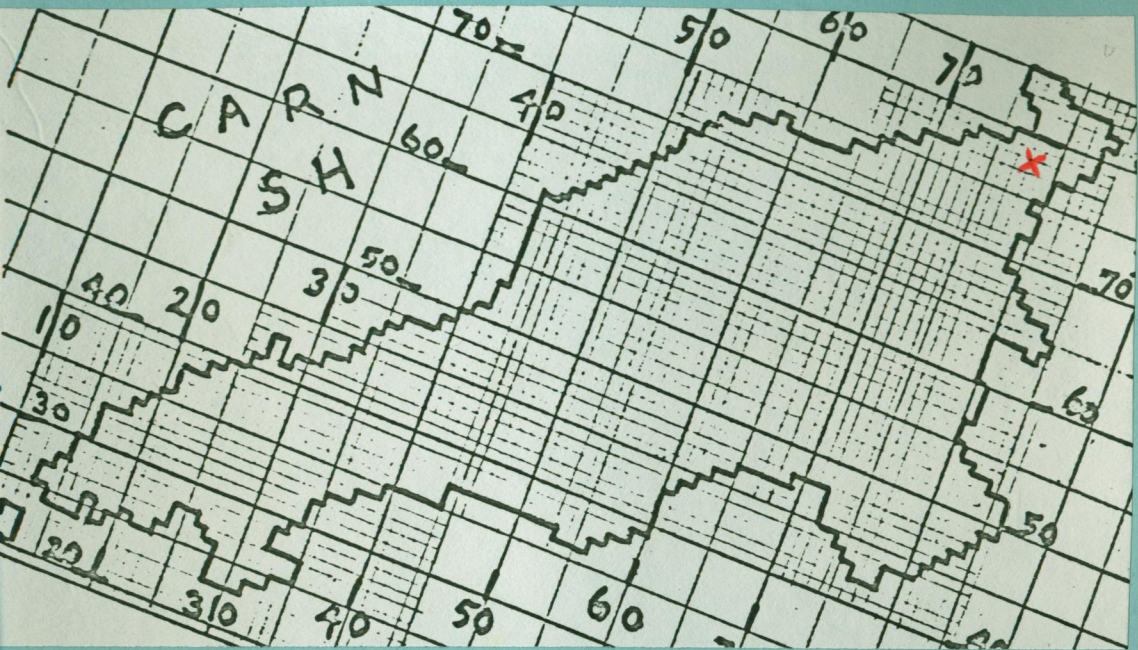
8 months

Illite

Caern

Conway ~ 7877

Two-man-quial





ILMENITE

CARN

Penmaenmawr Q 6975 7075

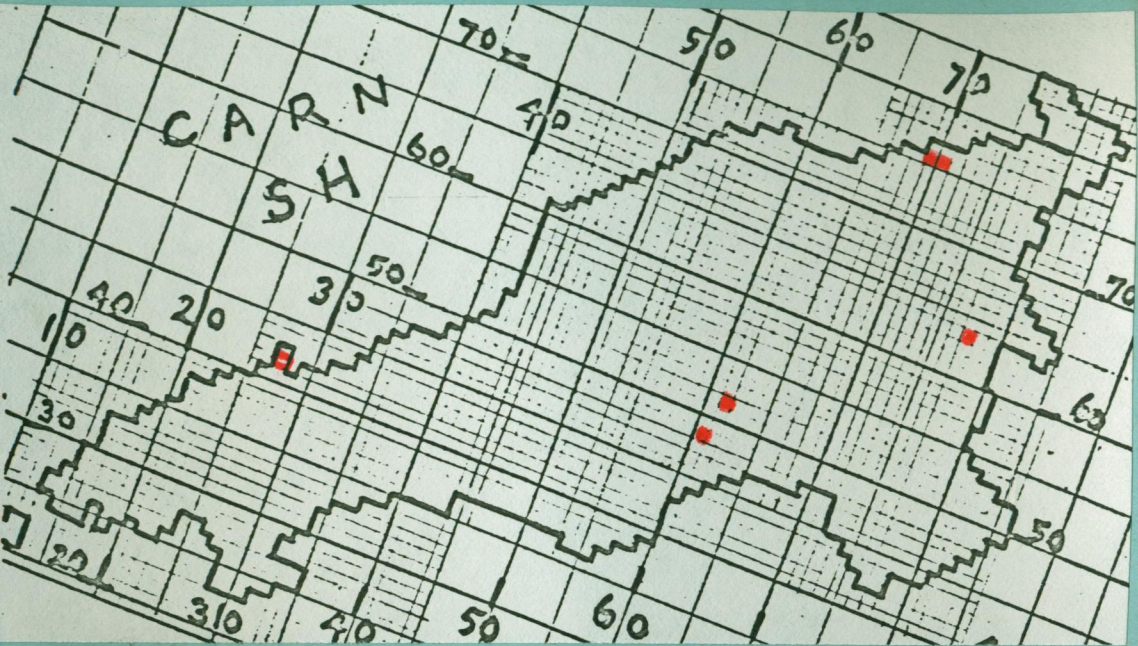
Trefriw 7763

Monfa Nefyn(?) 2741

Sygun M. 6048

Snowdon 6151

Tuill-maen-grisial



"IRON ORE"

CARN

Benallt M (Rhiw) 2228

Bettws Garmon 54 57

Nant Ffrancon 6460

Penrhyn M, Llandegai 6072

Llanengan 29 27

Pen-yr-Allet M 7957

Carnarvonshire -

Pwllheli ("pisolitic iron ore") ~ 3735

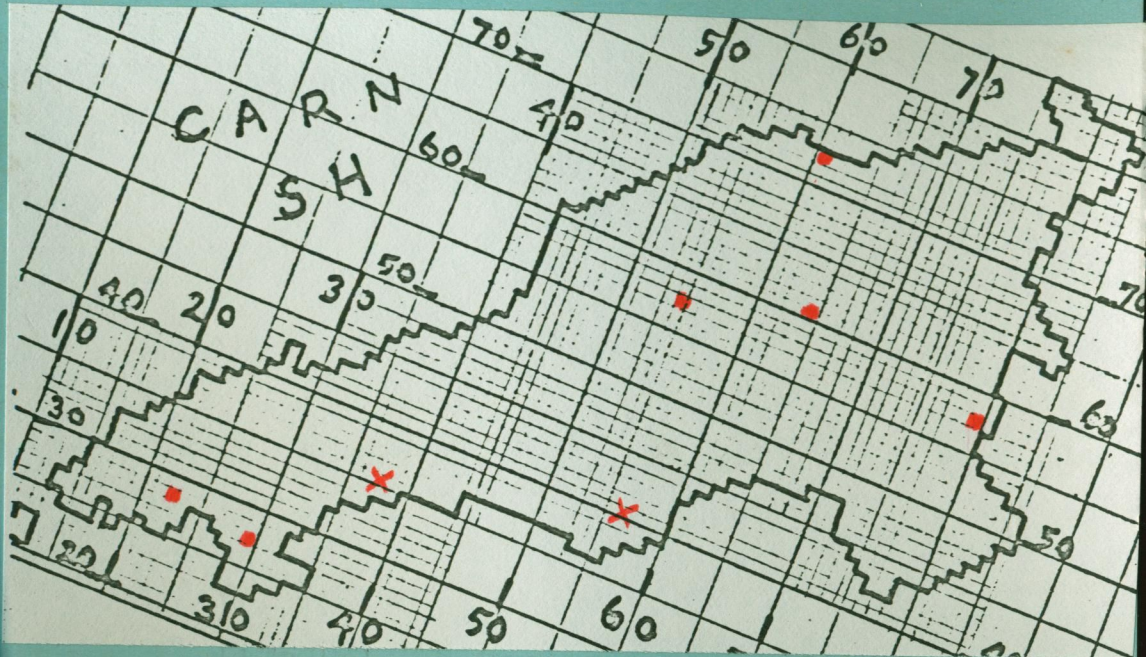
Llandegai ("pisolitic iron ore")

Tremadoc ~ 5640

blaen-y-Nant 6460



~~SH~~

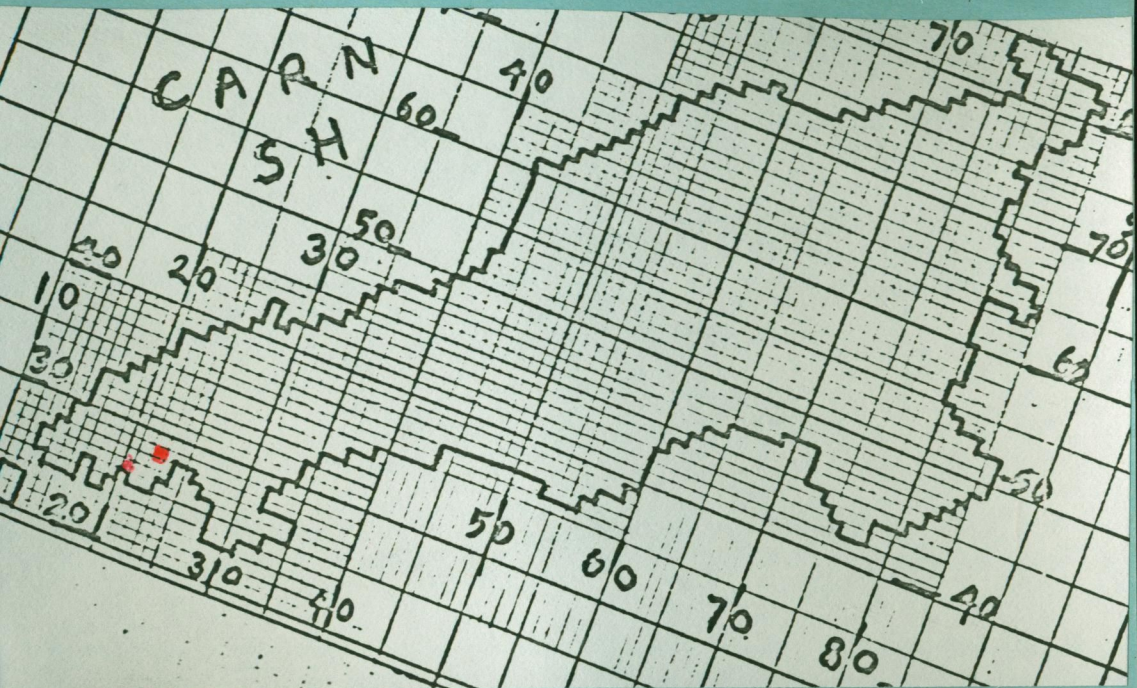


Jacobsite

Caern

Benallt mine (Rhiw) 2228

Nant M 2026

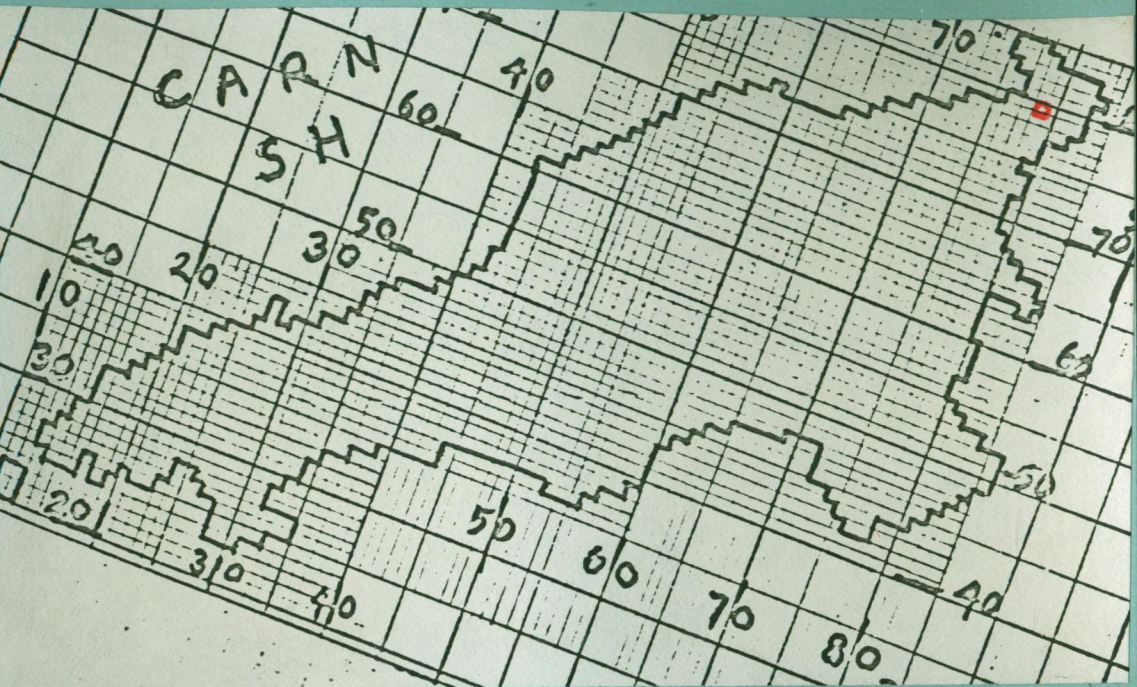




JAMESONITE

CARN

Bwlch M (?) 78 79



Kaolinite

Caern

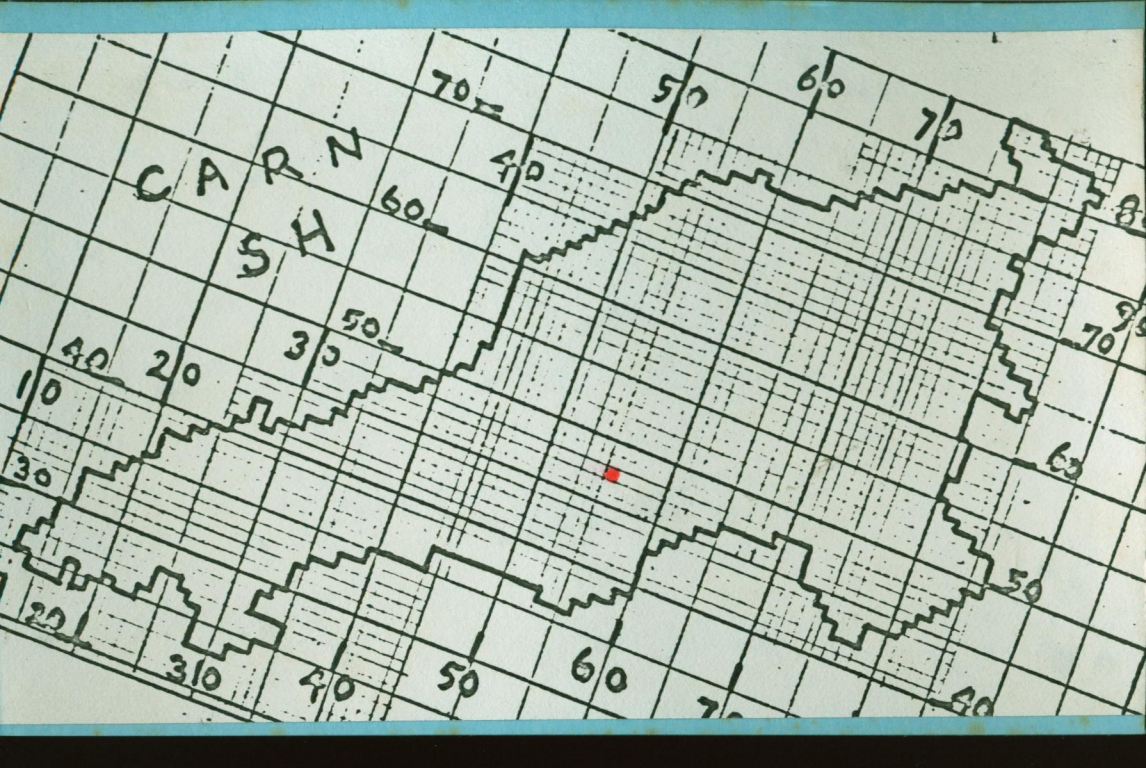
Great Ormes Head (Clay)



Langite

Caern.

Cwm Llefwrth 5547



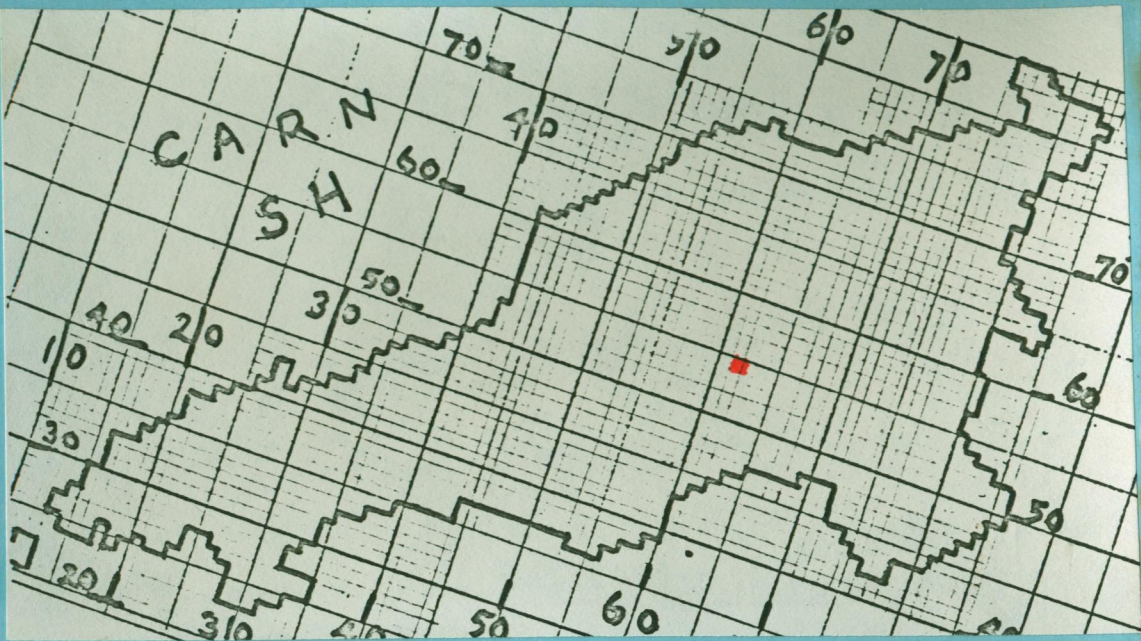
Lanthanite (ex "Pygite")

Caern

Britannia M SH 6154



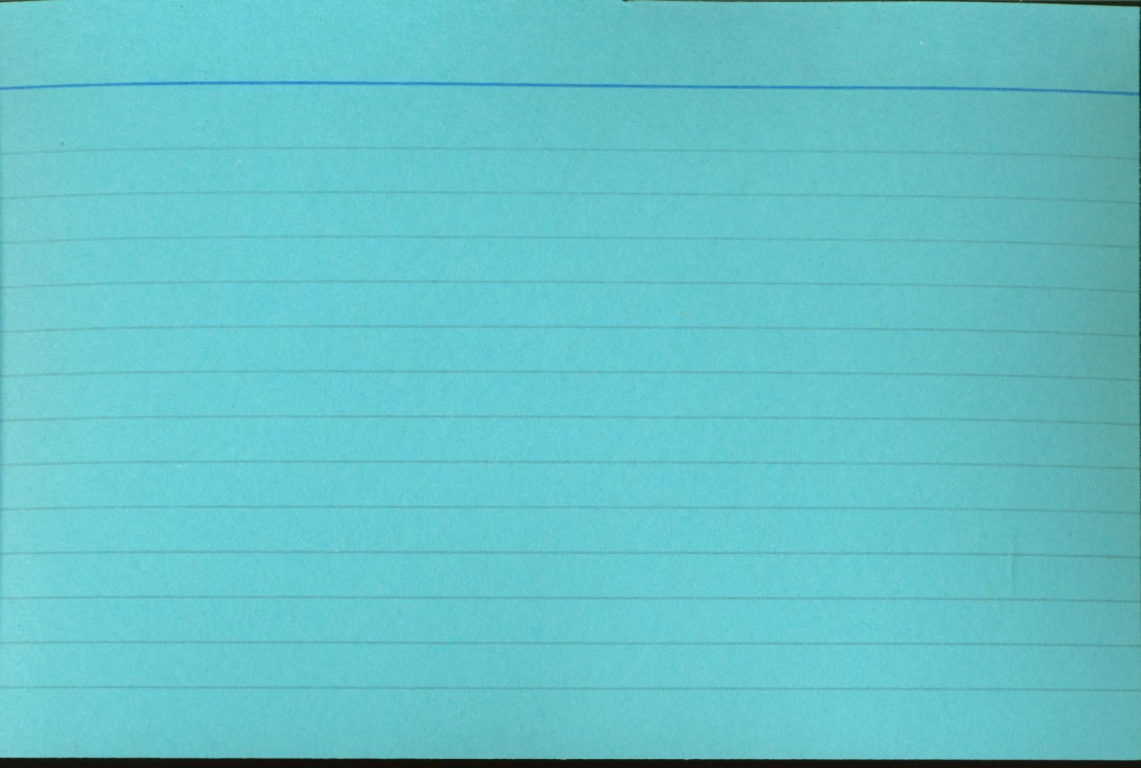
CARN  
SH



Linarite

Caern

Porth Nigel M





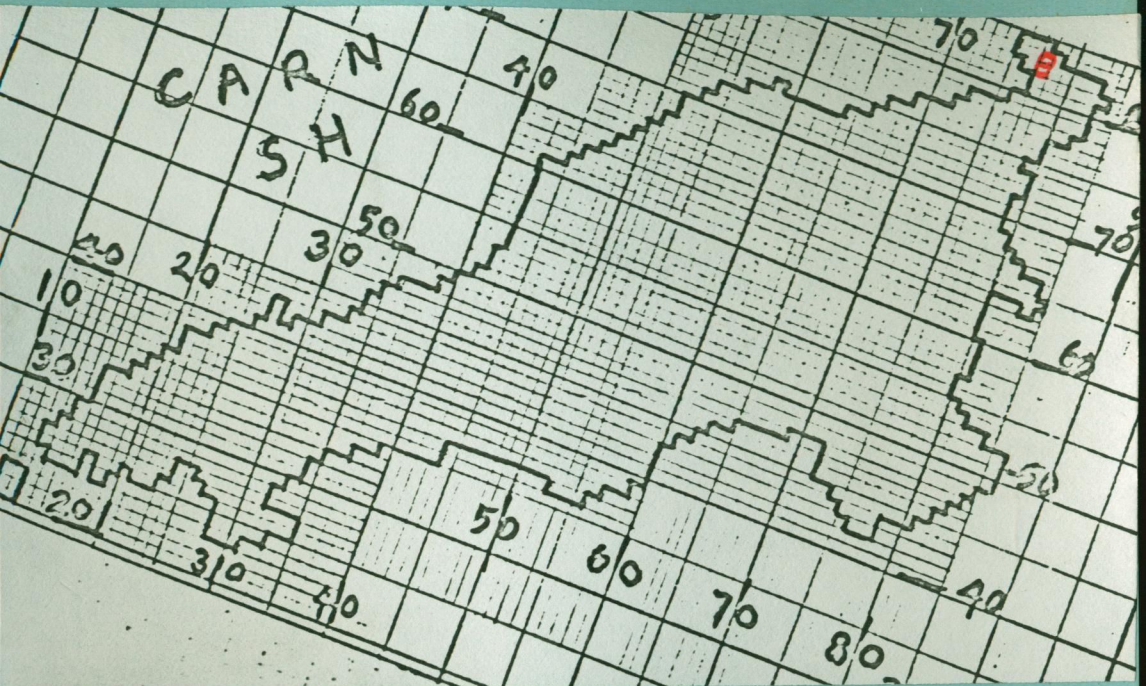
LINNAEITE

CARN

Great Ormes Head (?) 7782 7783

[=Siegenite, q.v.]

SH



MAGNETITE

CARN

Moel Elion

7465(?)

Penmaenmawr Q

6985 7085

Pare M

7860

Snowdon

5952





MALACHITE

CARN

Drws-y-Coed M 5453

Great Ormes Head 7583 7682 7683 7782 7783

Llandudno ↗

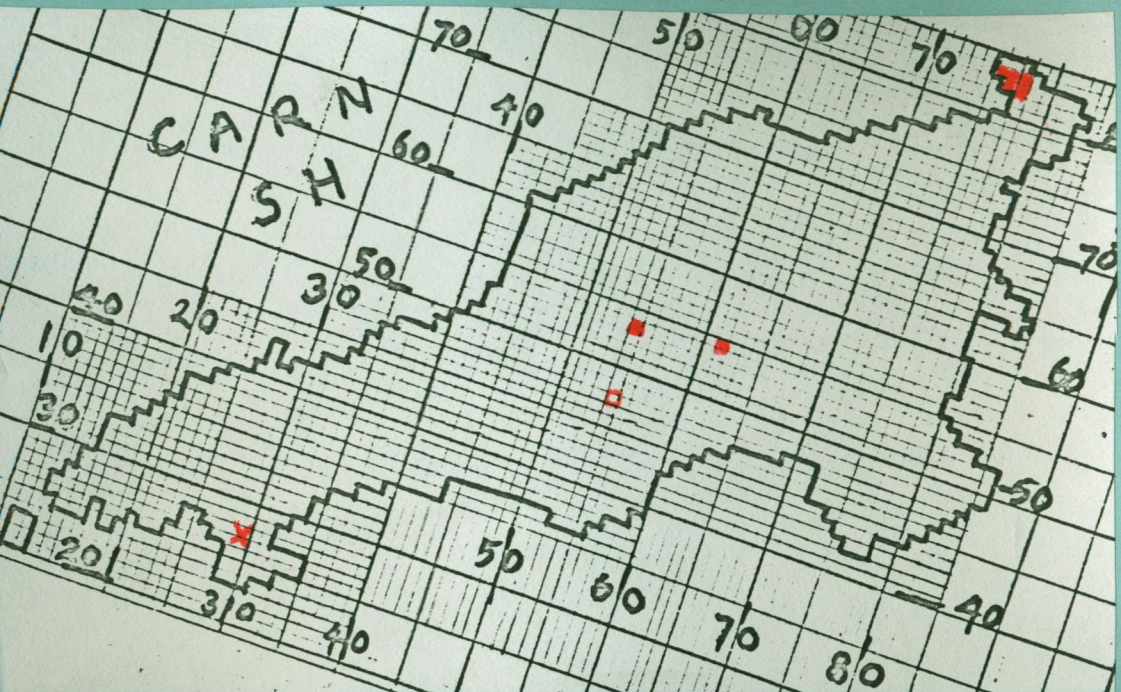
Llandudno M

Llanengan ~2927

Britannia M 6154

Cwm Llefwrth (?) 5547

Benallt M 2228





"MANGANESE ORE"

CARN

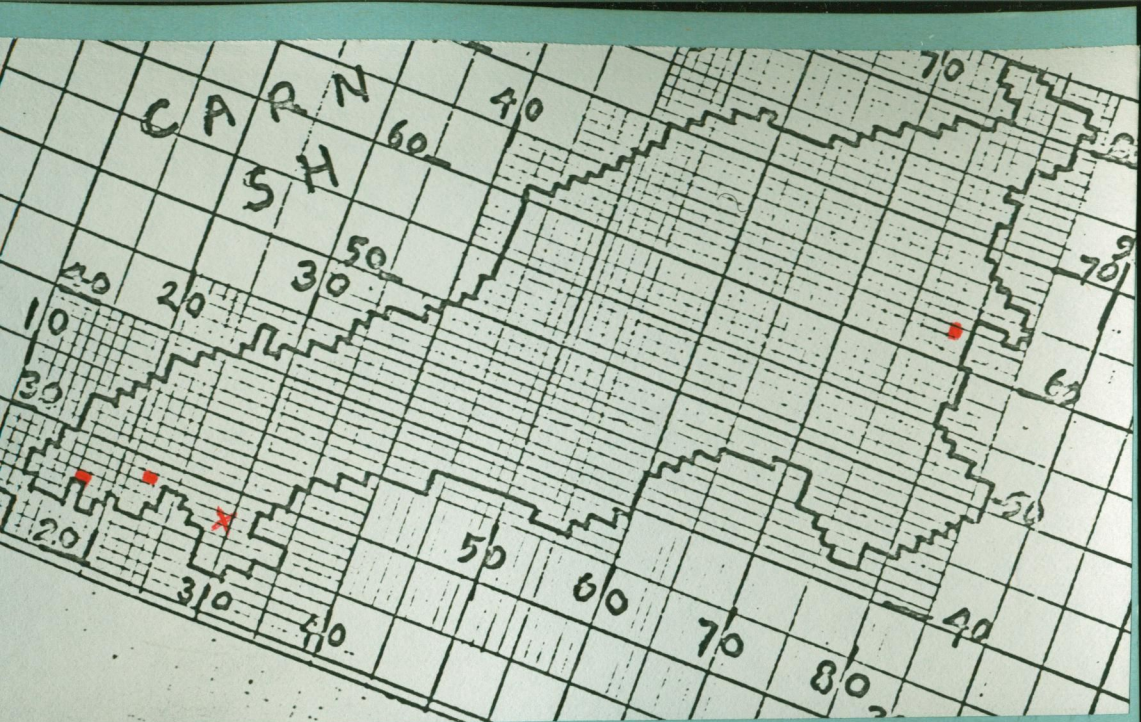
Benallt M (Rhio) 22 28

Pompreu M 16 26

Llanengan ~ 29 27

Pant-y-Carw level 7862

Great Ormes Head

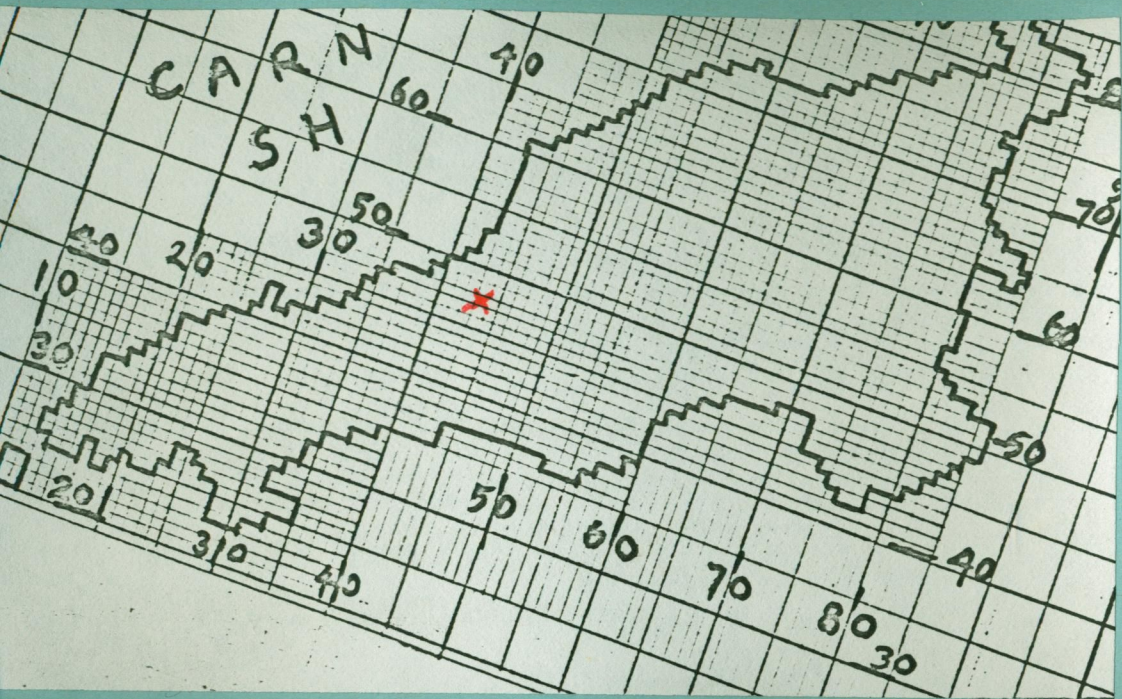


MANGANITE

CARN

Clynnog ~4347



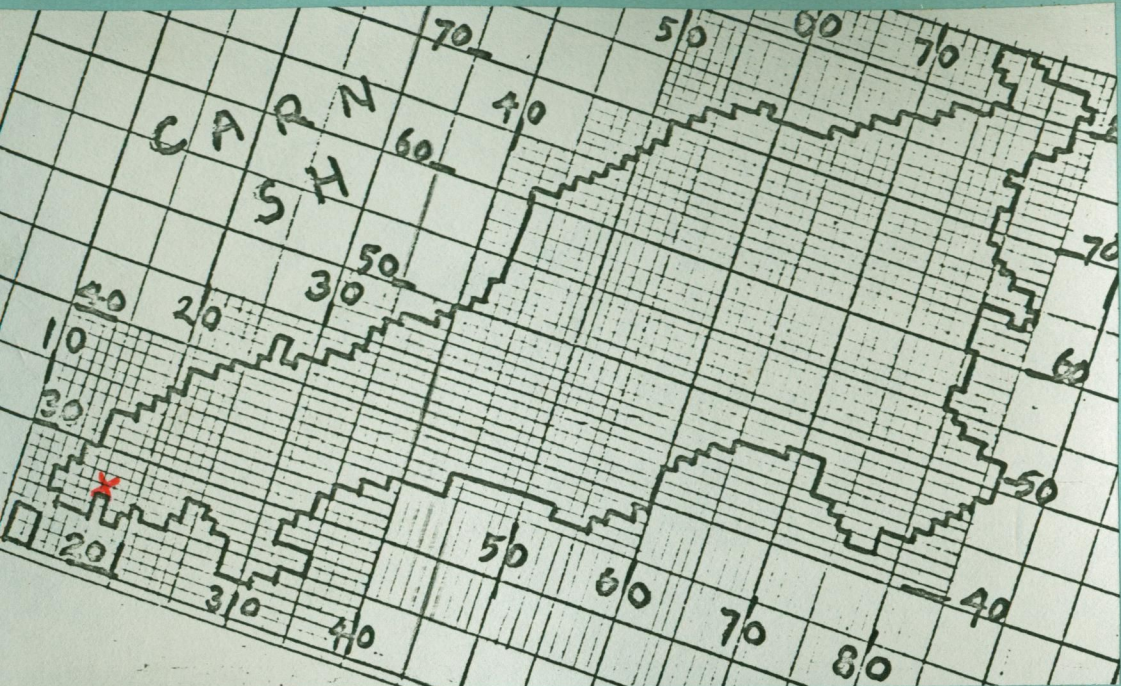


MANGANOPHYLLITE

[Mn-biotite]

CARN

Aberdaron ~1726





MARCASITE

CARN

Cyffty M 7758 7759

Gorlan M 7759

Llanrwst M 7759 7859

Parc M 7860

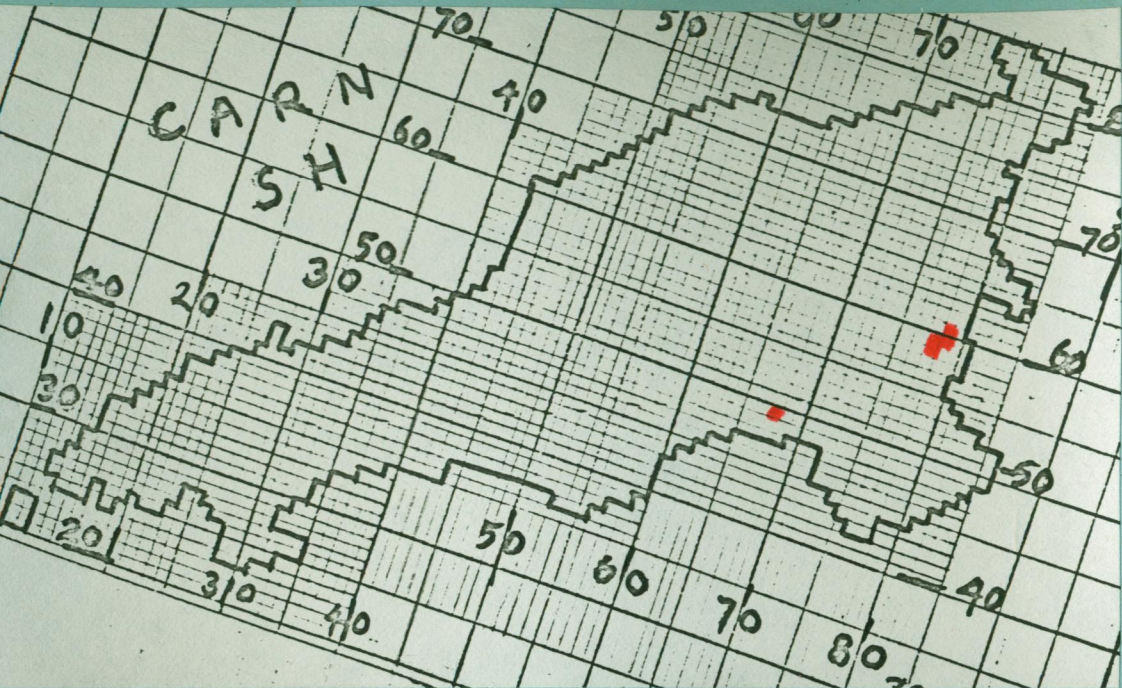
"Llanrwst" orefield -

Moel Fleiddiau 6749

Great Otmes Head

Britannia M 6154

Bwlch M 7879



Melanterite

Caern

Caec-Côch M.



Millerite

Caern

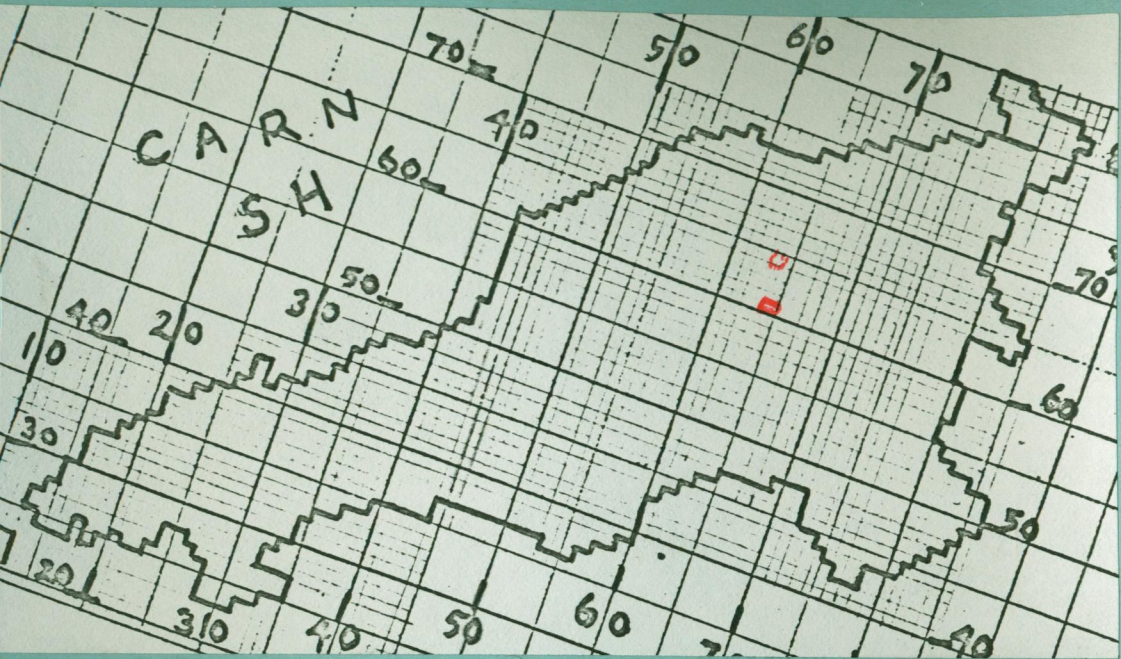
great Ormes Head

MOLYBDENITE

CARN

Dolawyr (6364?)

Blaen-y-Nant (?) 6460



Carn



Monazite

Caen

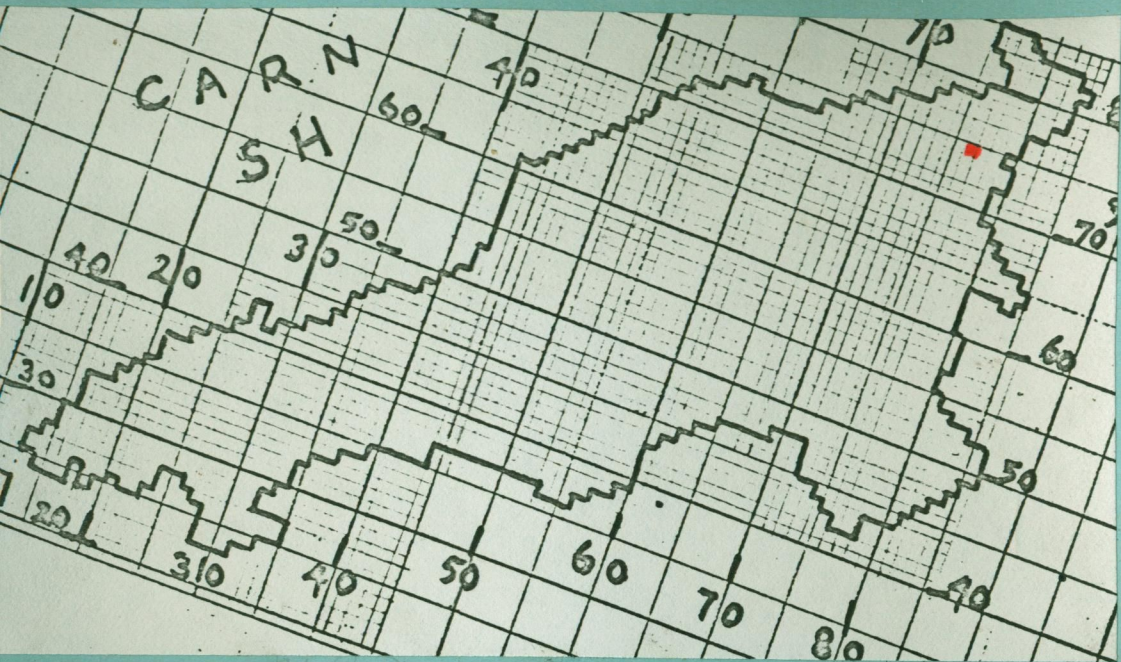
Twil-mach-gristal (- (e))

"MOUNTAIN LEATHER"

7. PALYGORSKITE

CARN

Tre Castell M 76 74

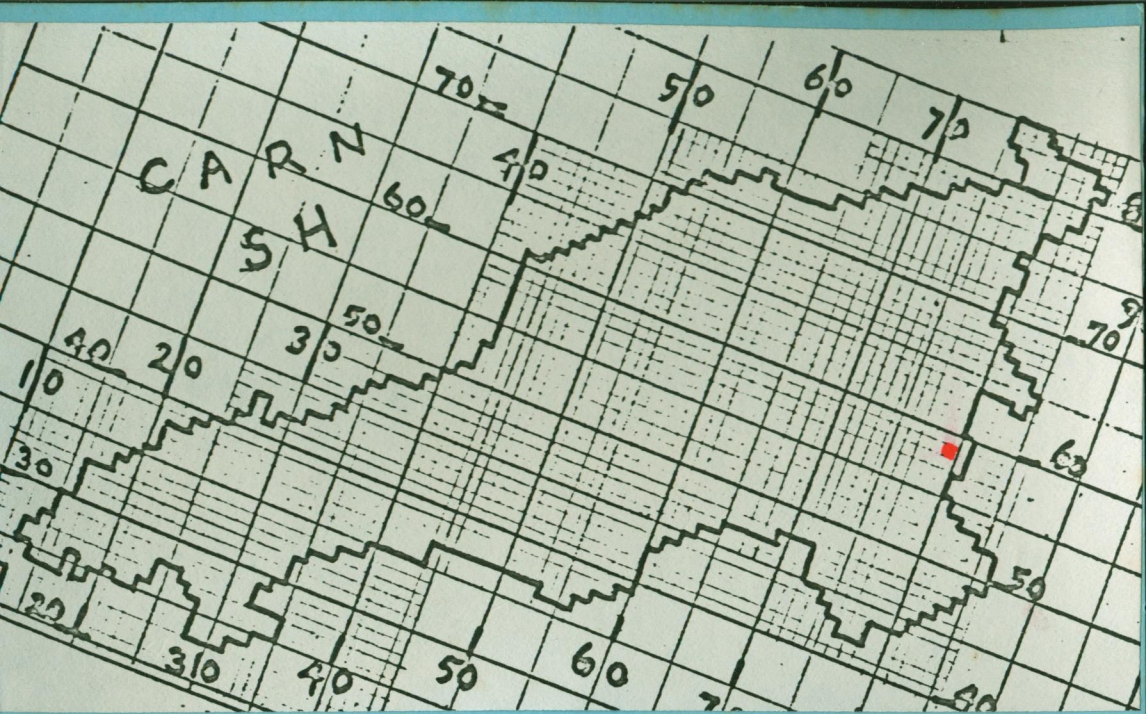




Namuwite

Caern

Akellyn M. 7958



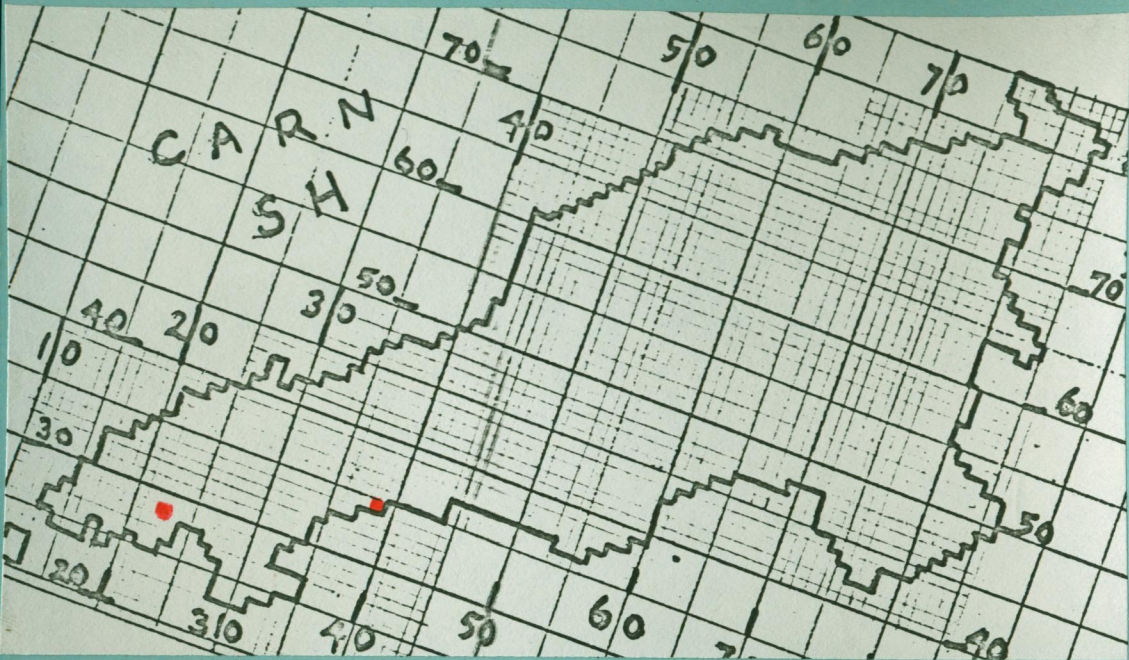
Natrolite

Carn

Benallt mine (Rhiw) 2228

Gimlet Q 3834

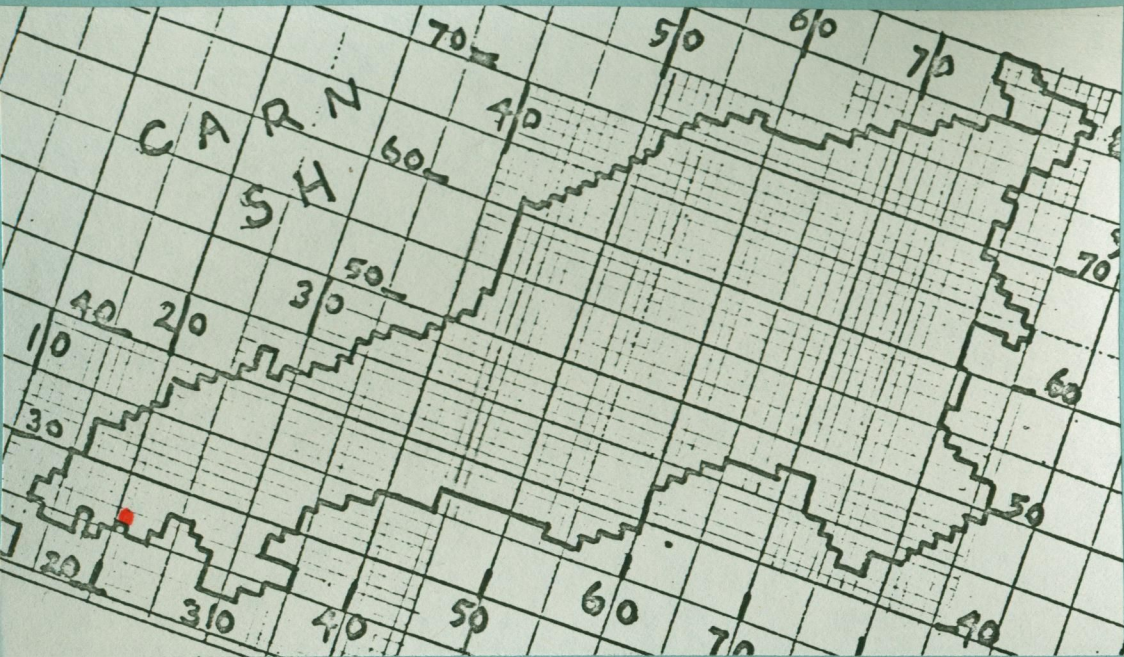




Neotocite

Caern

Nant M 20 26

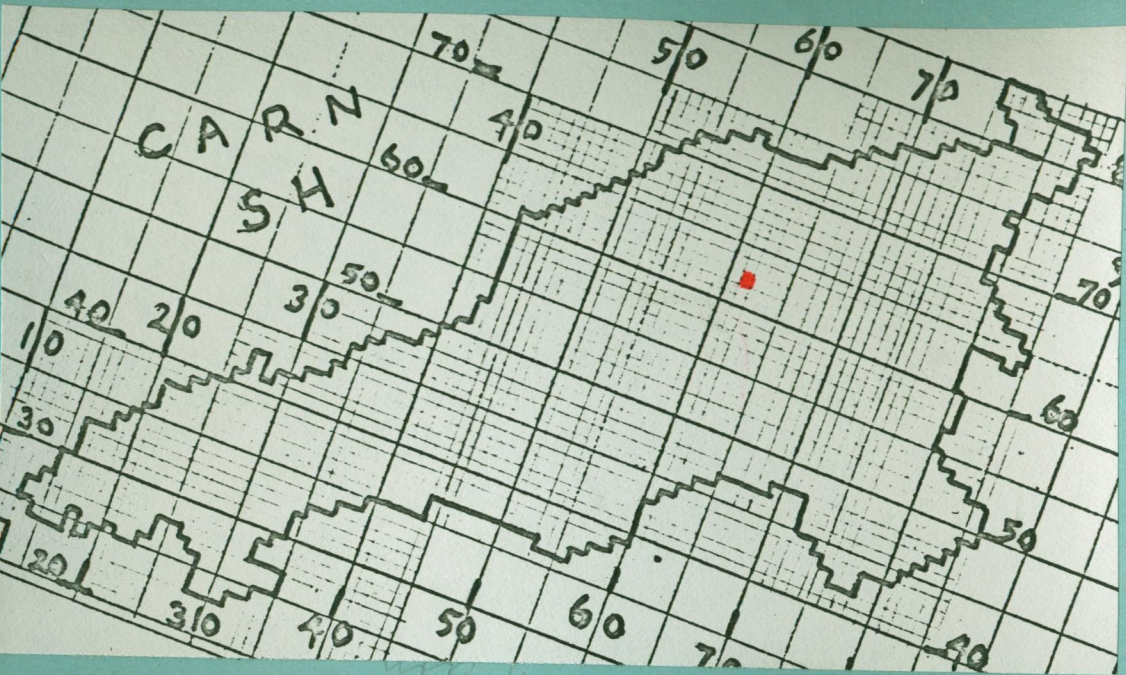




OLIVINE

CARN

Marchlyn Mawr 6162



ORTHOCLASE

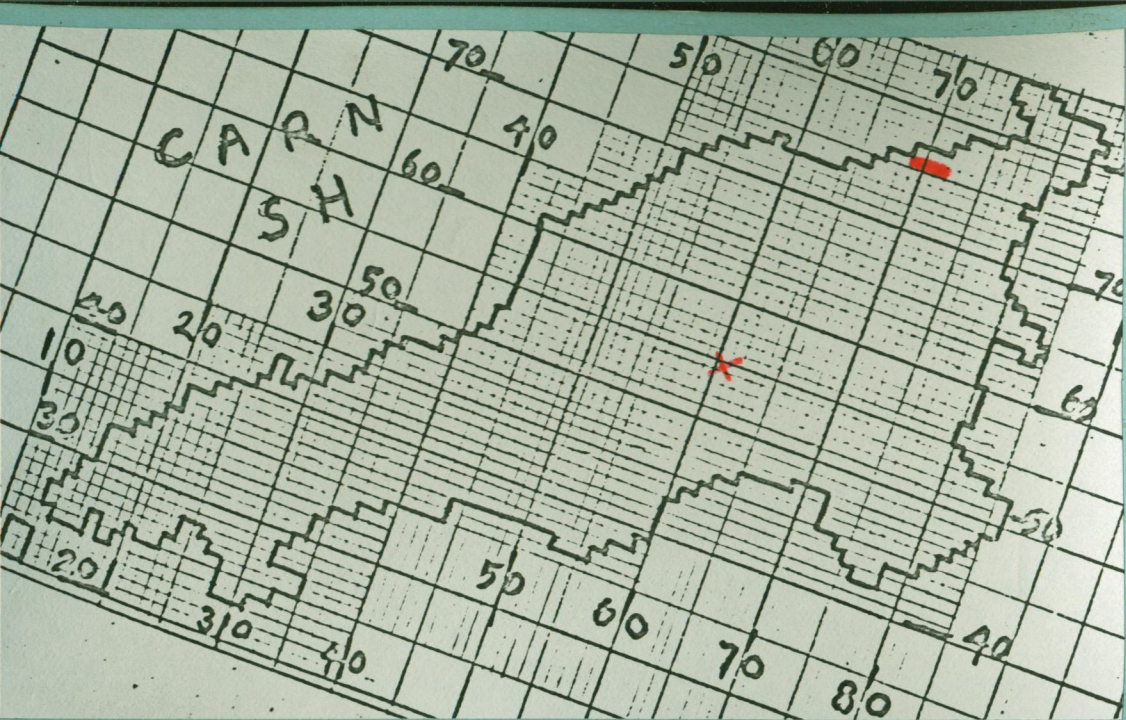
CARN

Graig Lwyd Q 7175

Penmaenmawr Q 6975 7075

Snowdon ~ 6054 [ ]





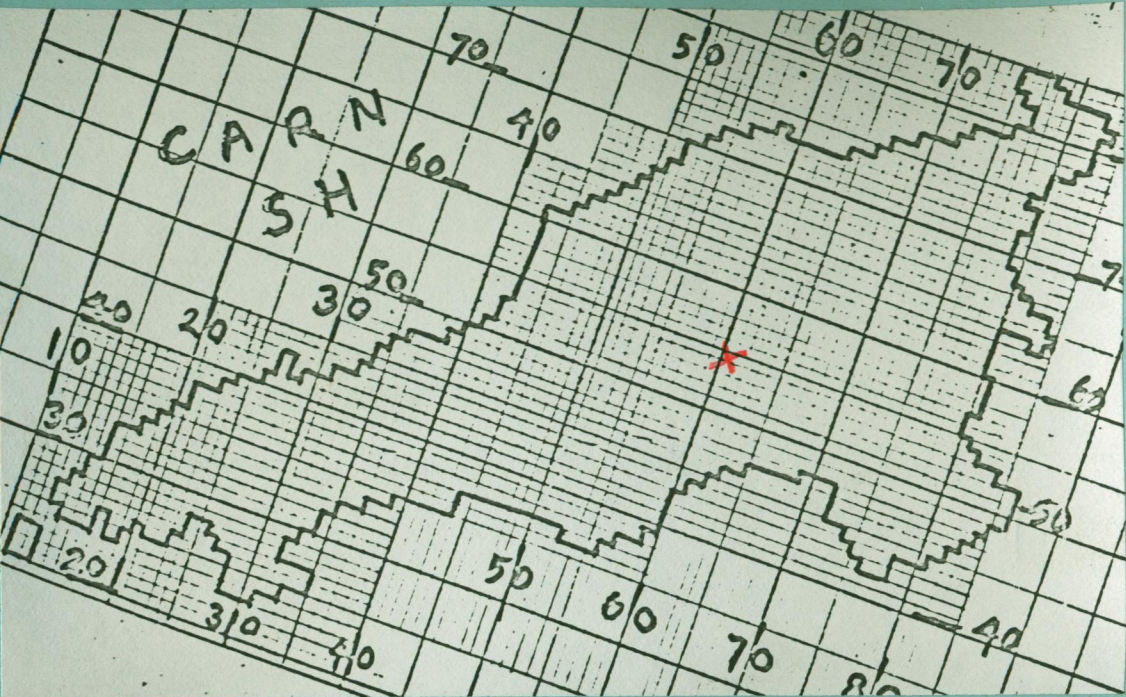
OTTRELITE

CARN

Snowdon ~6054

CARN

SH

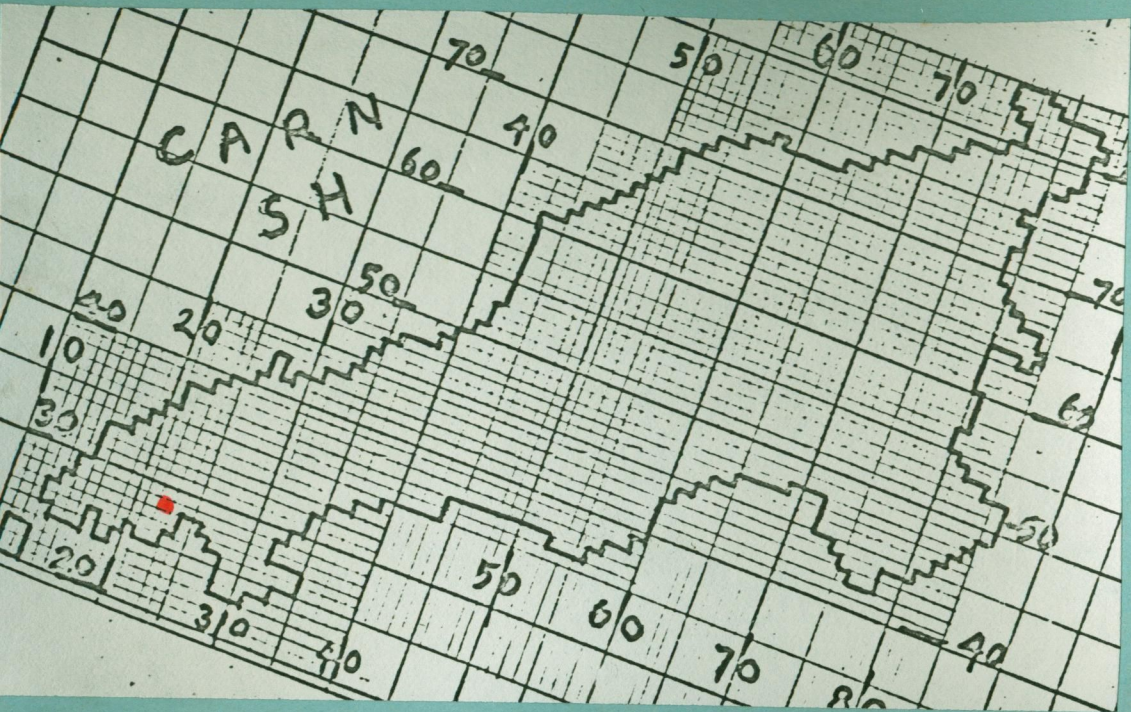




Paracelsian

Caern

Benallt mine (Rhiw) 2228

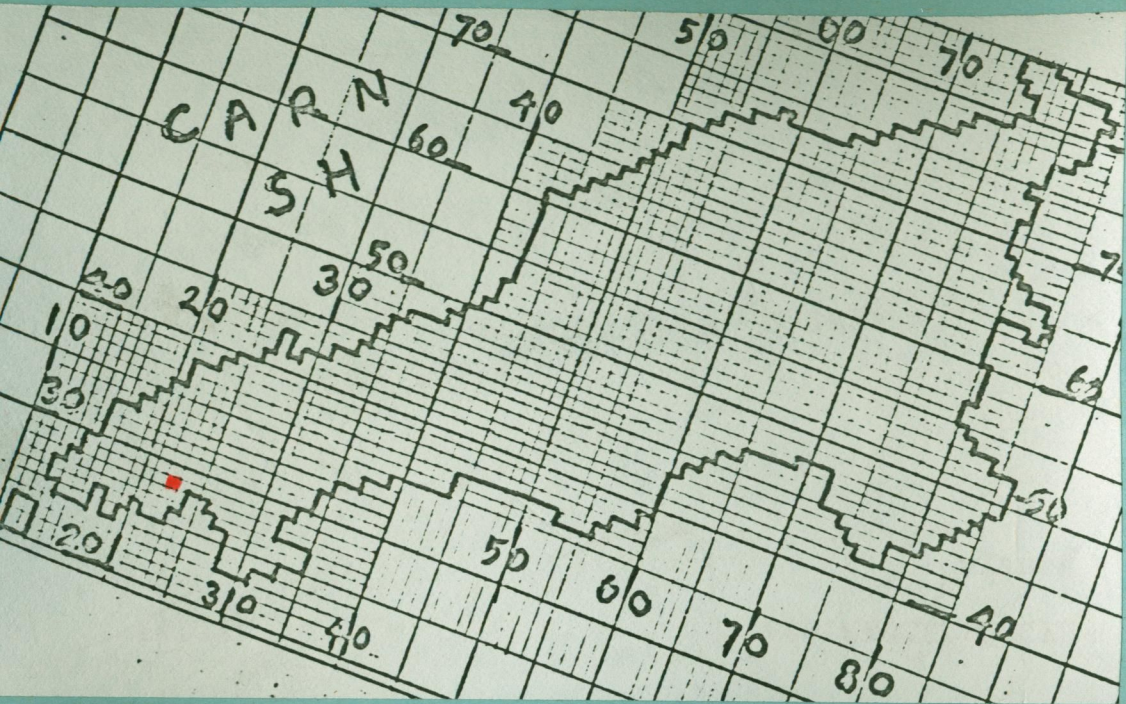


Paragonite

Caern

Benallt mine (Rhw) 2228



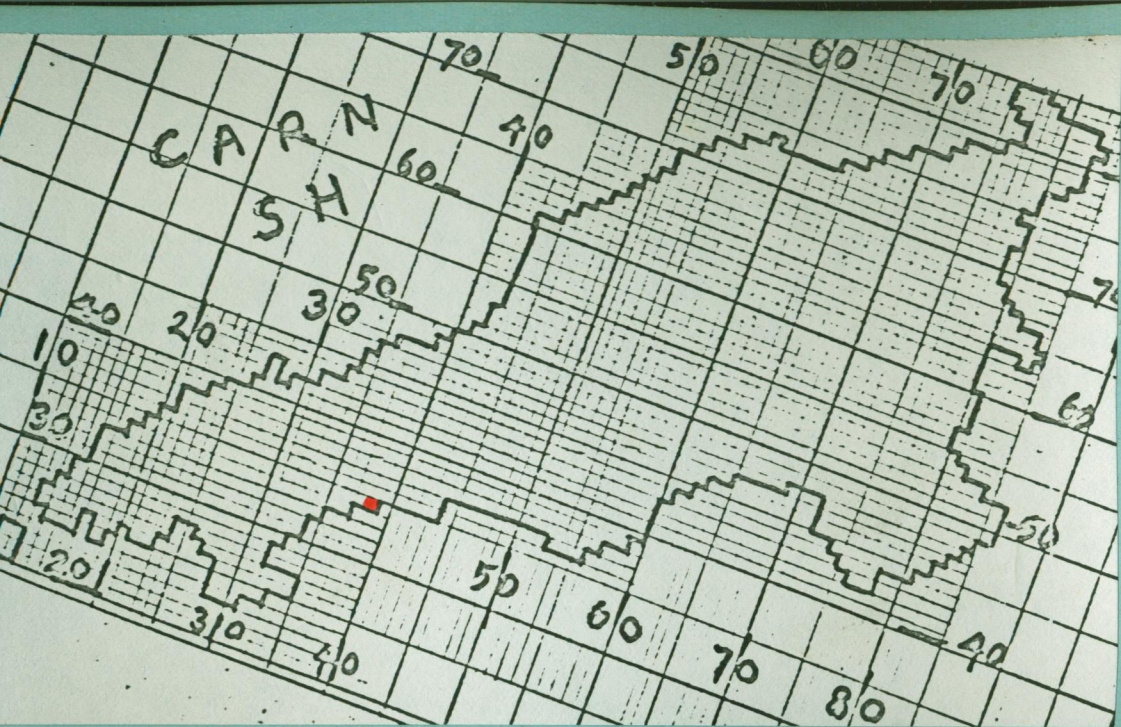


PECTOLITE

CARN

Gimlet Q

3834



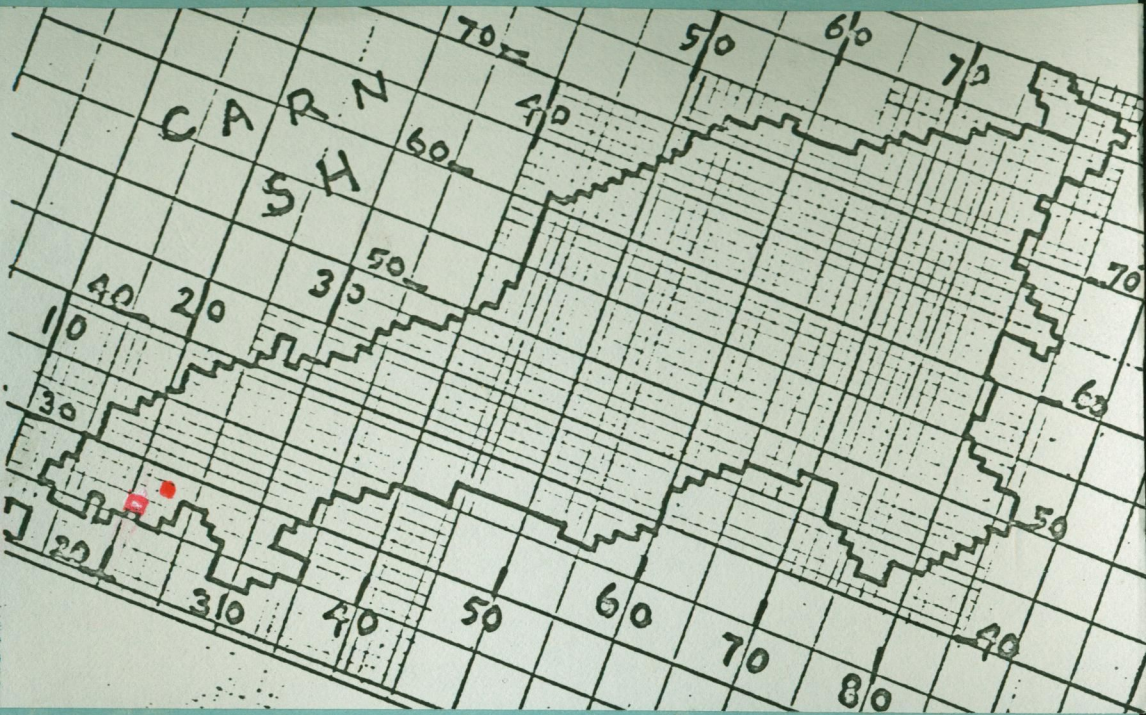


Pennantite

Caern

Benallt mine (Rhiw) 2228

Nant mine (?) 2026



PHOSGENITE

Caerz.

Penrhyn (Du) X, Llanengan.  
Abersoch



Pie(d)montite, (SF)

Caern

Benallt mine

Plagionite

Caern

Bwlch M 78 79

Posnjakite

Caern

Britannia M SH 6154



PREHNITE

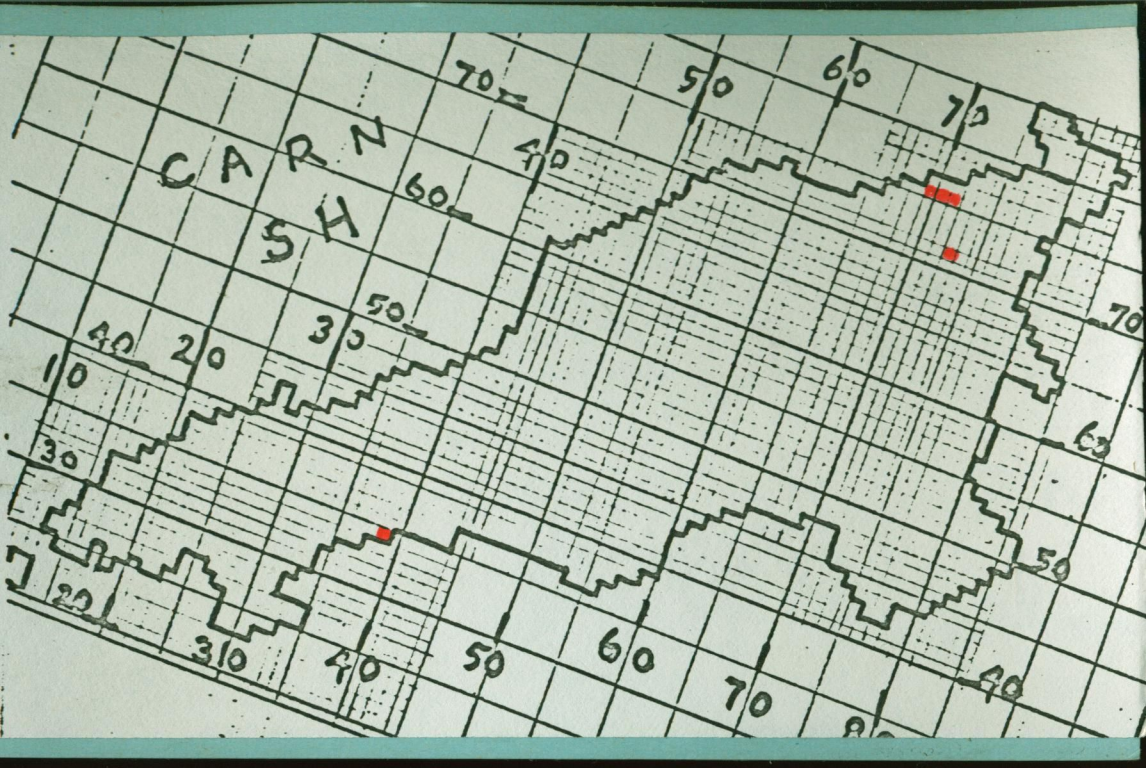
CARN

Gimlet Q 3834

Graig Lwyd Q 7175

Penmaenmawr Q 6975 7075

Bwlch y Ddenfaen 7271



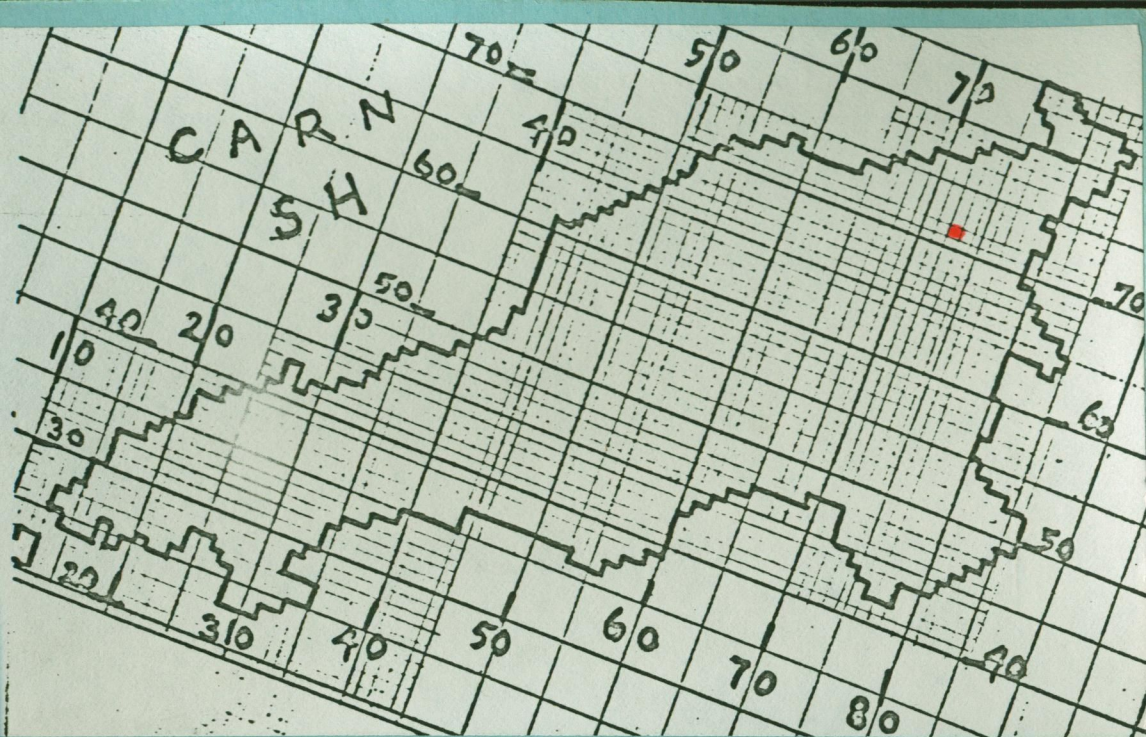
Pumpellyite

Caern

Bwlch y Ddeufael 7271



CARN  
SH



## PYRITE

(I)

Bwlch M 7879  
 Cae-Coch M 7765  
 Cennant M 6263  
 Cyffty M 7758 7759  
 Drws-y-Coed M 5453  
 Hafna M 7860  
 Klondyke M 7662  
 Llanrwst M 7759 7859  
 Llyn Llydaw 6354  
 Tal-y-Sarn M 5353  
 Trefriw Ms 7763  
 Gilfach M(?) 5246 5247  
 "Llanrwst" orefield -  
 Tan-yr-Eglwys mine 7761  
 Penrhyn Slate Qls  
 (~6265)

## CARN

Trecastell M 7674  
 Cwm Meillionen 5648  
 Cwm Dwythwe 5657  
 Snowdon 5953  
 Parc mine 7860  
 Welsh Foxdale M 7660  
 Abelllyn M 7957  
 Bryn-Eisteddfod M 7859  
 Ffrith-Sian M 7860  
 Llanchydwyn 7761  
 Ty'n Twll 7861

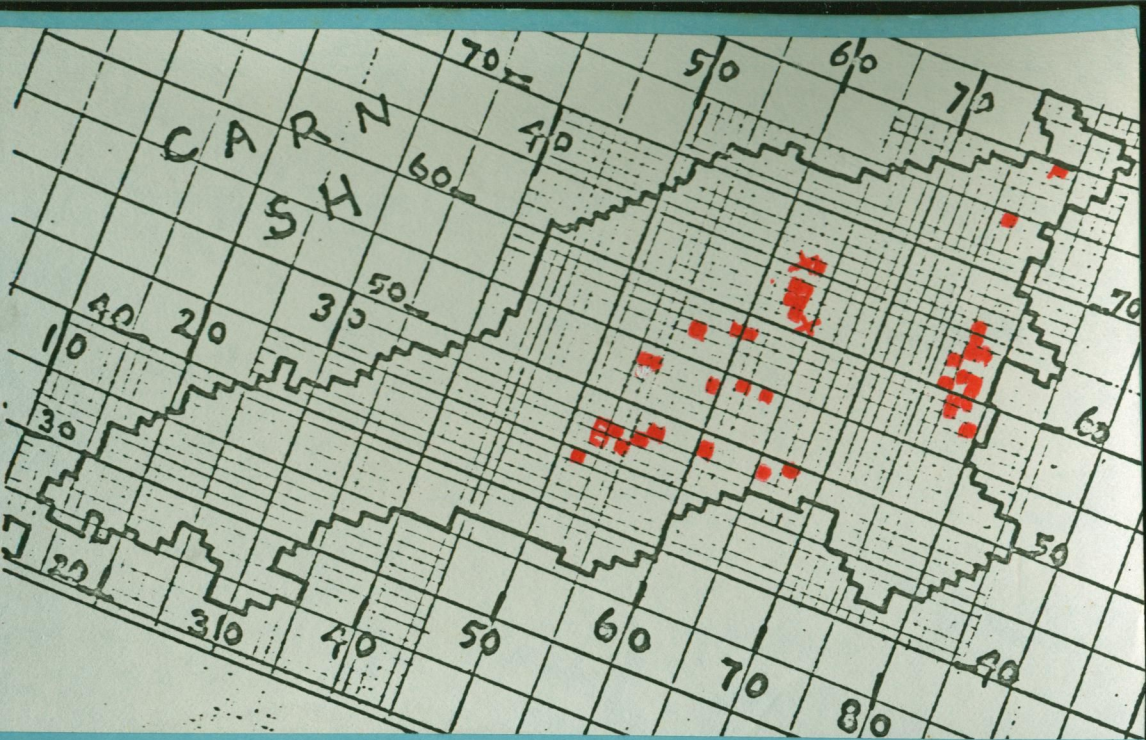
Pyrite

- |                         |                              |
|-------------------------|------------------------------|
| Coed-gwydir M 7764 7863 | Dinas M. 5347                |
| Britannia M. 6154       | Mountain Lode M 5353         |
| Llanberis M 5958 6058   | Benallt M, Llandwrog         |
| Blaen-y-Nant 6460       | Sygun M 6048 <sup>5353</sup> |
| Cwm Bual 6361           | Nantmor 6548                 |
| Maes Caradoc 6362       | Moel Fleiddiau 6749          |
| Cwm Graianog 6262       | Toll-maen-grisial            |
| Gwaith M 6363           | Great Ormes Head             |
| Tan-y-garth M 6366      | (Including Ni-, Ni/co-)      |
| Hendreddu 5144          | Benallt M                    |
| Blaen-y-Rennant 5446    |                              |
| Cwm Llefroth 5547       |                              |



Pyrite (II)

Carn

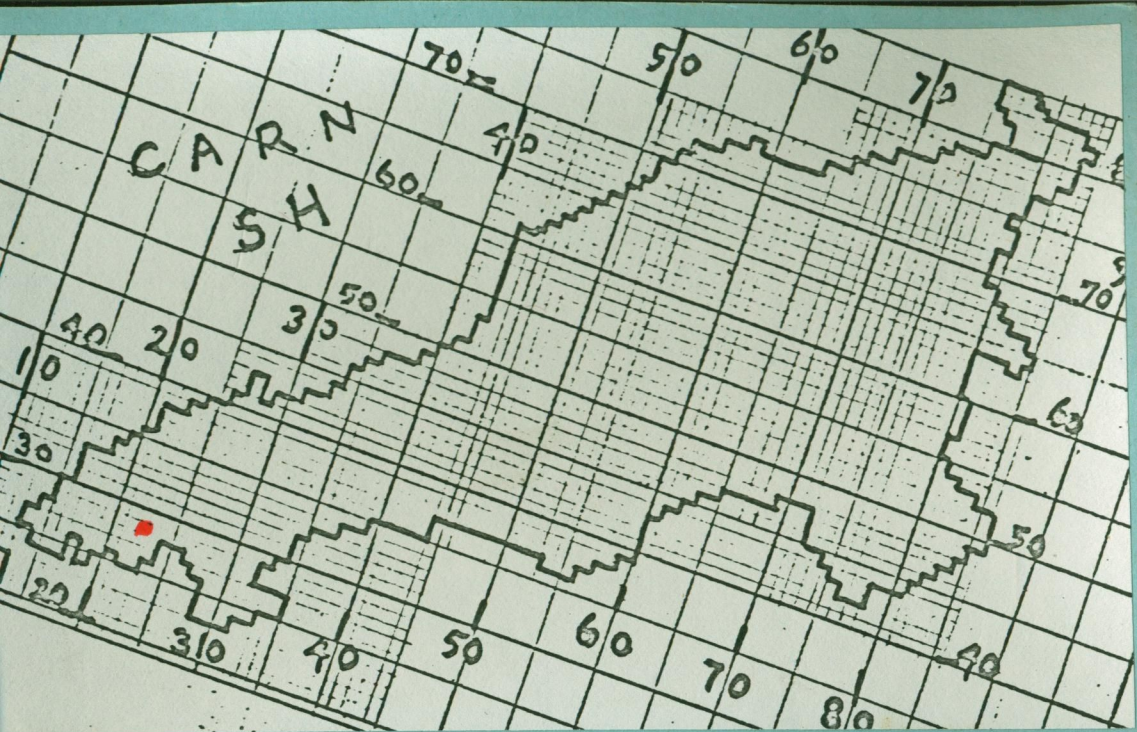


Pyrochroite

Carn

Benallt M (Rhio) 2228



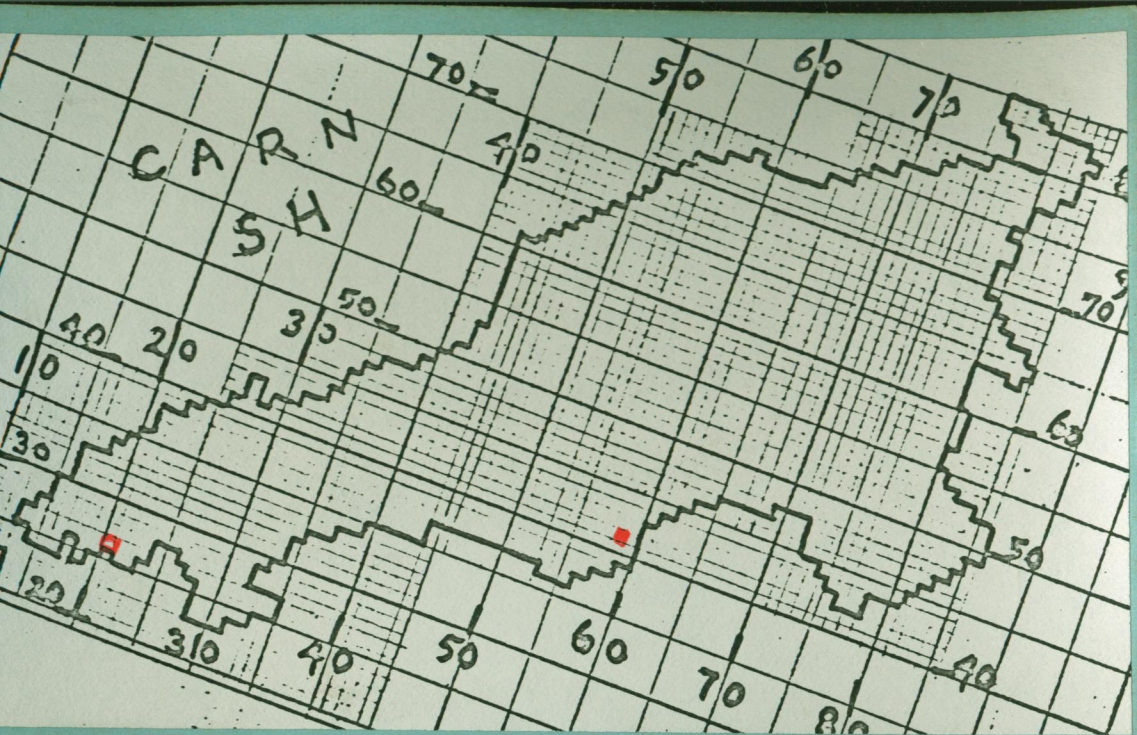


Pyrolusite

Caern

Nant mine (?) 2026

Twell-Maen. Grusial, Krenteg (Ward) 5841





Pyromorphite

Caern

Assheton M

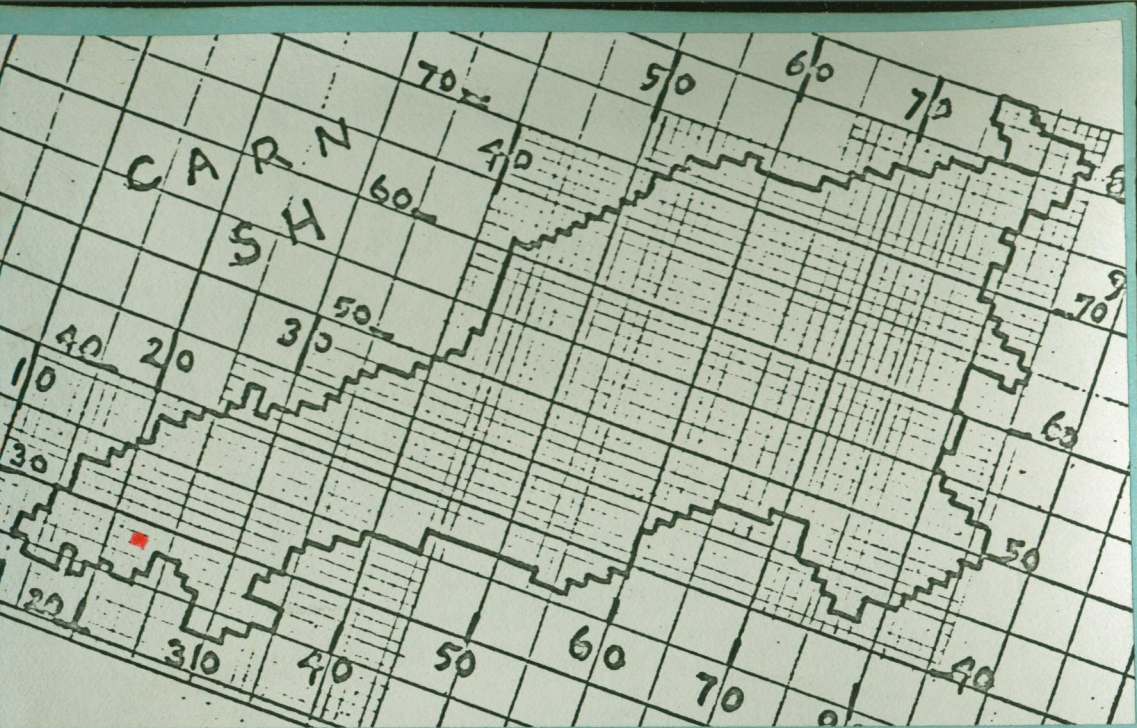
W. Assheton M (?)

Pentryn (Dw) M. (?)

Pyrophanite

Caern

Benallt mine (Rhŵ) 2228



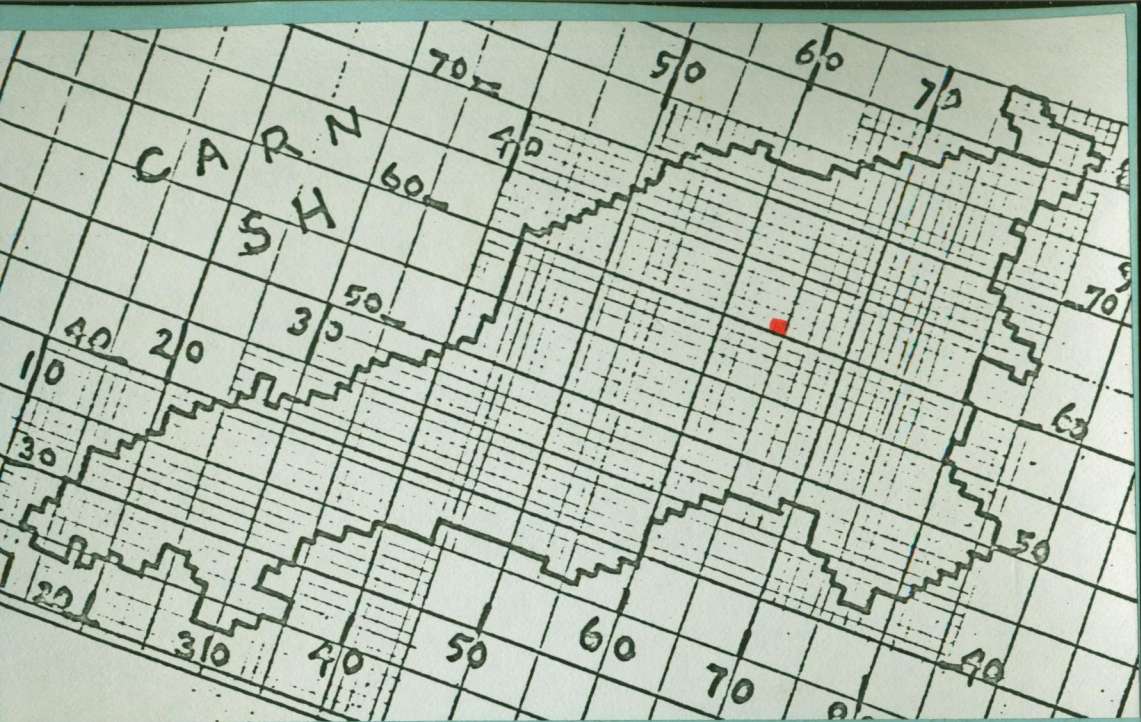


PYROSMALITE

CARN

Nant Ffrancon

Blaen-y-Nant } 6460



"PYROXENE"

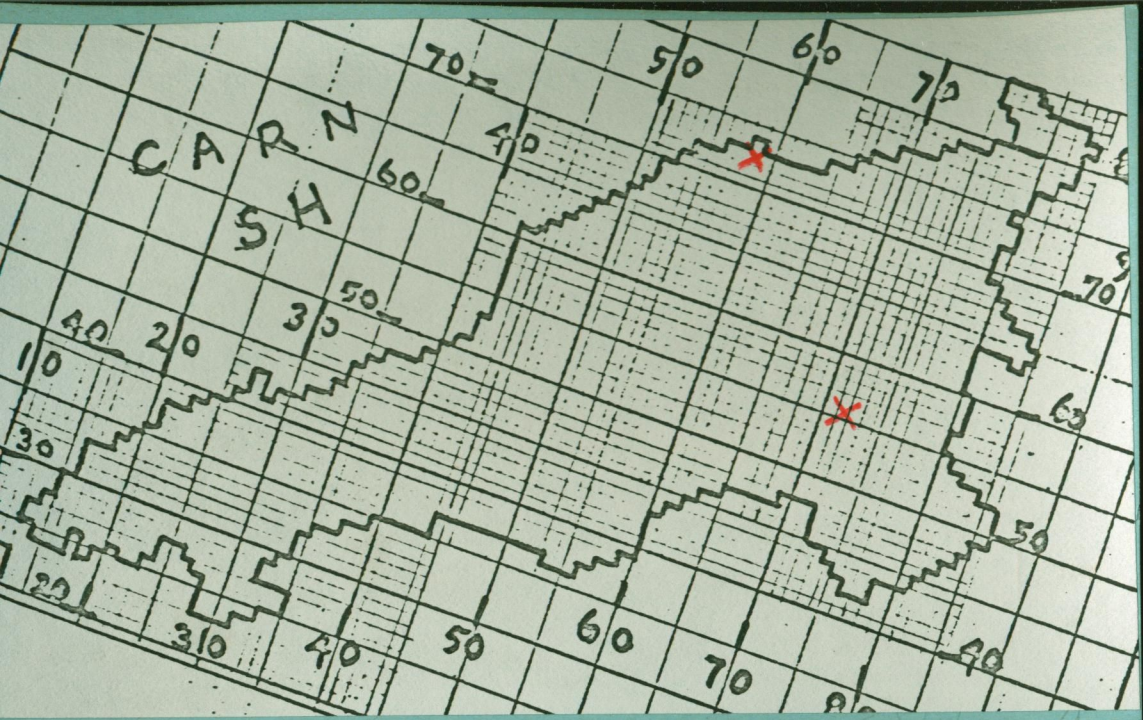
CARN

Bangor

~ 5872

Moel Siabod (? Augite) ~ 7155





Pyroxmangite

Caern

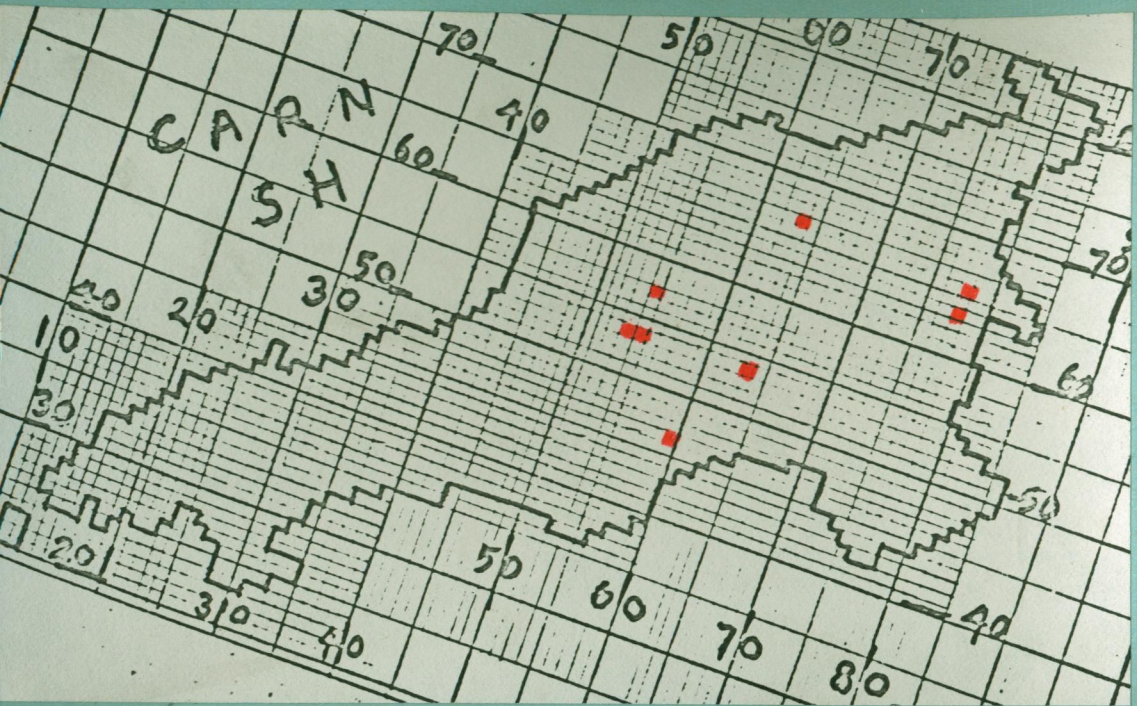
Nant M SH 20 26

PYRRHOTITE

CARN

Cwm Merch M 6353  
 Drws-y-Coed M 5453  
 Moel Elion (?)  
~~Pen~~ Aber-Glaslyn 5946  
 Tal-y-Sarn M 5353  
 Trefriw Ms 7763  
 Bettws Garmon 5457  
 Cae-Coch M. 7765  
 Tan-y-Garth M 6366





## QUARTZ

(I)

Abellyn M 7957 7958  
~~Benallt M (Llandwrog)~~  
 Bettws Garmon 5457  
 Bryn-Eisteddfod M 7859  
 Bwlch M 7879  
 Cefnallant M 6263  
 Cwm Merch M 6353  
 Cyffty M 7758 7759  
 Dinorwic Q ~ 5960  
 Drws-y-Coed M 5453  
 Gorlan M 7759  
 Graig Lwyd Q 7175  
 Hafna M 7860  
 Llanberis Valley 56-65  
 Llanrwst M 7759 7859  
 Benallt M (Llandwrog) 5353  
 Glyder Fach 6558

## CARN

Moel Hebog 5647  
 Morfa Nefyn 2742  
 Mountain Lode M 5353  
 Parc M 7860  
 Penmaenmawr Q 6975 7075  
 Penrhyn Qs ~ 6265  
 Pen-yr-Allt M 7957  
 Pool M 7858 5952 5954  
 Snowdon 55, 65, 5953 6151 6255  
 Tal-y-Sarn M 5353  
 Twll-maen-grisial 5841  
 Pymperlen M 16 26  
 Gwlltallt Q 3834  
 Fronoleu 5841  
 Tremadoc 5841  
 Tryfan 6659

Bangor ~ 5872  
 Llankeis M 5958 6058  
 "Llanrwst" one field —  
 Tan-yr-Eghwys M 7761  
 Pant-y-Carw level 7862  
 Cae Cŏch M. 7765  
 Gilfach M's 5246 5247  
 Welsh Foxdale M 7660  
 Cwm meillionen 5648 5748  
 Sygun M. 6048  
 Mynydd Dru-y-Coed 5551  
 Trecastell M 7674  
 Klondyke M 7662

Ffrith-Sian M 7660  
 Tŷn Twll 7861  
 Cyed-gwydir M <sup>7764</sup> 7863  
 Britannia M 6154  
 Clogwyn-Coch 6054  
 Y-Pennant 5951  
 Gwaith M 6363  
 Tan-y-garth M 6366  
 Nantmor 6548  
 Hendreddu <sup>5144</sup> 5446  
 Blaen-y-Pennant  
 Cwm Llefrieth 5547  
 Dinas M 5347



# QUARTZ (II)

Caern

Cwm Ciperwth 5247

Cwm dwyfor 5450

Garnedd-geoch 5050

Blaen-y-Nant ~ 6460

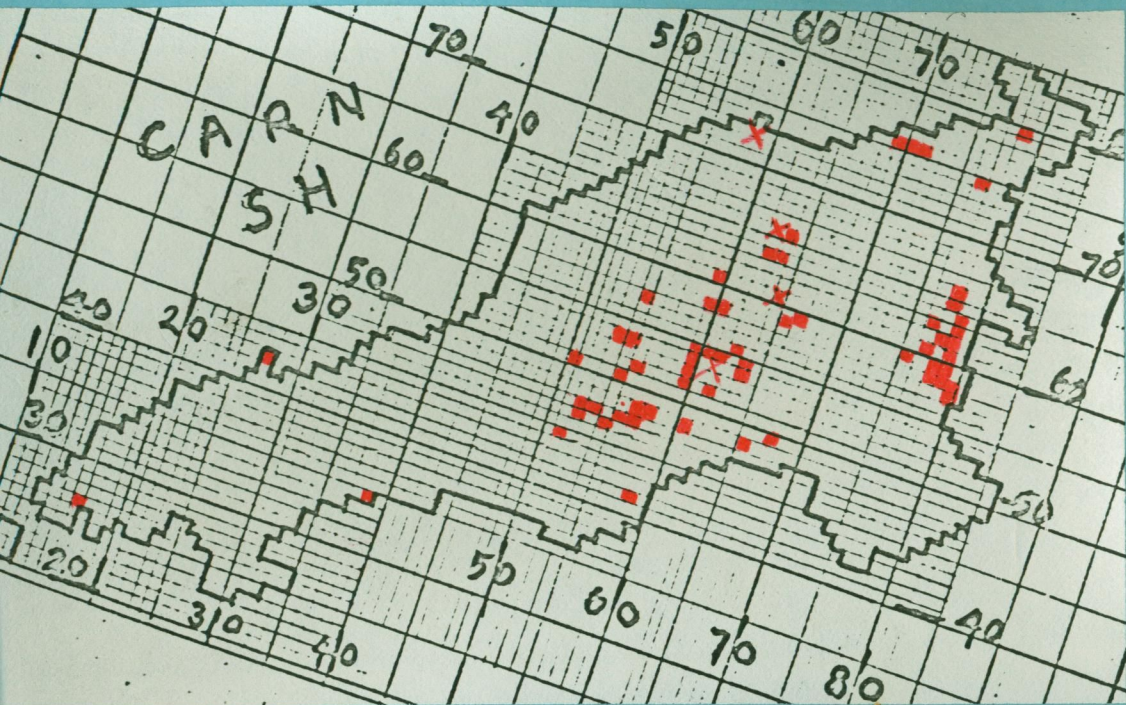
Llyn Llydaw 6354

Moel Ffleiddiau 6749

nr Betws-y-Coed 7559

Great Ormes Head (detrital)

Abersoch



RHODOCHROSITE

CARN

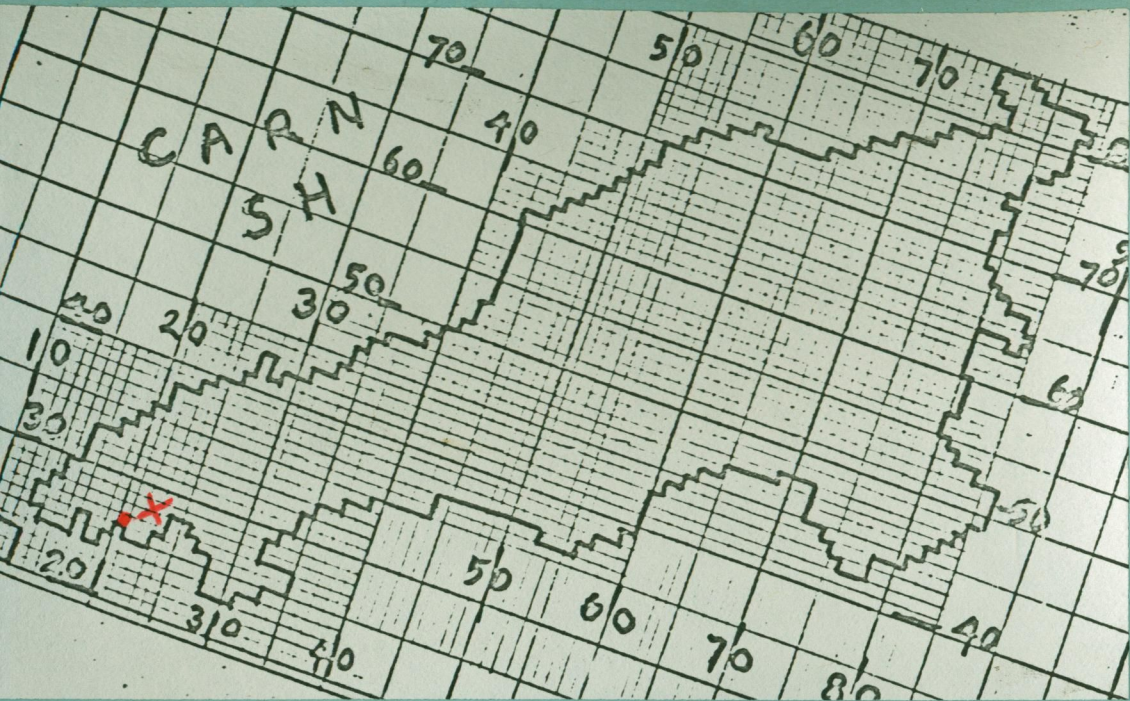
Nant M 2026

Rhiw ~ 2228



CARN

~~5A~~

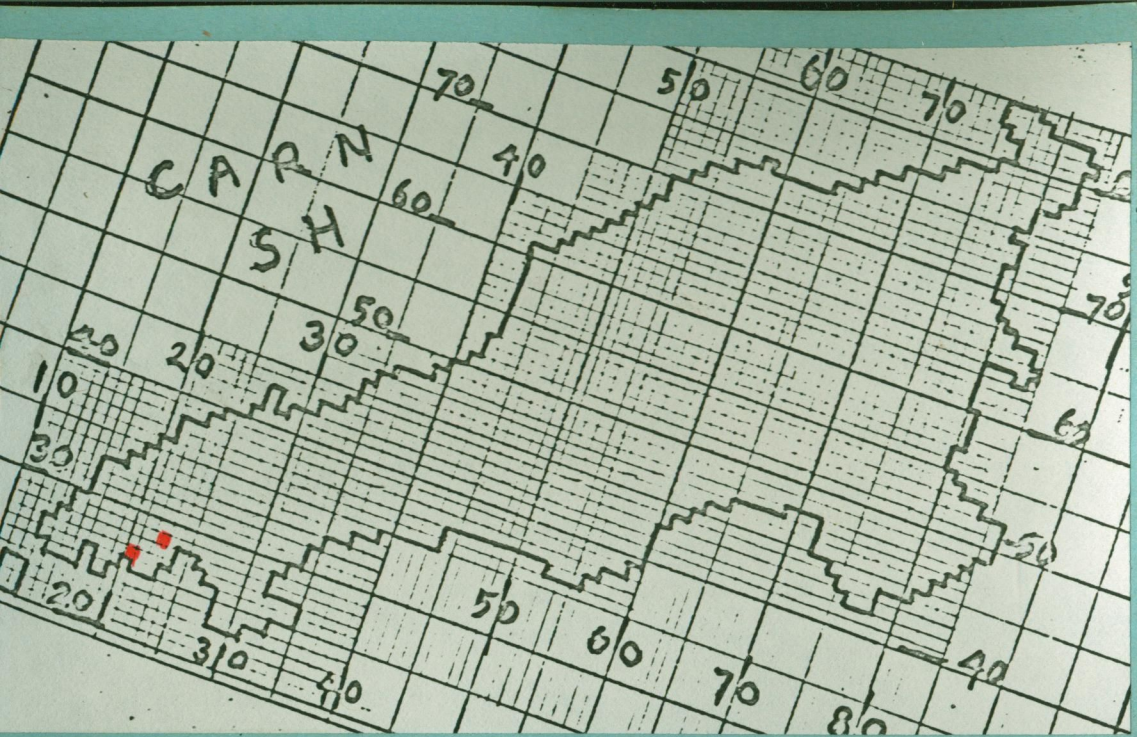


Rhodonte

Caern

Nant Mre 2026

Benallt mine (Rhiw) 2228

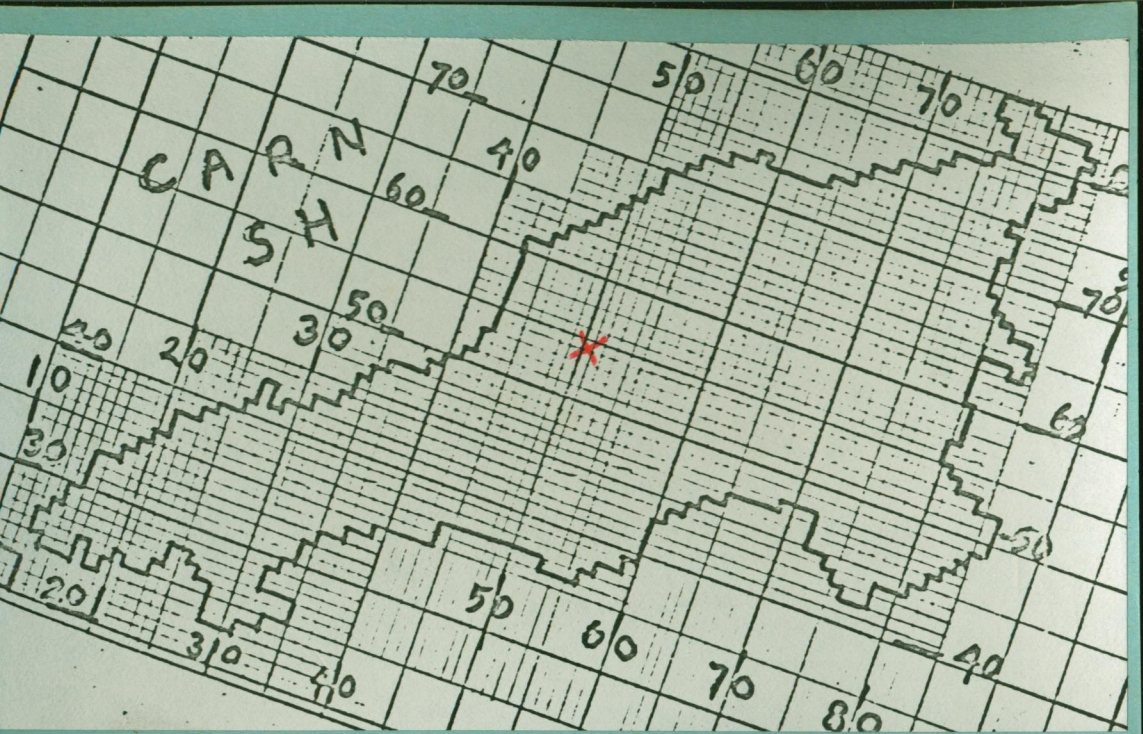




Riebeckite

Caern

Mynydd Mawr ~ 50 54



Robinsonite

Caern

Bwlch M (?) 7879



" ROMANECHITE  
PSILOMELANE "

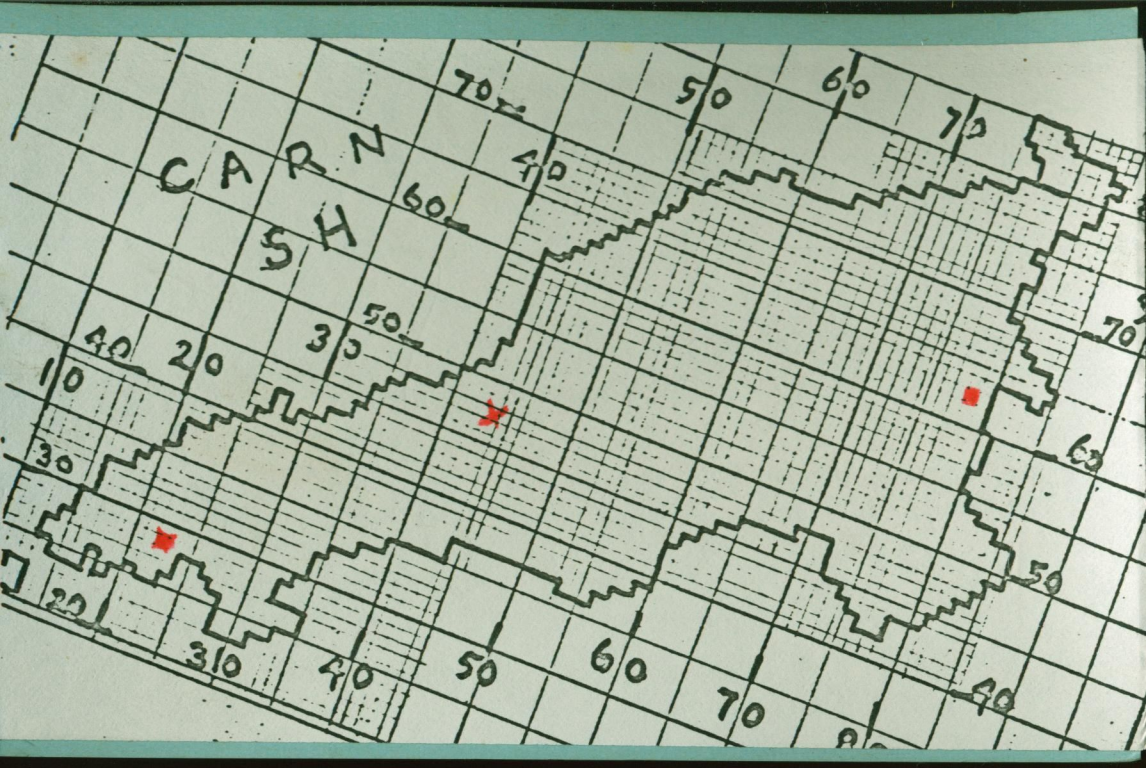
CARN

Clynnog ~ 4347

Rhiw ~ 2228

Benallt mine (Rhiw) 2228

Pant-y-Carw level 7862



Rosiaite

$\text{PbSb}_2\text{O}_6$

Caern

Bwlch M 7879



RUTILE

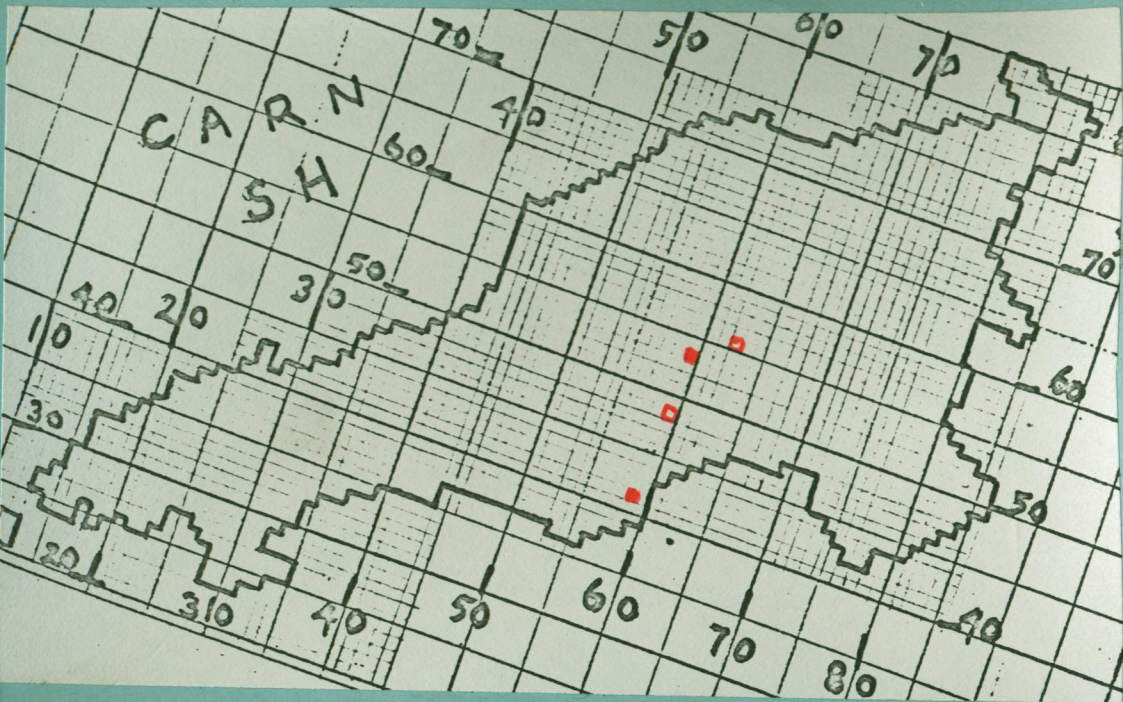
CARN

Beddgelert + 5948(?)

Twll-maen-grisial 5841

Snowdon 5953 6255(?)

(In Qtz somewhere on the new railway w. anat)  
MER



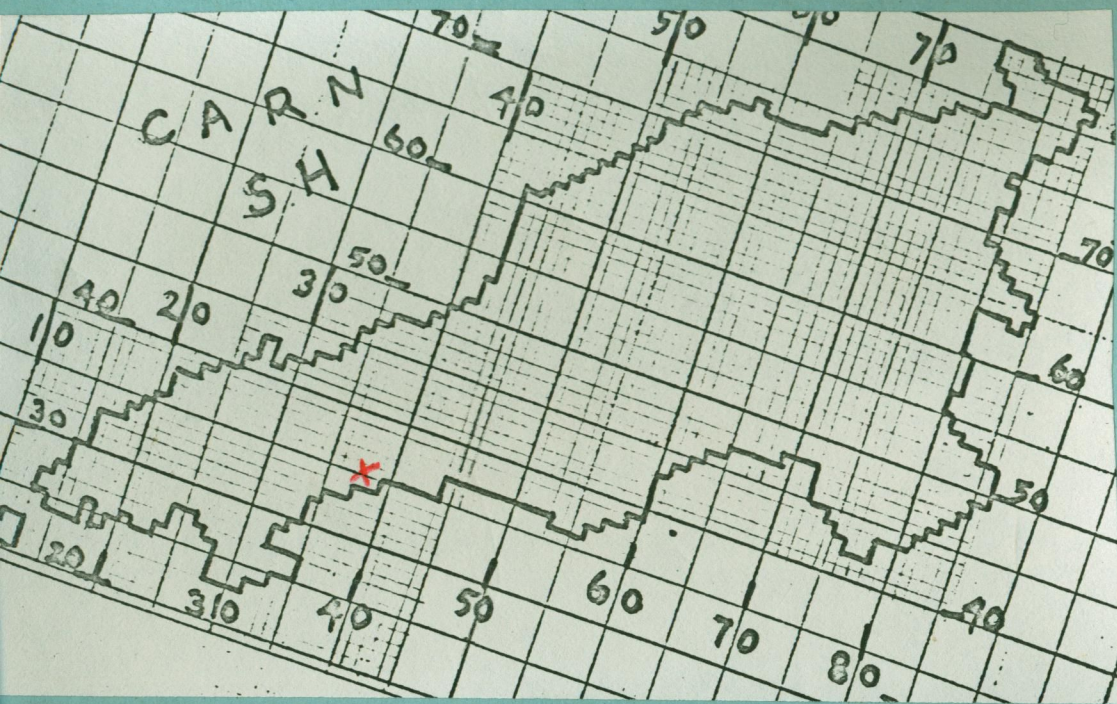
Saponite

Carn.

Piollheli ~3735



CARN  
SH



Scheelite

Caern

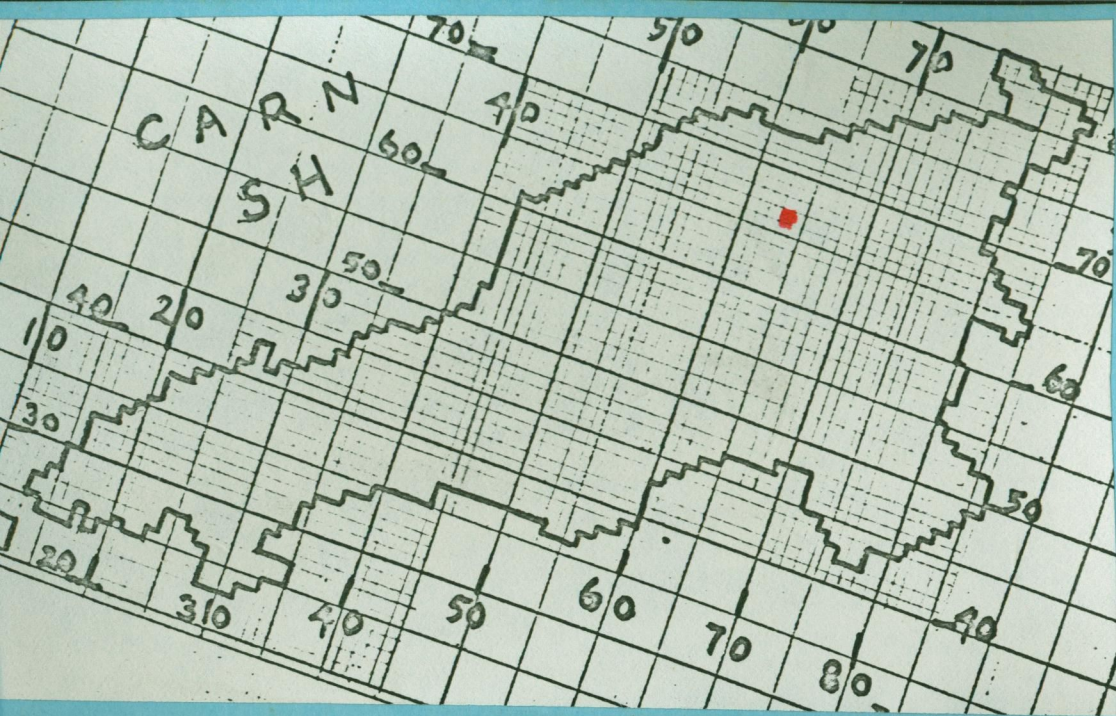
Snowdon

Scorodite

Caern

Tan-y-garth M 63 66



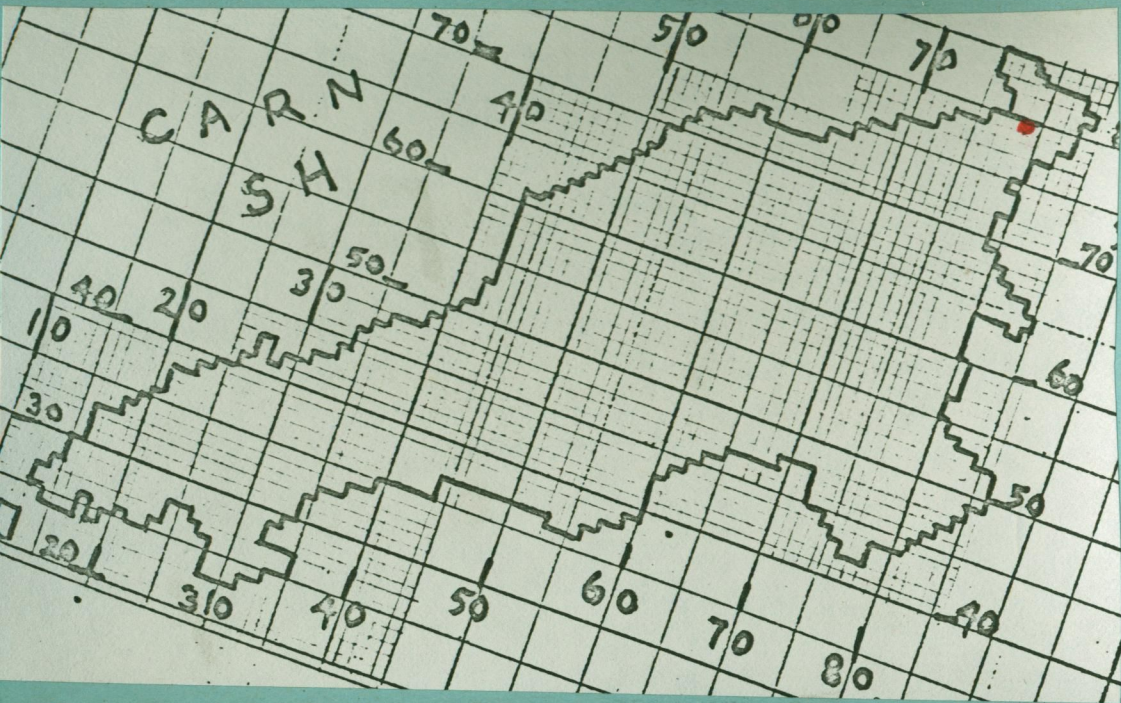


SEMSEYITE

CARN

Bwlch M

78 79

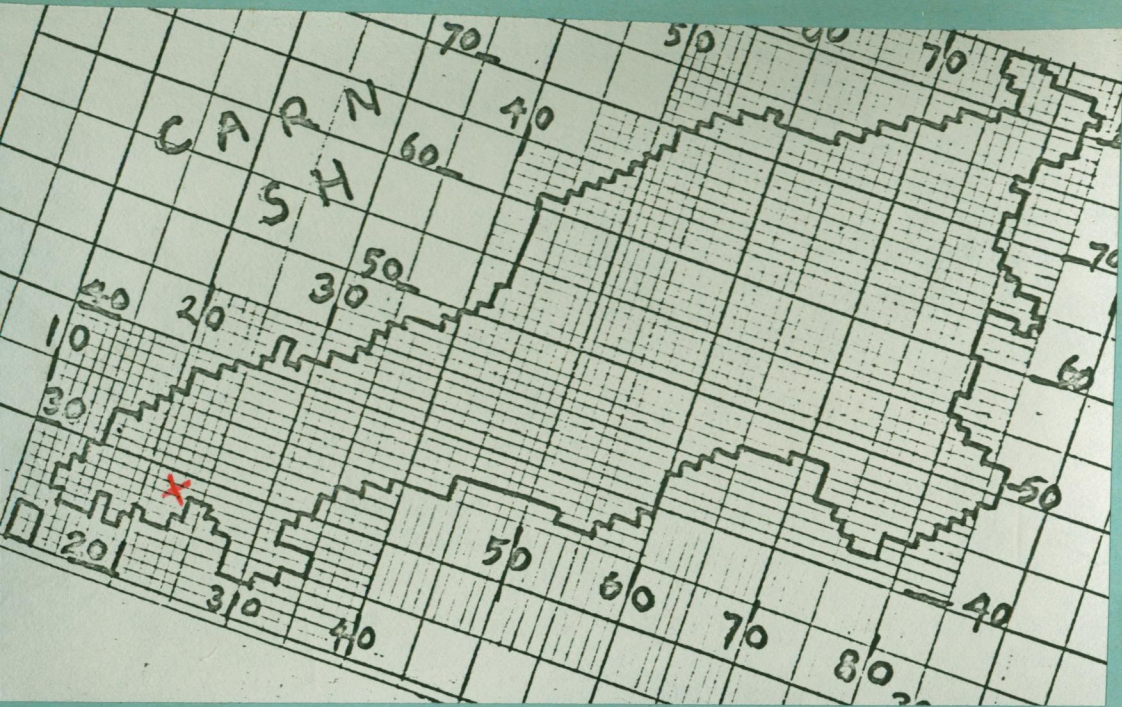




Sepicite "a fine-grained mica. Calton  
musc or paray or elite

Rhuw ~ 2228

CARN  
SH



"SERPENTINE"

CARN

Marchlyn Mawr 6162(?)

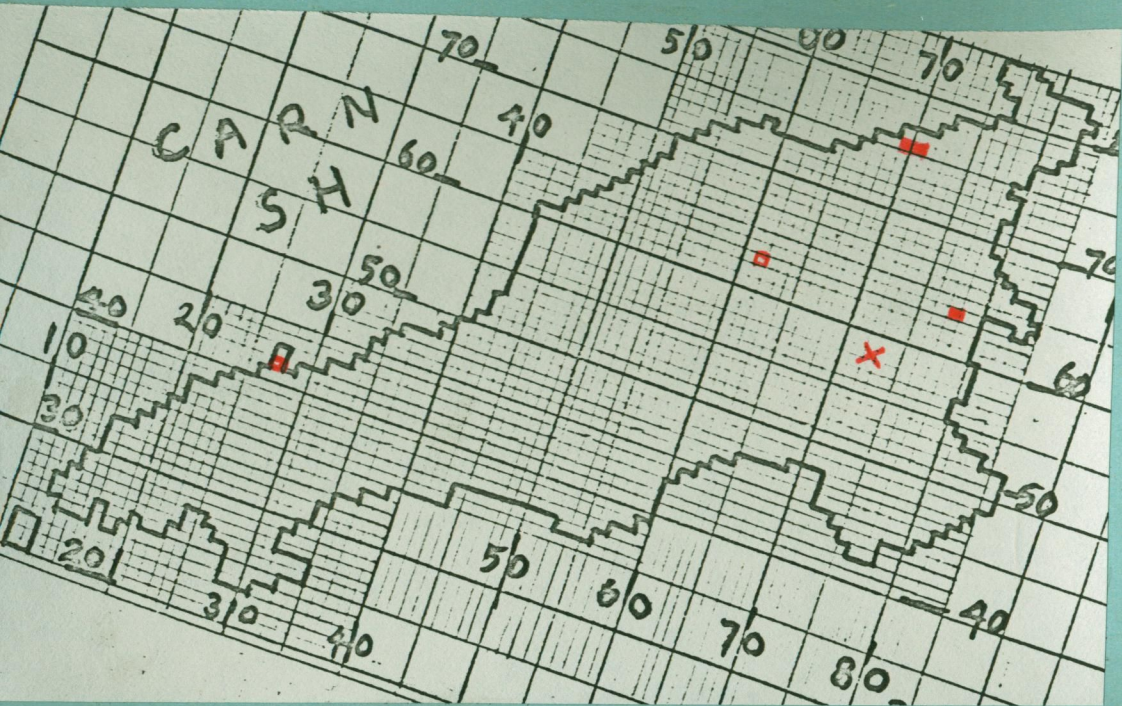
Penmaenmawr Q 6975 7075 ("bastite")

Trefriw 7763

Monfa Nefyn 2471(?)

Capel Curig ~ 7258





Serpiente

Caern

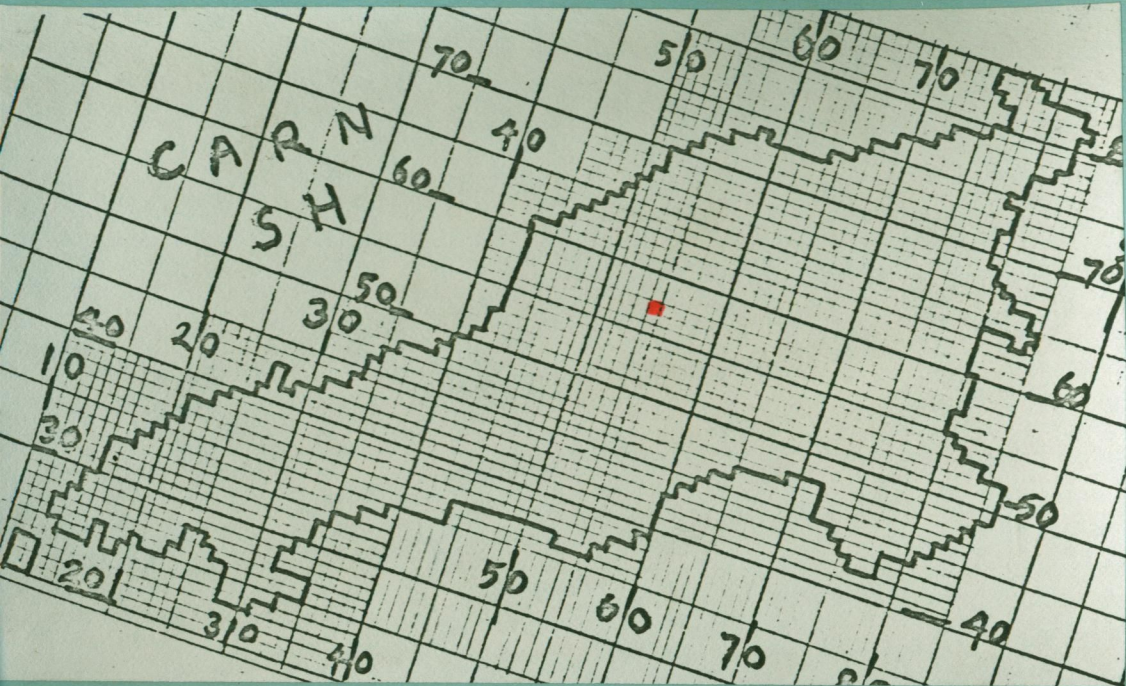
Britannia M SH 61 54

SIDERITE

CARN

Bettws Garmon 5457





Segeenite

Caen

Great Ormes Head

Silver minerals, unspecified.

Ceeston

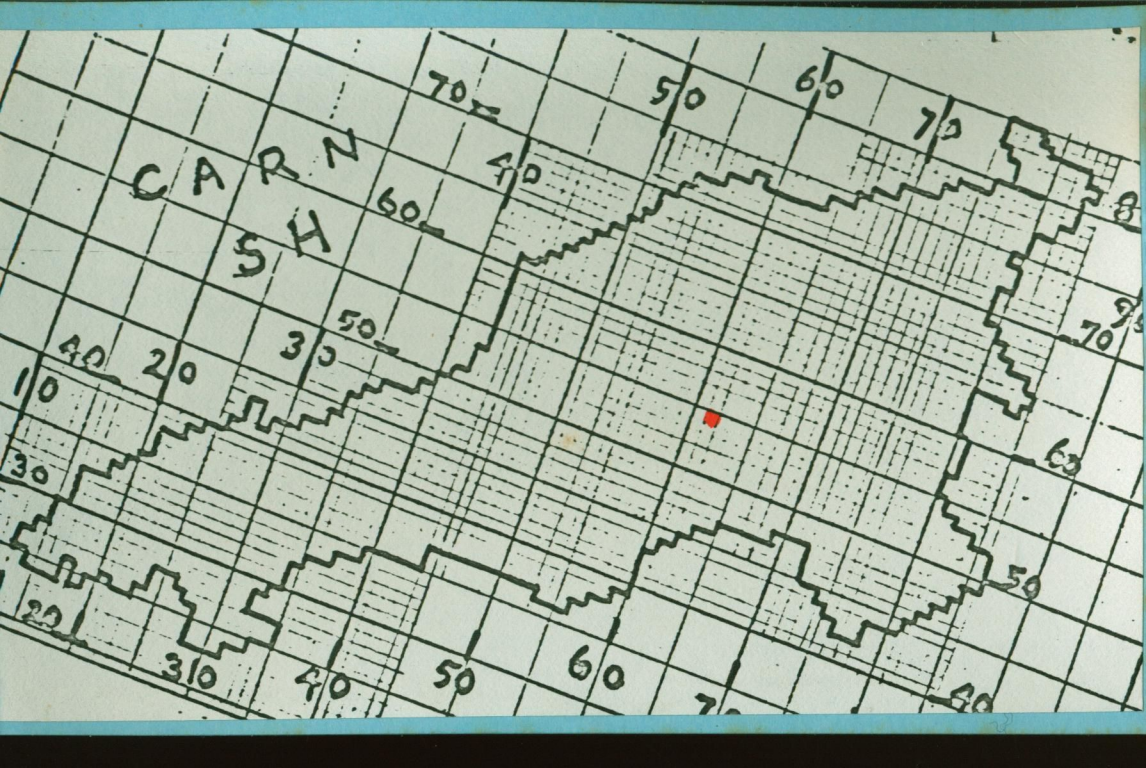
great Ormeshead



"Snowdonite"

Caern

Britannia M SH 6154



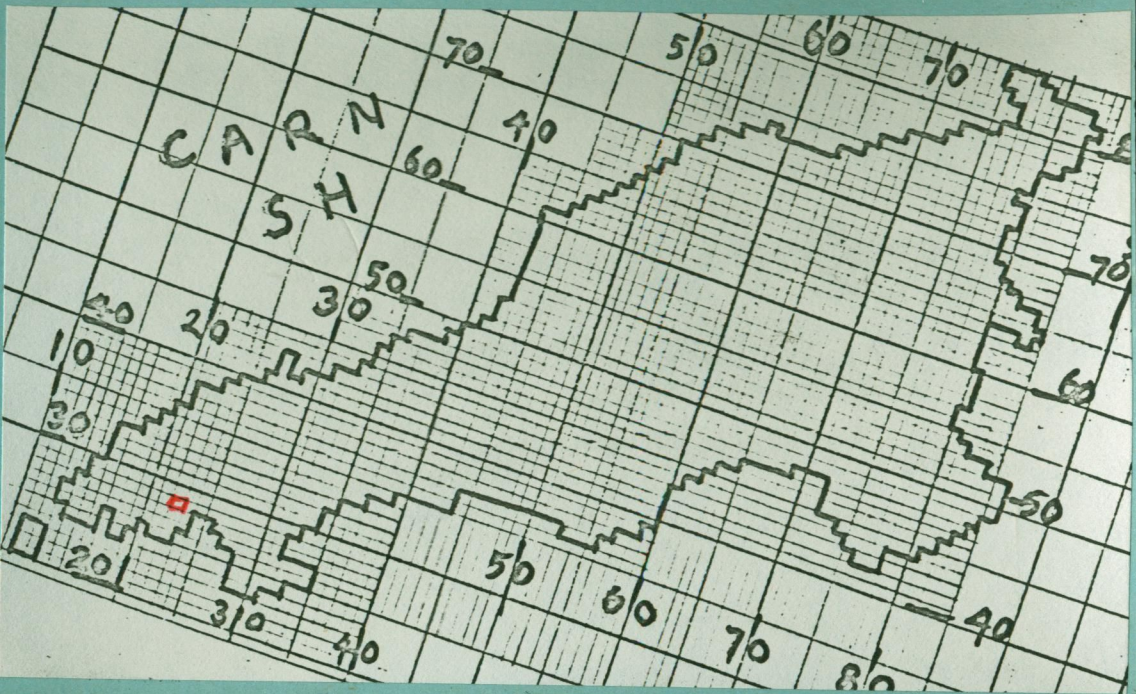
Spessartite

Caern

Benallt mine (Rhiw) (3)

2228





## SPHALERITE

(I)

Abellyn M 7957 7958  
 Assheton M 32 26  
 Benallt M ~~(Llandudno)~~ ~ 7956  
 Bettws-y-Coed 7879  
 Bwlch M 31 26  
 Bwlch-y-Tocyn M 6353  
 Cwm Merch M 7758 7759  
 Dangoch M 30 26  
 Drws-y-Coed M 54 53  
 Gorlan M 7759  
 Klondyke M 7662  
 Mountain Lode M 5353  
 Pant-Gwyn M 30 27  
 Parc M 7860  
 Pool M 7858  
 Llandudno M 7782 7783

## CARN

Pen-yr-Allt M 7957  
 Porth Nigel M 29 26  
 Tal-y-Sarn M 5353  
 Tan-y-Blwch M 30 26  
 Welsh Foxdale M 7660  
 West Assheton M 31 26  
 Penrhyn M Llanengan 32 26  
 Benallt M (Llandudno) 5353  
 "Llanrwst" one field -  
 Trecastell M 7674  
~~Grames Head 782 783~~  
 Hayna M. 7860  
 Llanrwst M 7759  
 7859

Zn

Bryn-Eistedd fod M 7859

Ffrith-Sian M 7860

Ty'n Twll 7861

Coed-gwydir M 7764 7863

Blaen-y-Pennant 5446

Dinas M. 5347

Sygun M. 6048

Moel Ffleiddiau 6749

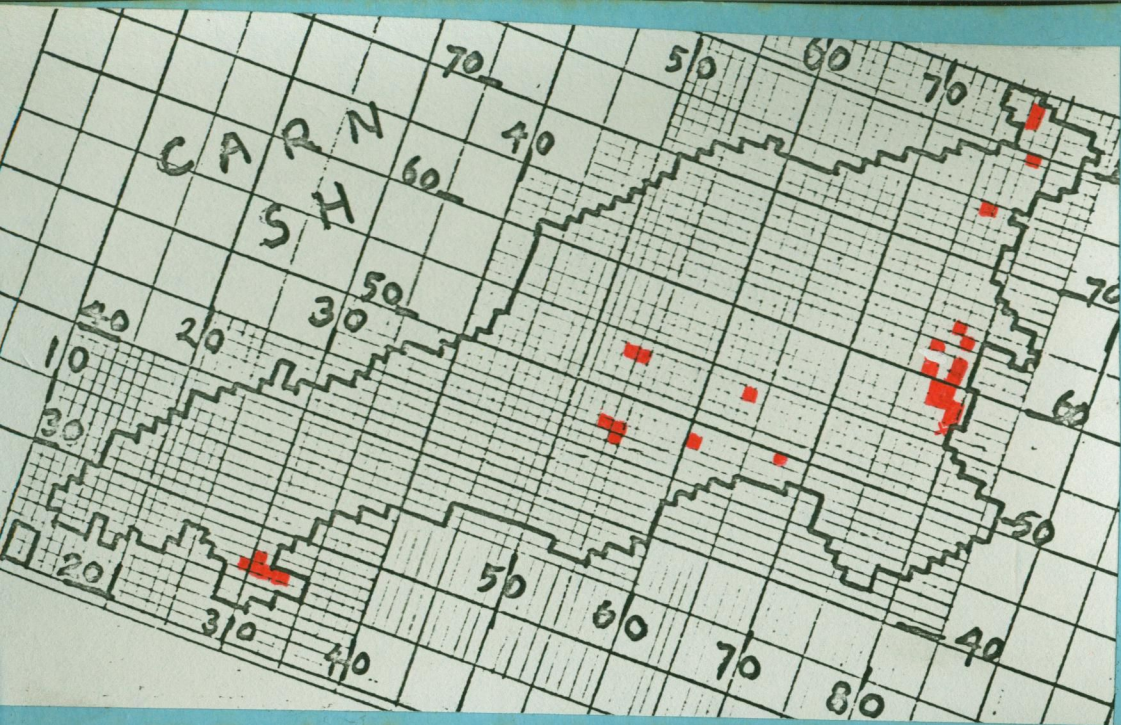
Cwm Llefrith 5547

Great Ormes Head



Sphalerite (II)

Carn.



Spionkopite

Caern

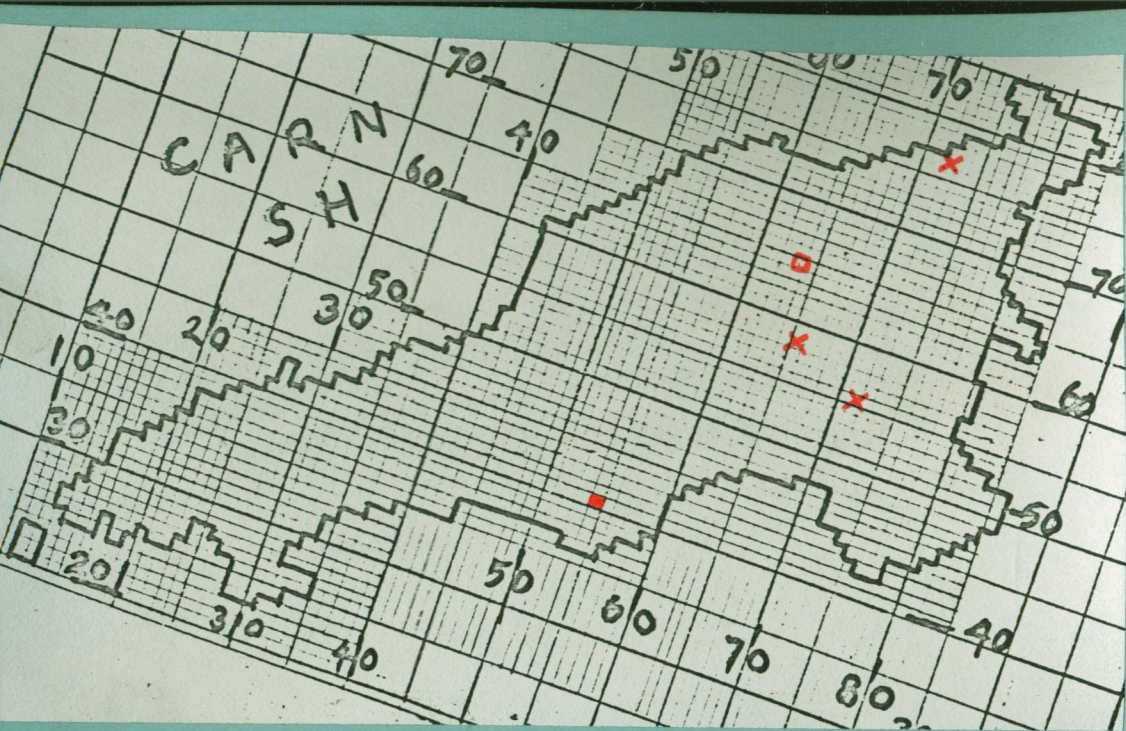
great Ormes Head



STEATITE

CARN.

Dolawyr 6364(?)  
Glyder Fach ~ 6558  
Moel Siabod ~ 7155  
Penmaenmawr ~ 7276  
Penmorfa 5440

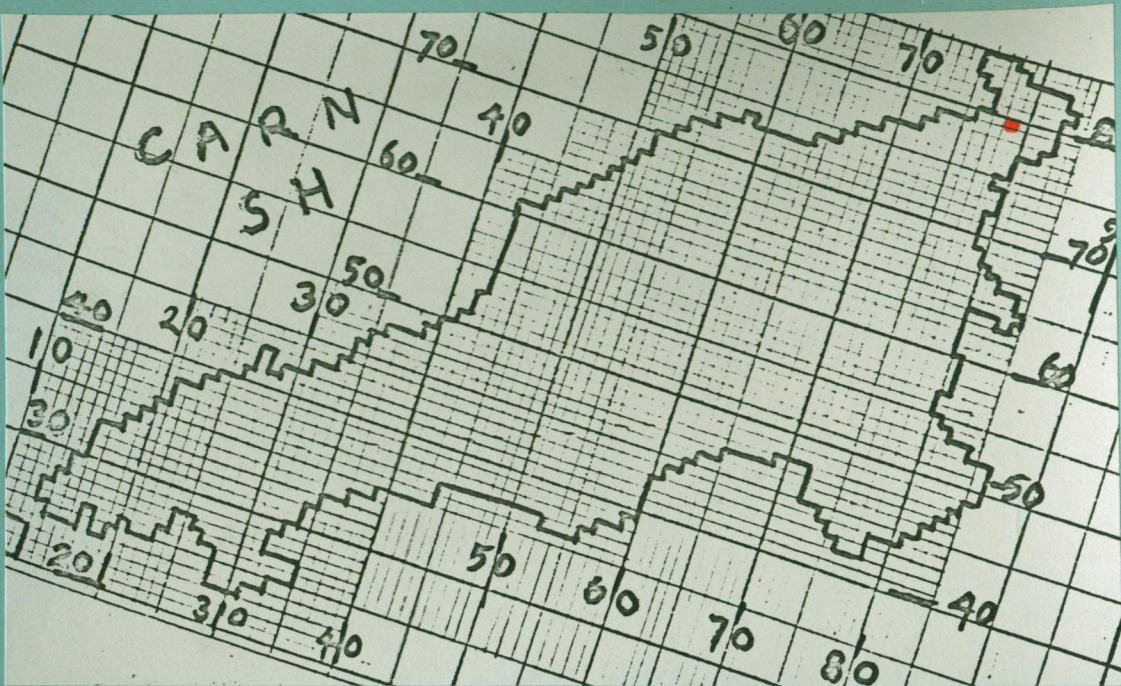


STIBICONITE

CARN

Bwlch M 7879



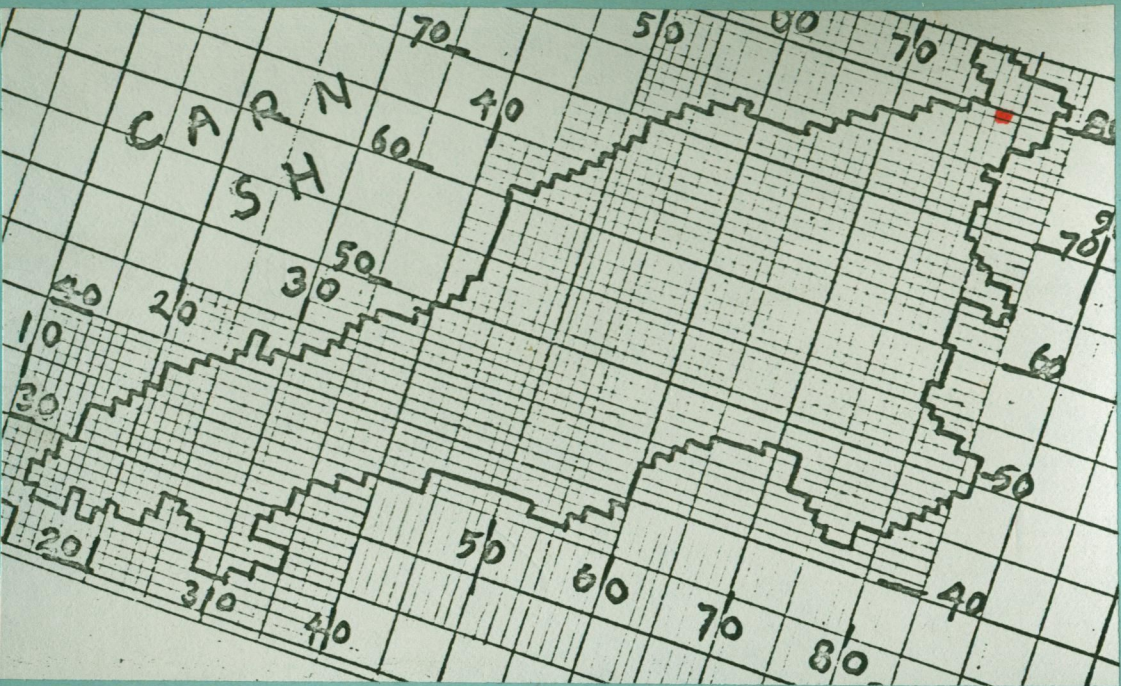


STIBNITE

CARN

Bwlch M

7879





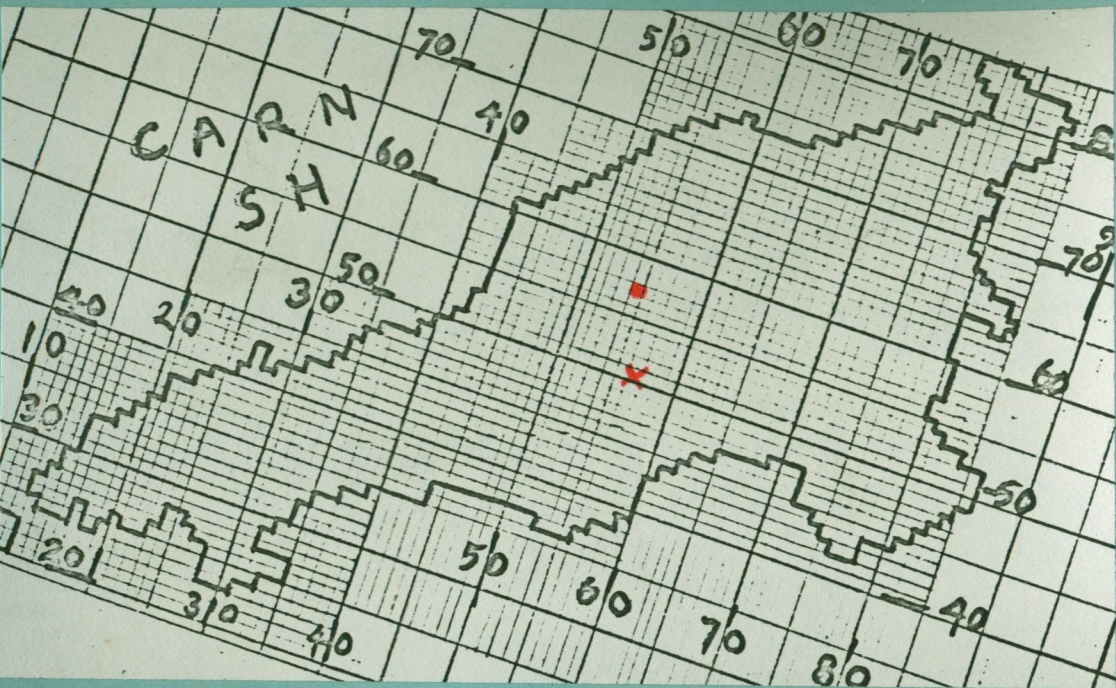
Stilpnomelane

Carn

Bethws Garmon 5457

Llyn Llewelyn (?) 5650

Late Cae-mawr (?) 5650



Sulphur

Caern.

Pentrhyn (Du)\*, Llanengan



Tennantite

Caern

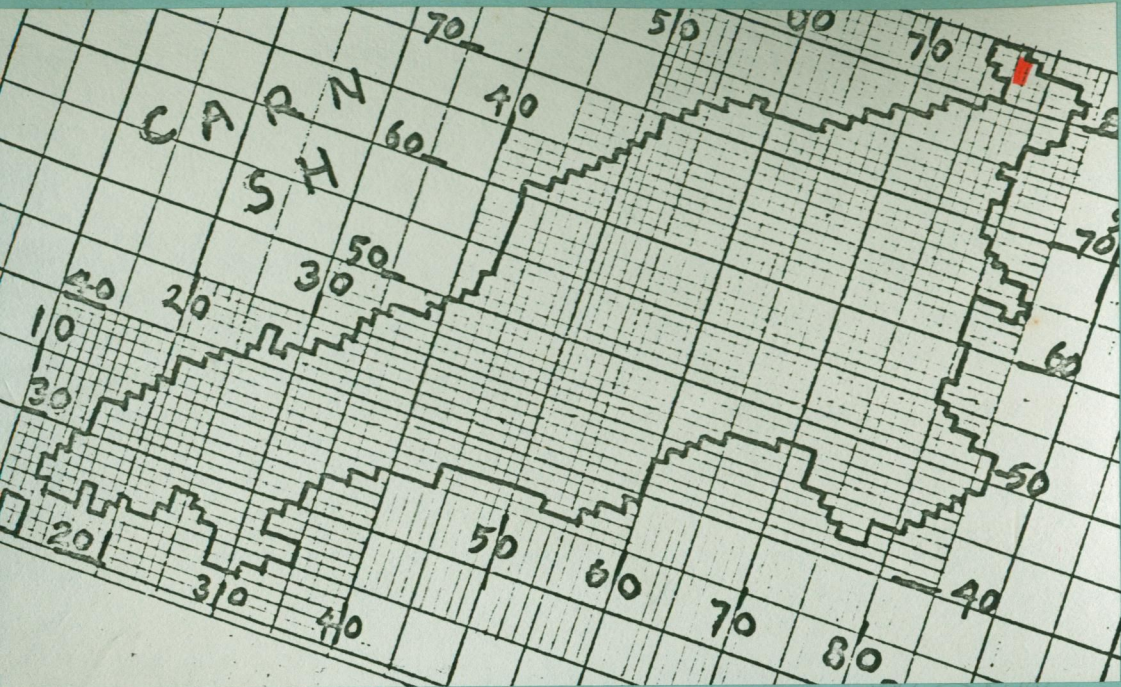
Great Ormes Head

("MELACONITE") = (~~T~~enorite)

CARN

Great Ormes Head

7782 7783



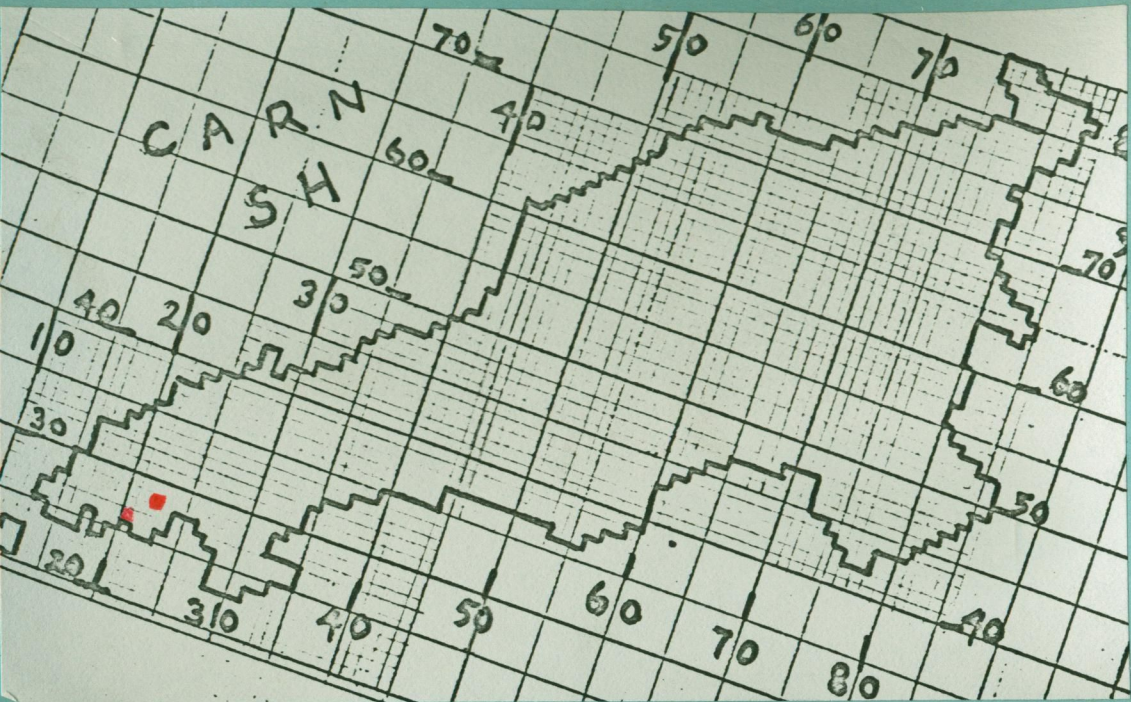


Tephroite

Caern

Benallt mine (Rhiw) 2228

Nant M 2026



THOMSONITE

CARN

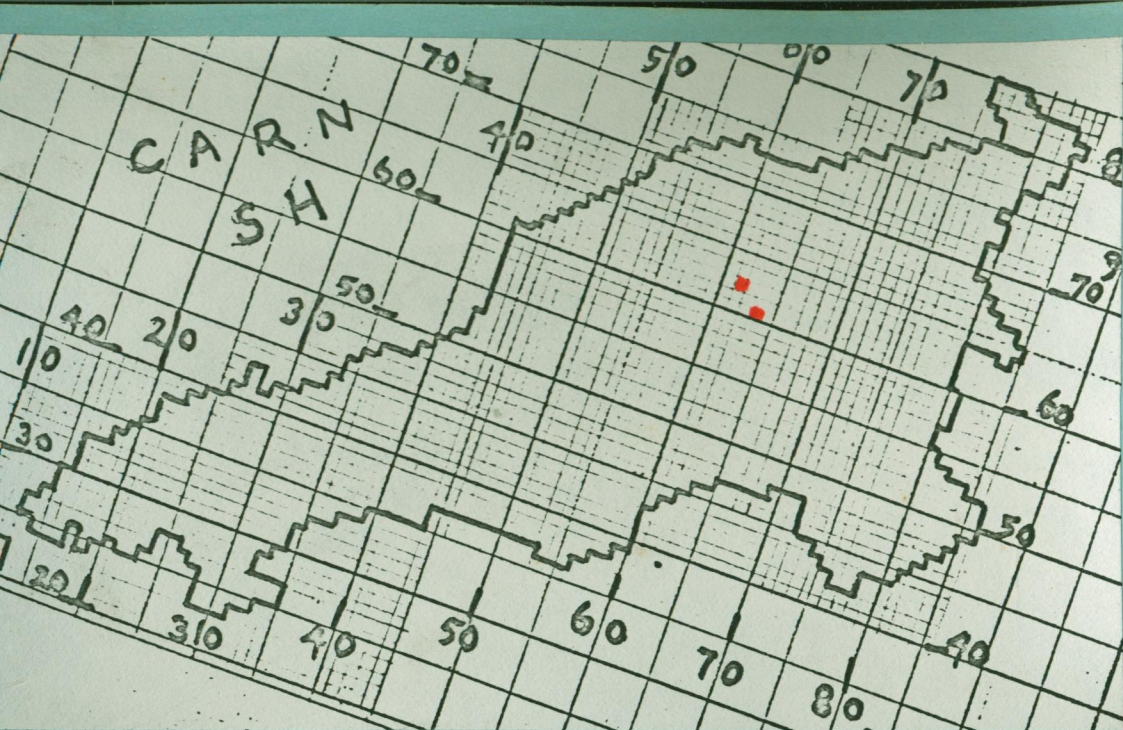
Marchlyn Mawr

6162

Bwlch-y-Cyffwrdd

6360





TITANITE  
SPHERE

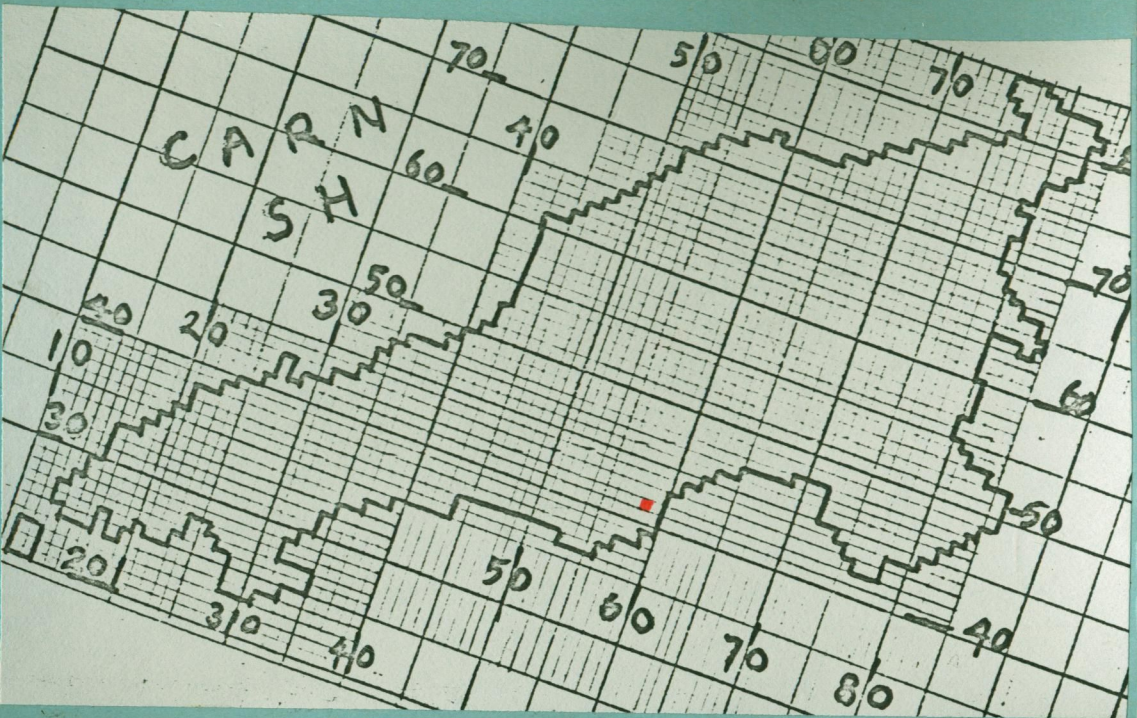
CARN

Fronoleu

Twll-maen-grisial } 5841

Tremador

CARN  
SH



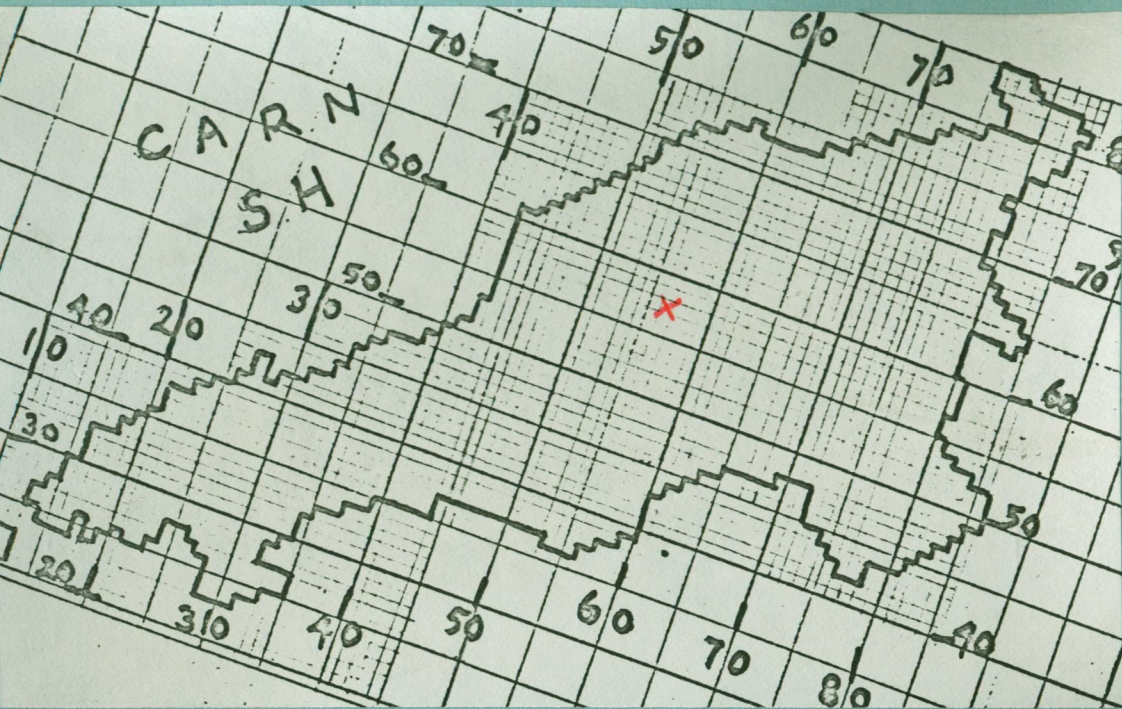


Tourmaline

Carn

Cwm Dwythwen ~ 5657

CARN  
SH



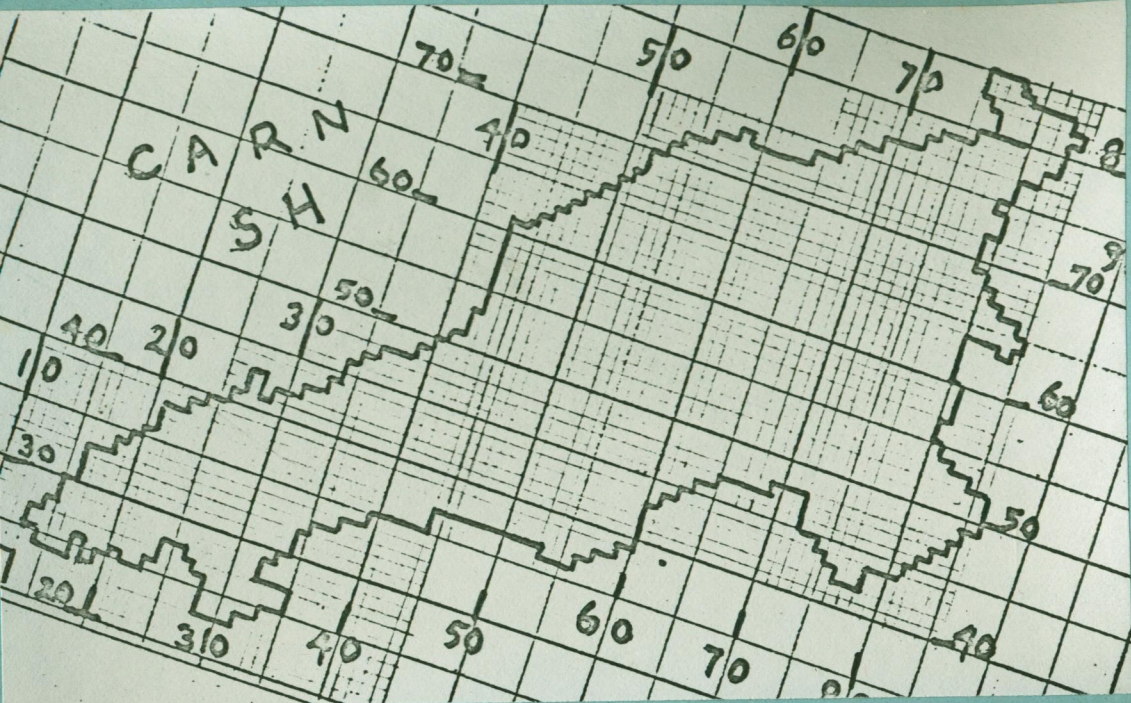
Fremolite

Carn

("Caradoc Caer"?)



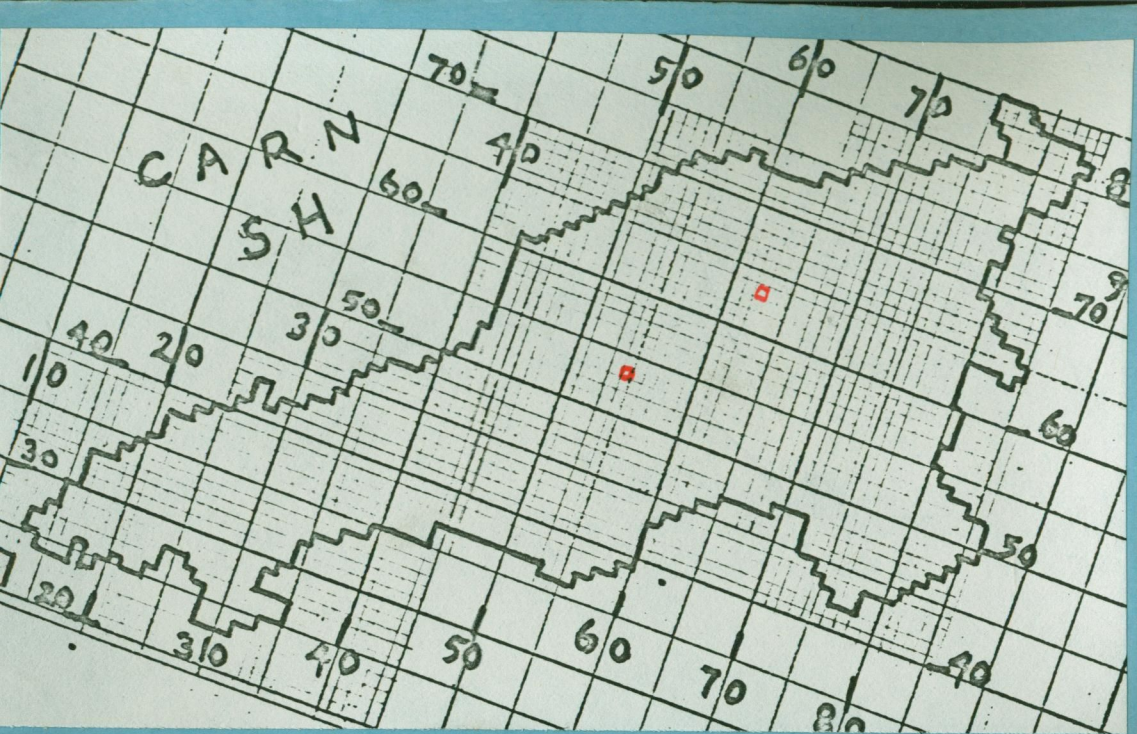
CARN  
SH



Woodwardite

Caern

Tal-y-Sarn M (?) 54 53 [hydrowoodwardite]  
Cennant M (?) 62 63

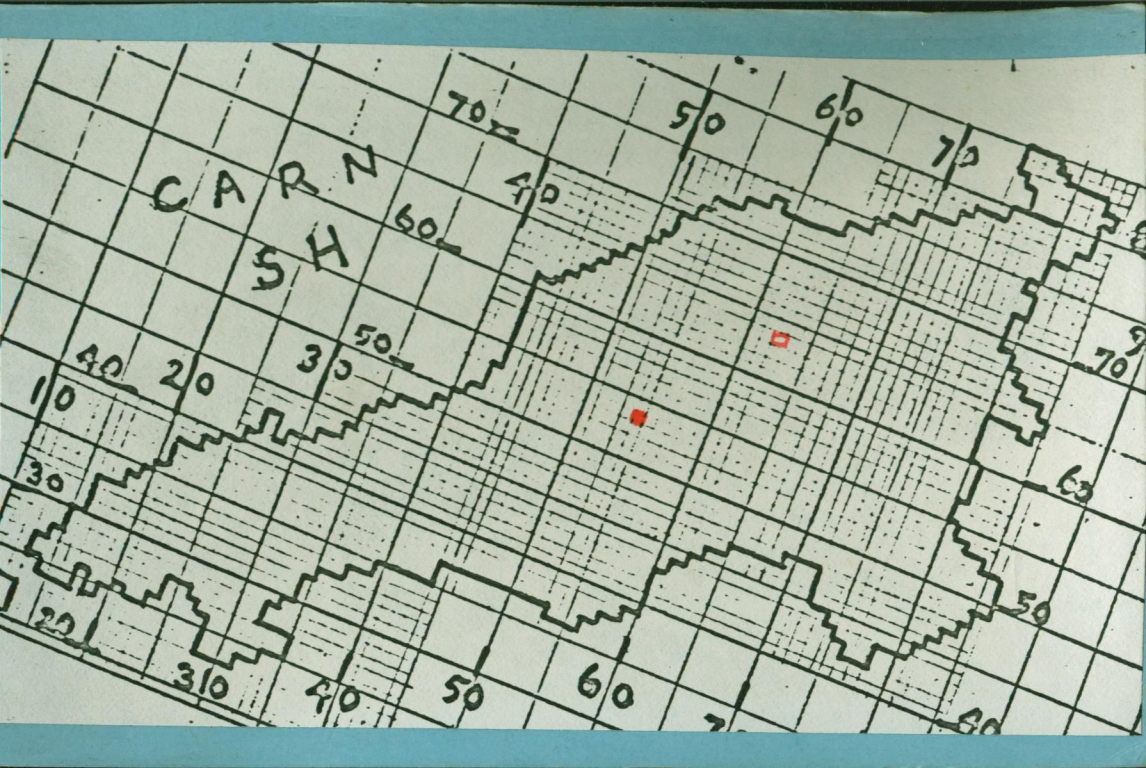




Wroewolfeite

Caen

Dows-y-coed M. 5453  
"Nant Francon" (?) } 6263  
(Ceunant Mine)



Zinckenite

Caern

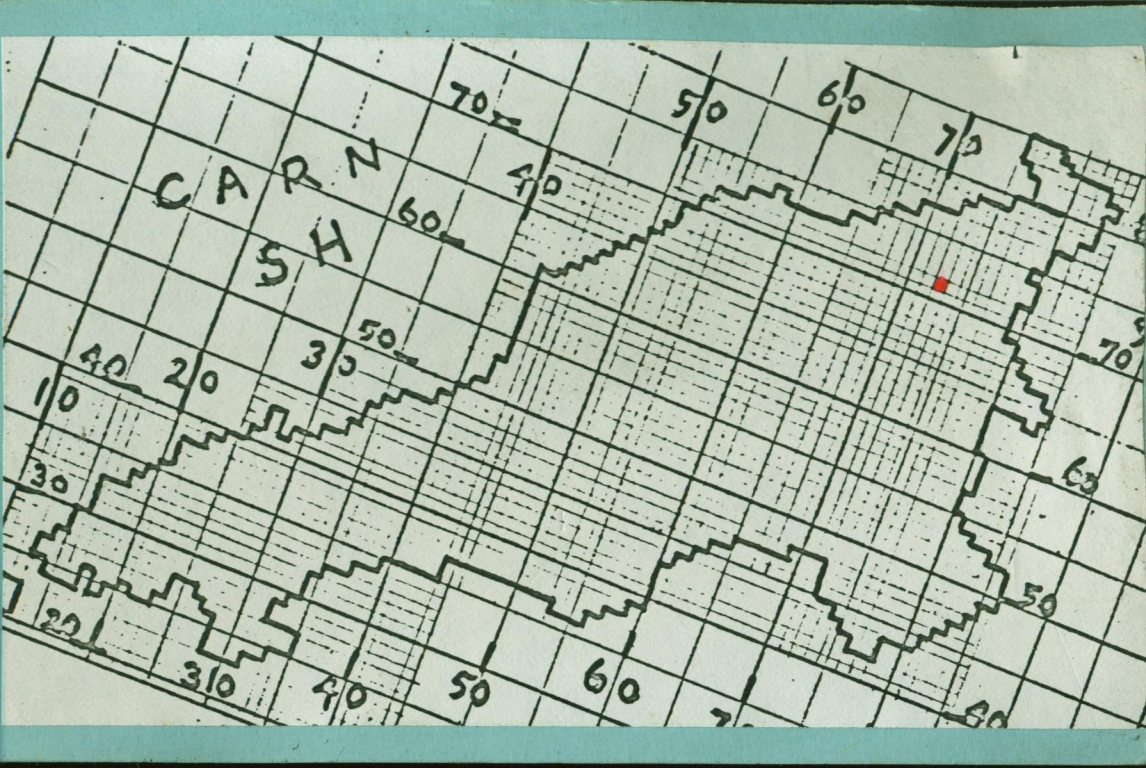
Bwlch M 7879



Zoisite

Caern

Bwlch y Ddeufaen 7271



(P)

1" 107

SH 795 577

level at 797 575<sub>2</sub> - Pen. yr. Allt Mine

ABELLYN MINE, Bettws-y-Coed, Caern. (I) 794580 (JRFs)

See also PEN-YR-ALLT M.

Dewey & Smith

SRMRGB XXIII (1922) <sup>62-4</sup> Zinc mine. Shafts & levels 7 fms N of B-y-C Str. Ordov. black slates & felspathic ash.

Hard Lode (western): N-S; brecciated quartzose stuff with thin veins blende. Veins w. xls. Continues to Parc Mine (= Gors Lode), Llanrhydwyn (q.v.). 6 levels No. 4 N-wards, 75 fms below Llyn-y-Parc.

Shale Lode (1<sup>st</sup> to Hard): Ore in bunches, no qtz.

Continues to Parc M (= Shale Lode). ~~the~~

The two lodes intersect at mouth of levels 100 yds N of mills. Remarkable for hydrozincite in old levels.

Abandoned 1885. Plans in Home Office



DC Davies (1888) "Likely to be a large producer of blend  
WW Varvill (1954) Min. & Q. Eng (Sept) Fig 15

WJL (1967) Map, p 237 Lead mine - "ABER-LLYN"

AA Archer in N-F (1959) 269-273 ABERLLYN, worked  
N-S lodes. ABERLLYN & Shale lodes.

JRF-S (1977) 18. ABERLLYN. Worked S contin of  
SHALE V. of PARC M. To N, beneath Llyn-y-  
Parc, 2 "Veins", HARD V. on W, & SOFT (=SHALE) V. on  
E; both ~ NS & unite to S. Breccia cement.  
by quartz. Sphalerite w. some galena &  
much pyrite. Worked through levels.  
Working intermitt 1869-1904, 1919-20.

ABELLYN MINE, Bettws-y-Coed, Caern. (II)

RE Bevis, S. Turgoose & PA Williams (1982). Min.

Mag 46 51-54 "Namuwite,  $(\text{Zn}, \text{Cu})_4 \text{SO}_4(\text{OH})_6 \cdot 4 \text{H}_2\text{O}$ ,  
a new mineral from Wales"

New mineral, namuwite (named from Nat. Mus. Wales); thin micro-x's - thin hexag plates, max  $60\mu$  across; pale sea-green, pearly lustre, "amorphous to naked eye" - one rounded enclustation  $5 \times 1.5 \times 0.5 \text{ cm}$  thick on Fe-stained stal. hydrozincite on altered sphalerite - matrix breccia of black pyroxiferous slate fragments from Crafrant Volcanic group, cemented

by sphalerite, calcite, ankerite & quartz  
— one specimen only (In Nat. Mus. Wales<sup>§</sup>,  
NMW ~~27.111~~ 27.111. GR 414; ex G.J. Williams  
coll., labelled "Hydrozincite (coloured by malachite)  
Aberllyn Mine (1917) Betws-y-Coed, Carn...".  
Mine at SH 74 582 in Forestry Comm. Land  
(from whom permission). Only access. working is an  
adit in extremely dangerous state of collapse  
Phys & XRD data given n. 1.577 (NaD) G, 2.77  
IR: 1111, 1080, 973, 719, 600, 520  $\text{cm}^{-1}$ .



ABERDARON, Carn.

See also POMPREN MINE

Cardiff Mus: Manganophyllite.

1" 107, 116

SH 595 463

ABER GLASLYN, Beddgelert, Carn.

See also HAFOD-Y-LLAN

G & L (1858) Near Pont-aber-glaslyn [595463]:

Pyrrhotite.

TMH (1868), 73. Silurian. Pyrrhotite, chalcopyrite  
— Pont-aber-glaslyn.

DE Bick in AA Archer N-F (1959) 259: Mention of  
"Aberglaslyn mine".

A. Aikin, "Journal of a tour..." (1797): A mine  
in the Pass of Aberglaslyn

discharges water "strongly impregnated with sulphate of copper" into the river.

R. Warner "Wales" (1799) 122. Looked into level of the copper mine penetrating the LMS mtns (going N) at Aber-glas-lyn, belong'g to Sir W.W. Wynne, said to produce purer ore than Paris M., then walked N, under precipice, to Beddgelert [ $\therefore$  mine nr. 5946? - in Pen-y-gaer area]



ABER-LLYN MINE, Betws-y-Coed, Caern

See ABELLYN M.

1" 115

Llanengan

SH 3127, 3128

ABERSOCH, Caern,

Wales

See also mines in Llanengan parish, eg. PEN-Y-GAER, PANT-GWYN, ~~DEWYDAR~~ DANGOCH, ASSHETON M's, TAN-Y-BWLCH, BWLCH-TOCYN, PENRHYN MAWR, PENRHYN M.

I. Dosselt & D. I. Green (1998) J. Russ. Soc., 7, 37-38

In fractures in pebbles of h<sup>4</sup> therm alt'd brecciated silicified w. quartz-chalcopyrite-bornite veins, on beach near SH 316 Z70, betw. ABERSOCH & PENRHYN DU:

Atacamite, relat. common dark green encrust. of minute drusy xls. Rarely botallackite, acic  $\rightarrow$  laths  $\rightarrow$  0.4 mm, deep emerald- to pale-green. Rarely ciomengite,

light blue crusts of minute  $<0.1$  mm bipyr.  
xls. Illident XRD. From action of  
sea-water on Cu ores.

RSN('06) 48, 13. On beach small amounts  
galena & connellite ("conallite") in a piece  
of slag, with phosgenite



1" 107, 116

SH 582 465

AFON-GOCH, Beddgelert, Caern.

See also BRYN-Y-FELIN; BWLCH GOLEU, Y-DD<sup>HA</sup>~~DA~~LLT.

JRF-S(1977) 32

and Volc's on  
194th Cent?

NE vein in Ordov. slates  
Which trials for Cu ore.

1" 115

SH 321

262

ASSHETON MINE, Llanengan, Caern.

See also WEST ASSHETON, BOUNDARY Sh., MAWR Sh., PENRHYN I

AA Archer NF (1959) 261-2 Abandoned 1883. On dumps:  
galena; blende; chalcoprynite; baryte.

JRF-S (1977) 34-35 Fairly extensive, working  
between 1870-1889. Baryte, lead &  
zinc ores.

B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59

F. Ince, Priv Comm (11/91) Pyromorphite

1" 115

SH 318 263

WEST ASSHETON MINE, Llanengan, Caern.

See also ASSHETON M.; BOUNDARY sh., MAWR sh.

AA Archer N-F (1959) 261-2 Abandoned 1883. On dumps:  
galena; blende; chalcopryite; baryte.

JRF-S (1977) 35 At Marchros. working  
between 1876-1881, when Pb & Zn returned

B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59

RSN ('06) 48 13. J. Davidson. From Abersoch beach went  
up hill to "Penrhyn Du Mine" at SH 315 263  
[PENRHYN DU M. is at 373 263; W. ASSHETON is more



likely]. Mine & Corn Eng House remains are  
in garden of a private house. A small but  
nice pyromorphite found in tailings.

BANGOR, Caern.

See also LLANDEGAI etc.

TMH(1868), 73. Pyroxene, in Trap

F. Smithson & G Brown MM 31 381. Inconspicuous  
dickite in Carb lim. ca 1000 yds NE of  
Menai suspension bridge [ie near SH 565 720]

G & L (1858) Acicular quartz - Bangor Slate  
Quarries.

BM(NH) spec: Haematite, a platy mass nearly  
3 inches across, with calcite & quartz.

1" 107, 116

SH 5948

BEDDGELERT, Caern.

See also TREMADOC; BEDDGELERT MINE; PARC TY'N-Y-COED; MOEL YR OGOF

LLYN LLEWELYN

TMH(1868), 73.

Lr. Sil.

Brookite; rutile; chalcopyrite.

PT. HANSON Brookite 2/10. In surface,  
small deep blue xls. found near  
SH 373, 485.



1" 107, 116

SH 5 4

BEDDGELERT MINE, Beddgelert, Caern.

AA Archer, N-F (1959), 269. Produced lead ore in 1863.

BENALLT MINE, Llandwrog, Carn

[NOT = BENALLT MINE, Rhiw.]

See also NANTLLE; DRWS-Y-COED M.; TAL-Y-SARN M.; MOUNTAIN  
LODE M.; MYNYDD MAWR

AA Archer N-F (1959) 268 Two quartz, sphalerite  
& galena bearing E-W lodes worked at  
Benallt mine, near Drws-y-coed. The  
only year for which a return was made  
was 1923.

WJL (1967) Map, p 237. Lead mine

JRF-S(1977) 27. Small mine, levels to  
N into Mynydd Mawr to cut 2 EW  
veins on S. slopes, in Ordov. slates.

Quartz, with galena, sphalerite, pyrite.  
One said. to have up to 40 oz Ag/ton.

Active 1914-23.

SRMRGB 23 (1922) Smith & Dewey; p 58.



1" 115

Around SH 220 280

BENALLT MINE

Rhiw.

Caern. (I)

See also RHIW; NANT M.

[NOT = BENALLT MINE, Llandwrog]

AA Archer N-F (1959), 268

E-W lodes, with

Near Drows-y-coed Mine (qv).

Two

quartz, blende, galena.{The  
Llandwrog  
mineRSWB (7/67) II 88Baryte.OS 6" map: Mn, Fe mine.MH. HeyMM 23 246, 251, 258. (1932) Natrolite, coll A. Russell, 1911  
magnificent large xls; up to 3.5 cm x 0.4 cm sq.  
- also untermated fragments up to 5 x 1 cm sq.  
clear when collected but unless kept in a

closed tube become translucent or opaque.

L.J. Spencer MM 26 231 (1942) Ba feldspar - celcian and paracelsian [Former rather like oclase, latter looks rather like topaz].

(1944) MM 27 33, also Nature (1944) 154 336  
W. Campbell Smith, FA Bannister, M.H. Hey. Banalsite with calcite, baryte, tephroite, alleganyite, jacobsite, minute harmotome xls, biotite, botry. psilomelane. &

W. Campbell Smith MM 27 63 (1945) Banalsite in xls

W.C.S.; F.A.B., M.H.H., MM 27 217 (1946) Pennantite - new Mn-rich chlorite, orange xls. particularly in

## BENALLT MINE, Rhiw, Caern (II)

athian vein cutting ore in the Ty Canol incline,  
with garnets (? spessartine), analcime,  
paragonite, ganophyllite - pale pink to brown  
fibrous patches in the veinlet, calcite,  
pyrophanite.

## A Russell MM 27 221 (1946) Rhodonite

W. Camp. Sm.; FAB., M.H.M. MM 28 676. (1949) Cymrite, new  
mineral, colourless plates up to  $7 \times \frac{1}{2}$  mm on  
dark compact ore, also satiny-fibrous looking  
prismatic xls closely assoc. with ganophyllite  
Cleavages v. characteristic (PT)



Cymrite - sections →



W.C.S. & F.A. Bannister MM 28 343 (48) Ganophyllite,  
pale pink to brown fibrous patches in the  
thin vein carrying pennantite cutting one  
in the Ty Canal incline, now also with  
calcite in glistening cinnamon-brown six-  
sided flakes with brilliant lustre.

W.C.S. & G.F. Claringbull MM 28 108 (47) Pyrophanite,  
tabular trigonal, a few small orange-  
yellow xls (up to 0.25 mm diam) with very  
high RI & birefringence, with the pennantite.



Cont. (III)

## BENALLT MINE, Rhin, Caern (III)

FABann, M H Hey, W. Camp. Smith, MM 30 645. (1955)  
grovesite, new mineral, thin blackish-brown  
crust on ore from No 5 orebody, with  
the banalsite, as closely packed micro-  
rosettes up to 0.5 mm across.

JV Smith (MA 12 333) Acta Cryst (1953) 6, 613. Paracelsian xl. struc

FJ North (1962), 100. Closed 1945, Particularly  
complex geol. structure due to folding &  
faulting, & orebodies irregular, and altered  
by mineralising solutions concomitant with

volcanic activity, & one unusual, consisting mainly  
of Mn silicates with oxides of Mn & Fe; MnCO<sub>3</sub>, so  
characteristic of the other mines, being v. rare  
Worked opencast, then underground

A Russell, Nature (1911) 86 180      Celsian

AW Groves Bull Inst Min. Metall. (1947) 484; 486, 37; 490, 2  
Magnetometric survey.

MM 28 xxxvii. Exhibit: Pyrochroite;  
native copper, ganophyllite.

Cont(IV)



# BENALLT MINE, Rhiw, Caern. (IV)

R Taylor (2010) <sup>Priv comm.</sup> <sub>RSWB 10-27</sub> Jorcelandite on banalsite-apatite

P. Jay & NN Roy MM(1968) 36 914 (Mineralogy  
of K-Ba feldspars; subsolidus relationships)  
Celsian.

ML Smith & C Frondel MM(1968) 36 893 "The related  
layered minerals, ganophyllite, bannisterite,  
& stilpnomelane".

Some of the Benallt ganophyllite turned  
out to be a distinct, new, related mineral,  
- bannisterite.

M. Rothwell BMSN (1998) 51, 12-13. BMS coll 2007.

Piedmontite, brown. [=Piemontite-(Sr)  
LWJMM (2008) 22 14]

RSN (2000) 37, 18. An SSSI. Black lumps of Mn-rich  
rock on dumps round opencast - basking gas  
small spec's of paracelsian & celsian. One  
beaut paracelsian (Ian Dosselt). Epidote in  
the dolomite, pyrite, crpy, "Rhodochro"  
acting piedmontite from largest dump in  
adjacent field.

RSN ('03) 42, 26. As above. Visited 6/02. ? rhodonite  
of A. Russell

RSN ('06) 48, 13 Natrdite, analcime, celsian, malachite, azurite  
at 222 281

1" 107

SH 535 575 (Kramlet)  
54 57 (mine)

BET(T)WS GARMON, Carn.

(I)

Cardiff Mus: Siderite, brown mass in white vein-quartz in iron ore.

David Ball, Priv. Comm., (1963): Specimens donated to RSWB & TBG: siderite, brown masses in quartz, showing attractive Schiller reflections on cleavage faces.

OS 1 in. map shows "Mine (Dis)" at SH 550578. (Map 107

RSWB (6/68), V 119. Strong vein exposure from road at 540 5735 up mountainside to near 550 580. Much schiller-siderite on lower dumps.

GR & FP Ross (4/69) At ca 5440 5785 found



iridescent siderite (BM x-ray, siderite + haematite);  
with white calcite & 1mm veinlets of dark brown  
blady stilpnomelane (IR: GR.M 234; BM X-ray).  
Traces pyrrhotite.

FJN(1962) 86. Oolitic iron ore, worked early in  
19th Cent - OS map of 1841 shows old  
ironstone quarries at nearby Ystrad  
Mostly worked in late 19th Cent & first two  
decades of 20th cent. Ystrad mine first  
mentioned in Home Office statistics in 1911  
Ore obtained from opencasts & overhand  
stoping in short levels with an occasional  
pillar left to support roof.

BETWS GARMON, Caernarvonshire (II)

GR 6/70. Went to the top, ~~the~~ but dumps  
v. poor. Best dump for siderite:  $\frac{1}{2}$  way  
up the straight tram-incline, just above  
the last birch-tree. Much siderite, very  
good stilpnomelane

i" 107

SH 79 56

BETTWS-Y-COED (nr. Llanrwst), Caern.

See also ~~ABELLYN~~ CYFFTY M.; GORLAN M., PARC M., WELSH FOXDALE M.  
ABELLYN MINE, PEN-YR-ALLT MINE

TMH (1868), 73. Sil. Slate. Blende

Mrs B. Kerrison of Wirral (4/6/83) Colourless cross-  
fibre veinlet, distorted, found near  
SH 755 593 [ie W of Llyn Bodgynydd]  
NW of Bettws-y-Coed. IR(RSWB) = quartz



BETTWS-Y-COED MINE, Bettws-y-Coed, Caern.

See CYFFTY MINE

"107

SH 642 608

BLAEN-Y-NANT, Llandegai Caern.

See also NANT FFRANCON etc.

JRF-S (1977) 22

Trial for Cu in Ordov.

in 1862

Pyrite, chalcopyrite;  
molybdenite said to occur.

SRMRGB 30 (1925) 50

Brown, MM 32 242 (1959) Near the old

road NW of Blaen-y-Nant:-

Pyrosmalite, with garnet, chlorite

e. iron ore as constituents of  
metasomatised slate

RSWB 31/8/79 Searched rocks by old  
roadside near 641 609. Could  
not find pyromalite. Quartz  
(mostly massive) a chlomite



1" 107, 116

~ SH 541 469

BLAEN-Y-PENNANT, Dolbenmaen, Caern.

See also GILFACH M's, etc.

JRF-S(1977)31. Trial ~ 1850, exact loc. unk.

Quartz, with much pyrite, some  
chalcopysite, galena, sphalerite.

Closed 1850.

Min. Journ; July, Aug, Oct. 1850.

1" 107

SH 764 596

BODGYNYDD, Llanrhychwyn, Caern

JRF-S (1977) 17. Level NE towards HAFNA M  
from just W of a small artif-lake NE  
of Llyn Bodgynydd, @ ~ 800 ft OD, apparently  
along a NE vein. On OS maps e on  
Fig 15 in WW Varvill, Min & Q Eng (1954) p404  
(Sept).

1" 115

SH 32 26

BOUNDARY SHAFT, Assheton Mines, Llanengan Caern

See also ASSHETON M., W. ASSHETON M., MAWR Sh.

A A Archer N-F (1959) 261.

Between Assheton & W. Assheton  
Mines. Reaches 90 fm. level.



1" 107

SH 618 548

BRITANNIA MINE (Snowdon) Beddgelert, Caern. (I)

= SNOWDON MINE = GLASLYN MINE = CWM DYLI ~~(SNOWDON)~~  
 = CWM DYLI ROCK AND GREEN LAKE M. ~~(ROCK)~~

AA Archer, N-F (1959), 269. Closed 1915. Copper ore.

FJN (1962) 58 On a precipice overlooking Glaslyn, high  
 on E side of Snowdon. Cu ore. Closed 1915

FW Rudler (1905) Chalcopyrite

H Dewey & T Eastwood, SRMRGB 30 (1925) <sup>51-2</sup> GLASLYN MINE (Cu)

Ramsey Mem GS (1881) "N. Wales"

JRF-S (1977) 23-24 Several Cu veins, NW, in Ordov.  
of quartz, with pyrite, chalcopyrite,  
galena, much malachite near outcrop  
& in shallower levels.

Prob. ancient. Working 1804-47 as "Snowdon  
Cu M."; 1850; 1851-6 as "Cwm-dyle Rock &  
Green Lake M."; 1863-9; 1899-1903 as "Britannia  
M."; 1913-1915. Now lakes hydro-electric.  
Min. Journ reports 1850-1856.

TM Thomas (1961) 218

FJ North, "Snowdonia" New Nat'lst 13 129, 381, 391. <sup>1940</sup> (1940)

WM Condy "The Sn. Nat. Park" — " — 47 35 (1966)

Phillips & Darlington "Records of Minge Met". (1857) 268.

# BRITANNIA MINE, Beddgelert, Caern. (II)

N. Hubbard, Priv. Comm. 2/83. Chalcoalumite  
"confirmed" by XRD found on a pile of  
deads in the mine by somebody;  
sample of similar-looking material  
from the wall in another part of  
the mine sent to RSWB (83-19) [IR:-  
related to chalcoalumite but broadened and  
somewhat indistinct - poorly xlied/amorphous  
or impure?]. Two new minerals have  
been found both post-mine formations:  
(i) Snowdonite \* a langite-type mineral  
with essential Na and Al - crusts of  
\* =  $\text{CO}_3$ -connellite (v. infra)



blue crystals on the mine wall;

- (ii) "Pygite", colourless tabular crystals w. faces malachite on the mine wall - found to be a rare earth carbonate, then shown to = lanthanite. Both on a small area of wall, & when visited by NH in 1982 v little snowdonite & no lanthanite left, but found some lanthanite elsewhere in mine.

[Contact Dr. P. Williams, Chem. Dept., Un. of Wales, Cardiff]

Bevins, R.E.; Rowbotham, G.; Stephens, F.S.; Targoose, S. & Williams, P.A. "Lanthanite-(Ce),  $(Ce, La, Nd)_2(CO_3)_3 \cdot 8H_2O$ , a new mineral from Wales, U.K". Amer. Min (1985) 70, 411-413.

BRITANNIA MINE, Beddgelert, Caern. (TII)  
[Bevins-NMW; Rolobotham, Gee, Keele; Stephens NSW, Turgoose & Williams <sup>Now, JEMIST</sup> ~~Carlisle~~]

Bevins et al (1985) ... Lanthanite-(Ce), class  
transparent sectile plates up to 5x5x0.5  
mm (ragged edges), with malachite clusters  
on them, on walls & back of second  
lowest accessible level, assoc. w.  
brochantite, posnjakite & rarely  
chalcocalumite

Pollard, AM, Thomas RG, Williams PA, Bevins RE & Turgoose, S  
(1989) J. Russ. Soc. 2 (2) 23-7

Carbonatian connellite (ex "snowdonite"), crust  
of flat'd blades w. mal. overlying georgeite.  
in Sneyd's Level

PA Williams (Priv. Comm. 10/90). A considerable  
"deposit" of georgeite found - is an amorph.  
~~the~~ polymorph of malachite.

M. Rothwell (1998) BMSN 50 2-5 An SSSI  
- no hammering.

Quartz, gypsum, marcasite;  
lanthanite - (ce) underground; "langite  
group", chalcocalumite, aurichalcite,  
serpentine, aragonite  
→ [The "snowdonite"]



1"107 1"116

SH 524 394

BRON- Y- GADAIR, Dolbenmaern & Portmadoc, Caern

FJN (1962) 58 Cu mine, worked in early 19th Cen.

JRF-S (1977) 33 Poss. = PORTMADOC M.

Small Cu mine in Cambrian. Active  
pre-1830 → 1850.

Min Journ (1849) records output of  
Pb ore from PORTMADOC - may refer to  
this mine

Phillips & Darlington "Records of Min'g & Met" (1857) 267.

1" 107 SH 787 600 598

BRYN-EISTEDDFOD MINE, <sup>Betws-y-Coed</sup>  
~~Llanthychwyn, Caern.~~  
See also PARC MINE, LLANRWST MINE

Dewey Smith.

SRMR6B XXIII (1923) 75 Near Nant,  $1\frac{1}{4}$  ml SW of  
Llanrwst, Denb. Large cukes galena.  
Bipyramidal quartz

GR's  $2\frac{1}{2}$ " map shows MS "Bryn-Eisteddfod Mine" at <sup>787 600</sup> ~~above loc.~~

WJL (1967), Map, p. 237. Lead mine

AA Archer N-F (1959) Map p 270 shows "Bryn Eisteddfod  
Lode", N-S, to S from ~~just~~ E part of  
LLANRWST MINE (qv)

JRF-S (1977) 16

Worked betw. 1852 & 1890, intermitt,

for Pb ore on PRINCIPAL V. VENE at S  
end of PARC M, with which more recently  
incorporated. Breccia cemented by

calcite & quartz w. galena, some  
sphalerite & pyrite.



1"116 1"107 ~~SH~~ SH 58g 472

BRYN-Y-FELIN MINE, Beddgelert Caern.

= BRYNFELIN

AA Archer, N-F (1959) 269. Produced copper ore in 1867.

JRF S (1977) 33 Small Cu, Pb mine on  
NE vein in Ordov. = BRYNFELIN  
Working 16th Cent; 1851, 1867.

Min. Journ 6/12/1851.

TM Thomas (1961) 218

F.J. North "Snowdonia" New Nat'ist 13 (1949) 391

BWLCH MINE, (nr. Deganwy), Llanrhos, Caern. (I)AR, 44.27.5, (1944).

Mine is on E flank of small hill 210 yds NW of Bwlch farm (owner Mr Gordon Simcox). Shown on 6" Caern. 5 NW (1919) as "Trial Sh.". Single sh. still open; has short shallow open cut and adit. Said to be two levels. Only one small dump. Vein is apparently E-W, in ophitic dolomite, with Carb. Lim. nearby. Much of the ign. rock is in spherical concretions. Vein is quartz + charledonic chert, often in glob. aggs; here & there patches of stibnite. Specimens from dumps. Semseyite massive & xls, steel-grey to iron-black. Massive stuff has small well-defined (111) cleav. & forms patches  $\rightarrow$  3 cm in white qtz w. stibnite + a little yellow blende. One one good xline spec. -  $4 \times 2\frac{1}{4}$  cm

cavity lined w. small colourless xls on which are many confused aggs. of small ( $\rightarrow 2\text{mm}$ ) xls of semseyite, flat prismatic, deeply striated, corners & edges a bit rounded. Most xls covered w. resinous honey-yellow xline crust like bindheimite. On same spec., spaces between xls have minute hair-like stibnite or jamesonite. Sometimes completely altered to colorless or pale yellow xline stuff. One xl. anglesite in a vugh, stibnite in coarsely bladed masses, on the dump alt'd to resinous stibiconite, more rarely rosettes, or bent rods inside qtz xls. galena rare, cavities in it sometimes show bright octahed. blende, red brown minute xls; granular pyrite; baryte, one spec. w. 4-mm blades; a small rhomb of ankerite.



BWLCH MINE, Llanrhos, Caern. (II)

GR 12/55 Grassed-over dump on edge of an open sh., by a low cliff. Rt 787794.

Some of the dolomite boulders dug up from beneath the grass had patches of massive to fibrous stibnite up to 1 cm across; also some red-brown blende in small xls on quartz. No trace of metallic mins elsewhere in the field, or in the quartz veins of the small cliff.

LSWB 2/64 (IV) 63 As above.

Bevins, RE, Alderton DHM & Horák, JM. (1988) MM 52

391-394. "Pb Sb miner'n at Bwl. M, Degan. Wales"

Brownish crust on stib ident by Russell (1944) as bindheimite not verified. Cherry red coatings on stib. (NMW 85, 70 & M34) may be kermesite but not verified by XRD.

Stibnite; semseyite; zinckenite XRD; capillary jamesonite; plagionite, possibly robinsonite? & boulangerite?

GR (1998) Priv. Comm. One of GR's unknowns from long ago (1955?) (at one time "? allophane") has been shown to be rosicite ( $\text{PbSb}_2\text{O}_6$ ) (FIRST BRITISH) with bindheimite.  
XRD? IR? EDAX?

SH 7879

BWLCH MINE, Deganwy, Llanrhos, Caern (III)

Gré JG Francis (2001) J. Russ Soc 7 [2], 88.

Rosiaite (IR, XRD) new to Brit. Bindheimite (IR, XRD). Prev. publ: quartz, stibn, semsey, franckeite, plagionite, jameson, robinson(?), boulanger(?), sphaler, galena, pyr, marcas, some sec'y bindheim, stibicon(?), angles, red coatings dubious "kermesite".  
[zinckenite not mentioned] Bevin et al 1988, '91  
[franckite & marcasite not previously noted]



BWLCH COLEU, Beddgelert, Caern.

See BWLCH GOLEU

SH 583 469

BWLCH GOLEU, Beddgelert, Caern

See also BRYN-Y-FELIN; AFON-GOCH; Y-DD<sup>UA</sup>~~DA~~LLT

JRF-S(1977)33 ["BWLCH COLEU" in Index].

Trial level on NE end of NE vein  
of AFON-GOCH.

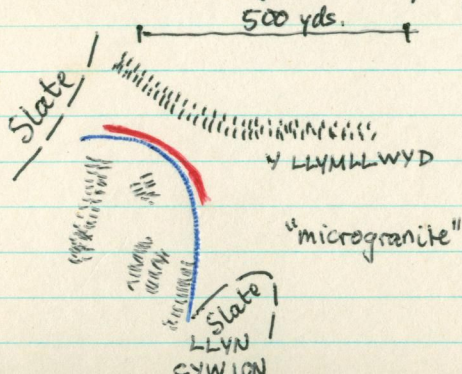
1" 107

SH 63 60

BWLCH-Y-CYWION, Snowdonia, Caern.

See also MARCHLYN-MAWR; NANT FFRANCON etc.

D. Williams, Proc Lir Geol Soc 14 38 (1924) 299 Dyke follows stream, not well exposed. Microscopically same as Type 1 of Marchlyn Mawr (q.v.)  
ca 630609-632607



Analcime  
thomsonite in the  
olivine-dolomite dyke

P-10



DF Ball, Nature (1964) 204 673. Gibbsite, in  
altered granitic rock at 631609

BWLCH Y DDEUFAEN, Caerhun, Caern.D.A. Jenkins & D.F. Ball, MM(1964) 33 1093.

Two varieties of pumpellyite in soils in NW Conway valley; source of one traced to a dolerite intrusion at "Bwlch y Ddenfaen", where it occurs with zoisite, clinozoisite, prehnite, calcite, & chlorite, at SH 724 715

1" 115

SH

313 266

BWLCH-Y-TOCYN MINE, Llanengan, Caern

See also TAN-Y-BWLCH M.; PANT-GWYN

AA Archer N-F (1959), 261-2 On dumps: galena; blende; baryte;  
chalcopryite.

JRF S (1977) 35 Just W of Bryn-Hyfyrd.  
Working pre-1888 → 1892. Much  
baryte. Pb & Zn ores. Worked with  
PANT-GWYN & TAN-Y-BWLCH, 1888-1892

B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59



1" 107

SH

774 654

CAE - CÔCH MINE, <sup>Trefriw</sup> ~~Caernarfon~~ Caern. (I)  
 ? = TREFRIW MINE [qv]

GR's  $2\frac{1}{2}$ " map shows MS "cae-côch" at above loc, where  
OS map shows "Sulphur Mine (disused)"

FJN (1962) 1. Nr. Trefriw. Only mine worked for  
pyrite in Wales. Pyritic rock, ca 20% S  
 along junction shales/diabase intrusion.  
 Worked 2nd  $\frac{1}{2}$  of 19th Cent & first World War.

H Dewey & B Smith, SRMRGB 23 "Pb/Zn" (1922). 38, 60-61  
 Breccia, cemented by pyrite, calcite, & quartz.

RJ Sherlock, Q.J. Geol Soc 74 106 (1919). "The Geology &

Genesis of the Trefriw pyrite deposit". One in  
a bed 6 ft. thick between an intrusive  
diabase and black shales, & may  
represent metamorphosed pisolitic iron ore.

WJL (1967) Map, p 237 Lead mine - "CAECYNON"  
shown <sup>at</sup> <sub>or near</sub> this site. [cf "Caegynon M., Card.]

JRF-S (1977) 11-12 = RHIBO [Placed in Dolgarrog PH-error]  
Sizeable deposit of intimate mixture of  
pyrite & quartz w. some calcite on  
contact Ordov. shales/diabase sill  
Wall rocks pyritic; pyrrhotite in places  
Working 1860-1875, 1914-18 war, 1941-1942 (tried)

AA Archer (1959)

CAE-CÔCH MINE, Trefriw, Caern (II)

FJN (1962) 1. Pyrite worked

TMT (1961) 228

AA Archer in N-F (1959) 272-3. See JRF-S (1977)

D. Charlton (Spec → RSWB; 95-84). Priv Comm 8/95

Fibroferrite (XRD - powder trace shown  
to RSWB at Harrogate Show).

BMS Newsl. (6/95) 4110 Melanterite

Crystal Vine Cat. 6/01. Gypsum, well-formed brownish  
to pale grey xls on Fe-rich matrix, some w. fibroferrite



BMSN(2004)68 p 28. BMScoll No 2379 coll. D.

Charlton:- Copiapite, tiny yellow spherules.

CAECYNON MINE, Trefriw, Caern.

See CAE-CÔCH M.

1" 107 SH 761 6265 (2 1/2" map)  
SH 766 634 (JRF-S)  
CAERHEGLA<sup>FE</sup> MINE, Trefriw, Caern.  
See also LLEDWIGAN.

GR's 2 1/2" map shows MS "Caerhegla Mine" at above loc.

JRF-S(1977) 12 CAERHEGLE = CAERHEGLA  
Trial for Pb ore ~ 1920.

Smith & Dewey, SRMRGB 23 (1922) 68.



CAPEL CURIG, Caern.

See also GLYN M. .

A. Hikin, "Journal of a tour..." (1797). The  
mountains near CAPEL - CERIG abound  
in fine specimens of serpentine.

"CARADOC CAER, Carn."

See CAER CARADOC, (SHROPS)

Ge L (1858) Tremolite or actinolite  
in amygdaloid.

[? Error for Caer Caradoc, Shrops]

1" 107 SH 626 637

u

CERNANT MINE, Llandegai, Caern.

See also LLANDEGAI, etc; NANT FFRANCON; ~~LLANDEGAI~~

SRMROB XXX (1925), 50. In Cwm-Cernant, 2 $\frac{3}{4}$  mi  
by road from Bethesda. Quartz & slate;  
pyrite & chalcopyrite.

FJN (1962) 58. Several unsucc. Cu trials  
(levels), ~~in~~ in Cwm Cernant.

JRF-S (1977) 21 WNW vein in Camb. grits, of  
quartz cementing breccia, with much  
pyrite, some chalcopyrite.  
3 levels. Active ~ 1802

PTO



D. Wilson Priv Comm 8/79 The "clinoclase"

loc. [IR = OH, H<sub>2</sub>O basic Cu sulphate]  
[See NANT FRANCON card] [Possibilities  
] wroewolfeite; "woodwardite" "enysite"  
"chalcoalumite"

1" 115

~ SH 318 257

CIM, Llanengan, Caern.

JRF-S(1977) 34 Trial for Cu ore, 1854;  
no exact details of site or working.

1" 107

SH 7 6

CLEMENTINA MINE, Llanrhychwyn, Caern.

Home Office List of Mines (1903).

Listed.



1" 107

N SH 591 532

CLOGWYNBOETH MINE, Bettws-garmon (Snowdon) Caern.

See also SNOWDON etc.

AA Archer, N-F (1959), 269. Lead & copper ores (1867 & 1872)

JRF-S (1977) 25 Small Cu mine in Ordov.  
exact site unknown. Cu returned 1867

1" 107

SH 601 543

CLOGWYN-COCH, Beddgelert, Caern  
See also SNOWDON etc

JRF-S(1977) 23 Cu trial in quartz veins  
in Ordov. 1st  $\frac{1}{2}$  19th Cent? On OS map of 184

Phillips & Darlington "Records of Mining & Met" (1857) 26

1" 115

Clynnog RH

NSM 439 470

CLYNNOG, Caernarvon, Caern.

TMH(1868), 73. Sil. Manganite; psilomelane

JRF-S(1977) 34 ~439 470 near "Cae-Mwymen"  
(which means "field of minerals") is believed to  
be site of a "lead mine" offered for sale  
in an advert. in Ming Journ. 27 May 1848,  
"in Clynnog parish" If so, in Ordov.  
[cf TMH(1868) above]



1" 107

SH 7805 639  
SH 779 642 (JRF)

COED - GWYDIR MINE, Trefriw, Caern.

H Dewey & B Smith  
SRMRGB XXIII (1922)  
Trefriw.

Beside Conway Rd.,  $\frac{1}{2}$  ml N of

See H.O. list (1903)

WJL (1967) Map, p 237

Lead mine

JRF-S (1977) 12 Galena, sphalerite, some pyrite  
in calcite & quartz in breccia vein (crush  
zone) in black Ordov. slates, in a trial  
level to W from ~~the~~ roadside, 1857-1862.  
(Min. Journ 1857-1862 several reports)

1" 107

COEDMAWR POOL MINE, Bettws-y-Coed, Caern.

See POOL MINE

1" 107

SH

~~616 674~~  
616 674

COED-Y-DINAS, Bethesda, Caern.

Copper mine

SRMRGB xxx (1925): At Coetmor,  $\frac{1}{2}$  ml N from station.  
Only one record exists - 1886.

JRF-S (1977) 20      Old Cu mine; vein NE  
in Cambrian strata.      Levels driven  
E from bank of Afon Ogwen, from which  
shafts sunk in vein



CONWAY, Caern.

See also POL-Y-COCHAR (PWLL-Y-COCHION); GYFFIN;  
BWLCH Y DDEUFAEN; TRECASTELL MINE;

DF Ball, Clay Min (1968) I 363 (MA 20 8) Interstratified  
illitic clay in Ordovician ash from Conway.

CORLAN FARCHOG MINE, Llanrhychwyn, Caern.

See GORLAN M.

1" 107, 116

SH 515 448

CRAIG-Y-GARN, Dolbenmaen, Caern.

JRF-S(1977) 32 Trials in Ordov., on N  
side of Hendreddu slate q's., prob. for  
Cu or Pb ore, ~~the~~



1" 107 SM 634 617  
CWM BUAL, Llandegai, Caern.

JRF-S (1977) 22 Cu trial in Ordov.

? ~ 1862. Pyrite, chalcopyrite

Smith & Carruthers, SRMRGB 30 (1925) 50

1" 107, 116

SH 605 476

CWM BYCHAN, Beddgelert, Caern

See also SYGUN M.

JRF-S (1977) 26 Trials on SW end of  
SYGUN Cu veins.

SRMRGB 30 (1925), 52

CWM CEUNANT

Llandegau

Carn.

See CEUNANT MINE

FJN(1962) 58

on its W side. Several unsucc. Cu trials (levels)



1" 107, 116

SH 526 477

CWM CIPRWTH, Dolbenmaen, Caern.

See also GILFACH M., DINAS M.,

JRF-S(1977)30. Extensive Cu, Pb mine  
on E-W vein in Ordov. Active 1850

Copper ore; ore with up to 26 oz Ag/ton  
[ie galena ?]

Min. Journ. July-October 1850.

GR 6/70 Open level low down ~ 520470.  
At least one more in woods higher up.  
Dumps poor. Quartz; chalcopryrite.  
No sec'y. minerals.

1" 107, 116

SH 544 506

CWMDWYFOR, Dolbenmaen, Caern.

? = CWM DWYTHWE (qv)

JRF-S(1977) 29.

Small, v. remote mine in

Ordov. slates.

Quartz with small

amounts of Pb & Cu ores.

CWM DWYTHWEnr. Llanberis, Carn.

See also LLANBERIS etc.

? = CWM DWYFOR (qv)

W.G. Fearnside, Geol. Mag. (1908), 5 465. Thetourmaline rocks of Cwm Dwythwe, near  
LlanberisOS 1" map shows "Cwm dwythwech" at SH 56 57P. Thomson, Priv Comm (9/72). Pyrite, cubes

in slates at SH 567 573



CWM DYLI MINE, Beddgelert, Caern.

= CWM DYLE ROCK AND GREEN LAKE MINE

See BRITANNIA MINE

1" 107

SH 626 628

CWM GRAIANOG, Llandegai, Caern.

JRES(1977)22 Cu trial in Cambrian.

~1862. Pyrite, chalcopysite

Smith & Carruthers, SRMRGB 30 (1925) 50

1" 107,116

SH 559 473

CWM LLEFRITH, Dolbenmaen, Caern(I)  
See also GLISTENING VALLEY M.

OS ~~2~~ 2½" map shows "Mine (Disused)" near  
SH 559 473 at head of Cwm Llefurth.  
[? = glistening valley mine]

JRF-S(1977)31 Possibly = GLISTENING VALLEY  
or MOEL HEBOG MINE.

NW vein in Ordov. slates; of quartz with  
much pyrite, some chalcopyrite.  
Tried in 1854.



AA Archer in N-F (1959) 269

TM Thomas (1961) 218

Min. Journ. 20/5/1854 (Under DINAS Gt. COPPER)

M. O'Keefe, Riv. Comm. 4/82. Top level has  
slope with 2 vert. shafts inside, one open,  
one flooded. Middle level collapsed.

- Main mine below. Level open, goes ~  
150ft to cavern, then continues to 4-tunnel  
junction: - LHS & RHS short & open; longer  
middle tunnel partly collapsed but  
accessible. Various lower mines flooded  
or collapsed. - much sphalerite - very pale colour.  
→ Main workings have blue-green xling in part  
crusts on walls & roof - long ladder

CWM LLEFRITH, Dolbermaen, Caern (II)

would be useful. Milky quartz;  
chalcopyrite; sphalerite; "chunks  
of malachite" [?]. Green crusts  
from adit walls examined - small  
xls brochantite; knobkly-fibrous ~~the~~  
green merging to whitish sometimes  
silky; some nice blue-green xls, black  
langite (IR) to 2-3 mm showing  $\psi$ -hex.  
twinning.

CWM MAWR MINE, Bethws-y-Coed, Caern.

See POOL MINE



1" 107, 116

SH 5648, 5748

CWM MEILLIONEN, Beddgelert, Caern.

P. Thomson, Priv. Comm. (2/70) Anatase as  
tiny blue xls, assoc. with albite, on  
boulder at 573 484, on Forestry  
Commission land with new tracks.  
More found later as steel blue plates  
[X-rayed, BM] in quartz-chlorite veins.

P. Thomson, Priv. Comm (9/72) Found in situ  
at SH 566 483 anatase, small transparent  
grey-blue plates & bipyramids in vughs  
with quartz & pyrite, in a dense

greywacke grit (Gwostodnont grit) in  
the vicinity of a large quartz-vein, within  
10 yards of the contact with the  
Lower Rhyolitic series (of Snowdonia).

Asbestos occurs as numerous thin veins  
in lower Cwm Meillionen SH 5748

CWM MERCH COPPER MINE, Snowdon, Caern.

See also SNOWDON, etc; LLIWEDD MINE (=?)

GR 4/53. Disused mine at head of the hanging valley of Cwm Merch, on SE slopes of Lliwedd. Marked on  $2\frac{1}{2}$ " map at 634 531

Rusty dumps up the hillside: also old iron wheels, bits of timber, etc. There is a water-filled adit going into the mountain-side, & a trial hole (see GR's photo).

Chalcopyrite in white calcite; or bigger masses in quartz, intergrown with pyrrhotite. Brown blende v. common. Traces galena.



CWM TREGALEN, Snowdon, Caern.  
TREGALAN

See SNOWDON

RSWB (4/70) V 163 . GR's "Loc 9": 77,591.

Dundasite, with glassy allophane,  
cerussite, galena, quartz

AA Archer in N-F (1959) 269-273

JRES (1977) 18 = PENCRAIG. Worked SW end of  
PRINCIPAL V. (NE), intersect. by CYFFTY V.  
(ESE). galena in quartz, some calcite.  
Started 1846 → ~1857; 1886-1911.

CYFFTY MINE, nr Bethws-y-Coed, Caern. (II).

lane a little NE of engine-house. Rhombohedral  
casts in grey-brown qtz galena.

"Loc 9" - Dumps round two open shafts further  
E, and away from the lane, at 774 591. Small  
low dumps. Rather more gozzany. Massive blend  
friable quartzose matrix with cerussite needles  
bearing minute white globular dendrosite

Dennison & Varvill (1952) Diamond drilling

WJL (1967) Map, p. 237 Lead mine



1" 107

SH 773-5 589-591

CYFFTY MINE, <sup>Capel Curig PH</sup> Bettws-y-Coed, Caern. (I) = PENCRAIG M  
~~C~~ LLANRWST MINE nearby; PARC MINE.

OS 2½" SH 75 has "Cyffty Lead & Blende Mine (disused)" at above loc.

SRMRGB 23 (1922) 723] 2 ml NW of B-y-C, 2½ ml SW of Llanrwst, Denb.  
 (Dawson & Smith) Slates & ashes.

Principal Lode, NE. As it changes N-wards from ash to slate, gangue changes from qtz to calcite. Pyrite, cerussite.

Cyffty Lode, N-S, intersects Principal Lode ca half way between shafts. More cerussite.

The back of the Principal Lode is seen in a trial pit on S side of adjacent road. Cockscomb pyrite, rare.

AR, MM 24, 9, (1944). Dundasite, coll. by G.J. Williams before

mine closed, 1920. Angular fragments black shale with rhombohed casts in grey qtz + some blende & marcasite. The casts & slate studded with long acicular cerussite bearing many snowwhite spheres of dimorphanite up to 1 mm.

Galena - blende lode traversing slate

Home Office has 1885 plans of "Bettws-y-Coed Mine or Cyffwrdd Consols"  
(1905)

GR 12/55 Has photo.

"Loc 7" - Engine-house dumps, at 772 589. On dumps round engine house & shaft: qtz & galena (incl. a weathered spec. of intergrown octahedra). Shaft has been restored & new ladders put in (but acc. to miners at Pare mine, not yet connected with Pare workings).

"Loc 8" - An open collared shaft on N side of

ml

Cyffty mine, near Bettws-y-Coed, Caernarvon. [card <sup>107 SH/75</sup> (III) (c)]

Marked on 2 $\frac{1}{2}$ " map (Cyffty Lead and Blende Mine) at 774590.  
Capel Curig parish. [cf. red card].

Spec. Rep. Min. Res. 23(1922) - loc. 7

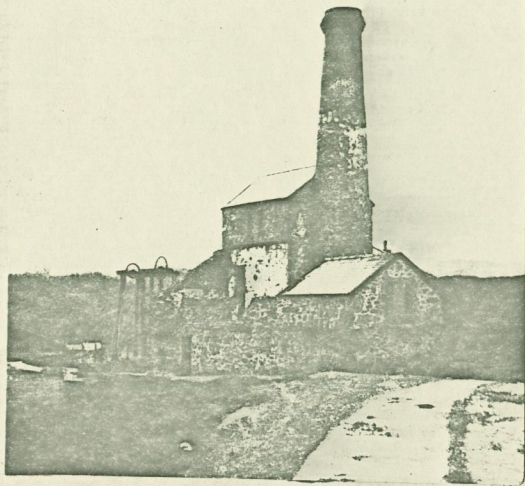
2 ml NW of Bettws-y-Coed. Slates and ashes.

Principal lode (NE); as it changes from ash to slate northwards, gangue changes from quartz to calcite.  
Cerussite, pyrite, etc.

Cyffty lode (N-S) intersects the first about half-way between shafts. More cerussite.

The back of Principal lode is seen in a trial-pit on south side of adjacent road. Cockscomb pyrite, rare.



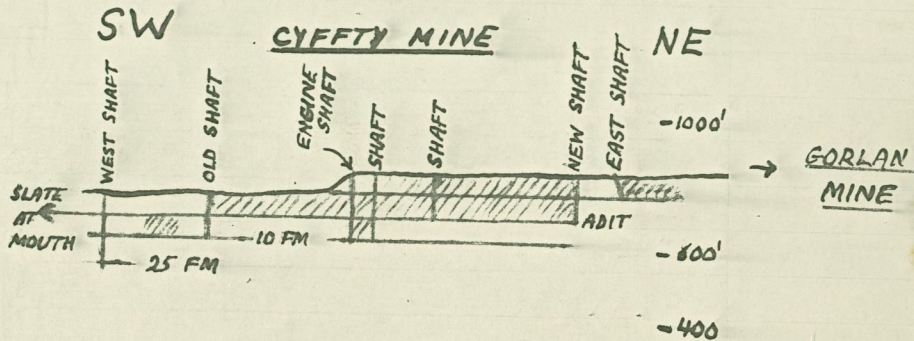


Cyffty mine engine-house, Dec. 1955. (GR)

107 SH/75

Cyffty mine, near Bettws-y-Goed, Caernarvon. [card (IV)]

Dennison and Varvill, Trans. Inst. Mining Metall. 1952,  
62, 1:



Cyffty mine, near Bettws-y-Coed, Caernarvon. <sup>107</sup>(V) SH/75

GR + J. Pollard, Dec. 1955.

cf. white card

"Loc. 7": Engine-House dumps, at 772589. Quartz and galena, including a rather weathered specimen of intergrown octahedra. The shaft itself has been restored and new ladders put in (but according to miners at Parc mine, not yet connected with Parc mine).

"Loc. 8": An open collared shaft on north side of the lane a little NE of the engine-house. Rhombohedral casts in grey-brown quartz; galena.

"Loc. 9": Dumps round two open shafts further east and away from the lane, at 774591. Small low dumps. Rather more gozzany material. Massive blende; friable quartzose matrix with cerussite needles bearing tiny white globules of dundasite.



Cyffty mine, Caern.\*GR specimens.

55-300. Weathered galena xls on quartz. (loc.7).

55-301. Rhombohedral casts in quartz. (loc.8).

55-304. Dundasite, <sup>✓IRM-374.</sup> minute silky white globules + bunches,  
on white opaque needles of cerussite on quartz. (loc.9).

DANGCOCH MINE, Llanengan, Caern.  
= DEUCOCH MINE

AA Archer N-F (1959), 261. On dumps: galena; blende; baryte,  
chalcopyrite.

JR F-S (1977) 35 DEUCOCH MINE, worked  
with TAN-Y-BWLCH M. betw 1873-92  
No separate ore returns.

D'ERESBY LEVEL, Llanrhychwyn, Caern.

See WELSH FOXDALE M.



~~D'ERESBY LEVEL,~~

D'ERESBY MOUNTAIN MINE, Llanrhychwyn, Coern.

See PARC MINE; ~~WELSH FOXDALE MINE~~

DERWEN MINE, Conway, Caern.

See GYFFIN

DEUCOCH MINE, Llanengan, Caern.

See DANGOCH M.



1" 107, 116

SH 530 478

DINAS MINE, Dolbenmaen, Caern.

= DINAS GREAT CONSOLS

= DINAS GREAT COPPER MINE

See also GILFACH M., CWM CIPRWTH.

JRF-S(1977)30 2 ~NW veins in Ordov  
slates, of Quartz w. much pyrite, also  
chalcopyrite, galena, sphalerite.

Worked mainly for Cu, mid 19th Cent.

Pyrite assayed 1853 → 10z 5dwts 13grs  
Au/ton. Abandoned 1854.

Mining Journ Feb 1853 → Feb 1854.

J.A. Phillipse J. Darlington "Records of Min'g & Met."  
(1857), 268

DINORWIC QUARRY, nr Llanberis. Carn.

Cardiff Mus: Epidote, pistachio-green, compact, radiating, with calcite and quartz, from a diabase dyke. (cf "N of BLAENAU-FFESTINIOG") (Mer.)

"The Times" 17/11/69. These old & famous slate quarries closed in July, 1969.

RSWB 77-113 via D. Hardman.

Epidote in quartz "from a layer above Dinorwic quarry"



1" 107

SH 630 648

DOLAWEN, Llandegai, Caern.

cf DOLAWYR.(? =)

JRF-S(1977) 21 Mining Journ 17/1/1852 & 24/7/1852  
reports indicate activity up to 1852  
Closed July 1852

Chalcopryite, in Camb. grits.

JA Phillipse & Darlington "Records of Mining &  
Metallurgy" (1857) p 269.

DOLAWYR, Caern.

≠ DOLAWEN (?=)

TMH (1868), 73. In slate quarries: Molybdenite;  
chalcopyrite; steatite.

?? Dolawen. Porthyn G. method. 107 SW 62.65

1" 107, 116

SH 594 512

DORLAN-DU, Belhus-Garmon, Caern.  
See also SNOWDON, etc.

JRFS (1977) 25. Trial levels in Ordov.  
prob. for Cu?



1" 107 SH 545 535  
Llandwrog PH Caern (I)  
DRWS-Y-COED COPPER MINE Pen-y-Groes, ~~Mair~~

See also BENALLT MINE ~~(Llandwrog)~~; NANTLE; TALY-SARN M.  
Dovey & Eastwood MOUNTAIN LODGE M; MYNYDD MAWR  
SRMR08 XXX (1925) 48-9 S of Mynydd Mawr, 2 1/3 ml E of Nantle.

Slates. Four E-W lodes, all ca. 12 ft wide, separated  
by 14 ft. Quartz & pyrite. Chalcopyrite with a  
little malachite & peacock copper. [bornite?]

AA Archer N-F (1959) 268-9. E-W lodes, with quartz, pyrite,  
pyrrhotite & chalcopyrite, with galena & blende.  
ENGINE Sh is 470 ft deep. Adits on hillside.  
Abandoned 1918.

FJN (1962) 57-8 Cu ore, worked from early 19th Cent.  
GR, 5/69 Ident IR (RWB). Ladywell mineral "X"  $\rightarrow$  = Wroewolfeite  
in calcite

GR 5/69 BM x-ray - arsenopyrite, assoc. w.  
chalcopyrite. Extensive dumps at  
SH 545 536, Quartz, calcite gangue, some  
of the quartz enclosing green chlorite;  
massive chalcopyrite, pyrite, arsenopyrite.  
Cu-staining widespread

GR 6/70 Dumps being removed. Green superficial  
staining but no "ladywell mineral" or even  
the right matrix left!

EH Nickel, MM (1976) 40 644-7. Nat Mus Wales spec 27111-GR-463  
labelled "Woodwardite, coating grass [sic!], Simdole, Dallhuan,  
Drws-y-coed, Nantlle, Caernarvonshire" [X ray on JCPDS card 17-132]  
X Ray, IR/heat; part anal. Near but NOT Woodwardite Cu/Al ratio low.  
Hydrated 50% of Cu.

=TALY-SARN M

= Cu-end member  
of Glaucozerinite

Roode et al (1965)

DRWS-Y-COED MINE, Llandwrog, Caern (II)

JRF-S (1977) 28. 4 veins, a little N of E, in  
Ordov. slates & grits. Quartz with  
chalcopysite, pyrite, galena, sphalerite.  
Working mid-18th Cent, intermittently,  
to 1918, mill → 1921 (treating TAL-Y-SARN ore).  
Reached 480' below adit, total vertical  
range ~ 1000 ft.

Min. Journ 25/10/1851

TM Thomas (1961) 218

Phillips & Darlington "Records of Min'g & Met" (1857), 268







DRWS-Y-COED MINE, Llandwrog, Caern (II)

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to 1918, mill  $\rightarrow$  1921 (treating TAL-Y-SARN ore).  
Reached 480' below adit, total vertical  
range  $\sim$  1000 ft.

Min. Journ 25/10/1851

TM Thomas (1961) 218

Phillips & Darlington "Records of Min'g & Met" (1857), 268



F.J. North "Snowdonia" New Nat'ist (1949) 13 129

W.M. Condry "The Sn. Nat. Park" New Nat'ist (1966) 47, 35

RSWB; Min. Record (1982) 13, [3], 167-170, 174.

"Wroewolfeite in Britain". Chalcopy., galena,  
sphal., pyrite, pyrrhot., in quartz (some encl.  
chlorite) & calcite. Arsenopyrite (GR);  
malachite; near-"woodwardite" of Nickel (v.  
supra.); wroewolfeite (GR; IR); ill-defined  
amorph blue-green basic Cu-sulphate crust.

DRWS-Y-COED MINE, Llandwrog, Caern (III)

G. Raade, C.J. Elliott & V.K. Din, MM (1985) 49 583-590  
E.H. Nickel's "woodwardite" (MM (1976) 644-7) is  
glaucoцерinite (near Cu end-member, nearly  
Zn-free) XRD, chem anal. [So Cu analogue  
of glaucoцерinite] [FROM TAL-Y-SARN M. (q.v.)]

GR 69-23 (IR K.247) "Chalcoalumite? Thin soft  
pale-blue amorphous crusts with wroewolfeite,  
on quartz." :- IR near glaucoцерinite.

FREETH MINE, BETHWOS-Y-COED, CAERN.

See FFRIDD M.



FREETH MINE, Llanrhychwyn, Caern.

See FFRITH-SIAN M.

1" 107

SH 780 587

FFRIDD MINE, Bellws-y-Coed, Caern.

JRF-S (1977) 18-19

FRIDD V., N-S, intersects

CYFFTY V. @ its S end, in POOL M.

Often worked w. POOL M.

Worked independ. in 1852-1855.

Reported 1853 as "FFRIDD-LLECHWEDD AND  
VOUNOG" (Min. Journ. Jan & Feb 1853).

Lead ore sold.

WW Varvill (1954) Min. & Q. Eng (Sept.) Fig. 15.

FFRITH-SIAN MINE, Llancrchwyn, Caern.

GR's 2½" map. shows MS "Ffrith-sian Mine" at above loc.

HDewey & B Smith SRMRGB 23 "Pb/Zn" (1922) 78.  
walls of lower levels coated with  
hydrozincite.

WJL (1967) Map, p. 237 Lead mine - "FFRIDD-SIAN"

JRF-S (1977) 14 PRINCIPAL LODGE NE-W crossed  
by NORTH & SOUTH VEIN, in Bala slates east of  
of galena, with sphalerite, pyrite, in  
calcite & quartz.



3 levels, longest only ~400 ft long.  
Reopened briefly in 1919.

1" 107, 116

SH ~~584~~ ~~411~~  
579 411

FRONOLEN, Tremadoc, Caern.

See also TREMADOC; TWLL-MAEN-GRISIAL

TMH(1868), 74. Lr. Sil. Brookite; sphene.  
"Fronolen, Tremadoc, Caern."

OS maps: some "Fron olen" others, "Fron-oleu"  
gote to form "Fron óleu"

BM, Priv Comm to GR. "Brookite Loc is quarry at Twll-maen-grisial,  
(1953) nr Pwntig."

GeL(1858) Brookite, magnificent xls with  
alkite & sometimes anatase, in a white  
quartz rock at Fronolen, on the road  
from Beddgelert to Snowdon [!!], near

Tremadoc. Sphene, occasionally, in small  
xls with brookite at Fronolén.



1" ~~107~~ 107

SH 648 679

GALLT-Y-MAWN, Llanllechid, Caern

JRF-S(1977)20

Some levels to SE here,  
prob. trial for Cu ore expected in  
a NE fault in Ordov.

1" 107, 116

SH 505 505

GARNEDD-GOCH, Llanllyfni, Caern.

JRF-S (1977) 29 Remote trials in Ordov.  
slates for Pb & Cu ores in quartz.

1" 107

SH

768 632

GELLI-LYDAN MINE, Trefriw, Caern.

GR's 2½" map shows MS "Gelli-Lydan Mine" at above loc.

WJL (1967) Map, p. 237 Lead mine

JRF-S (1977) 12. Finely xbed galena in breccia cemented by calcite in an E-W fault crush zone, dip N  $\sim 45^\circ$  in Bala slates w. diabase sills. 2 levels, active  $\sim$  1919-1920

Smith & Dewey, SRMRGB ~~23~~ 23 (1922), 76.



GEST MINE,Caern.WJL (1967) p 237, Map.      Lead mine

OS 1" "Moel-y-Gest" = hill ~~at~~ centred on SH 55 3389  
in squares 5438 5439 5538 5539. "Quarries"  
on N side 5539.

Bron-y-Gadair mine is at 524 393, fairly near

1" 116, 107

SH 528 478  
525 466 (JRF)

GILFACH MINES, <sup>Dolbenmaen PH</sup> Cipwirth, nr Portmadoc, Carn.

See also CWM CIPRWTH., DINAS M., BLAEN-Y-PENNANT

FJN (1962) 56 Water-wheel in copper mine of Gilfach, Cipwirth, nr Cwm Pennant, a few mls from Portmadoc. One raised intermittently from ca 1828 to ca 1900.

OS 6" map shows "Copper mines" in Cwm Cipwirth, around SH 528 478. also "Sulphur Mine (Disused)", near Gilfach house, near SH 525 467. [The "sulphur" is presumably pyrite]

GR 6/70 Open level low down; <sup>Near 520 478</sup> at least one  
more in woods up the steep hill side; open  
shaft leading to v. deep stope just above  
tree-line. Dumps poor - quartz,  
chalcopysite, no sec'y minerals. Ruins  
e 12 ft wheel seen in distance at 5255 4775  
[This would pres. be CWM CIPRWTH, q.v.]

JRF-S (1977) 31-32 At 525 466. NW vein in  
Ordov. slates e grits.  
Wet. Active in 1850. Cuore. Also 1854 → 1890.  
Min Journ. July to Oct. '1850

Phillips e Darlington "Records of Min'g e Met" (1857) 268



GIMLET QUARRY, Pwllheli, Carn.

See also PWLLHELI

Cardiff Mus: Albite; pectolite; analcime, large xls.  
(ca. 1/2 in., fairly clear).

Don Hyde, 9/65 Pectolite\* fibrous radiating, on  
pale green prehnite\* some of the pectolite  
pseudomorphous after large quartz  
crystals.

RSWB (7/67) V, 88. Found only hornblende-felspar  
rock

\*checked by IR.

J.W. Harrison, Geol. Mag. (1894) 1 567; MM (1897) 11,<sup>19</sup>

Large quarries in coarse ophitic dolerite with conspicuous augite; the larger joints have crystals of quartz, calcite, a little natrolite, brookite, prehnite.

1" 107

SH 62 54

GLASLYN MINE, Snaddon,

Caern.

= BRITANNIA MINE [qv]

Copper Mine.

SRMRGB XXX (1925) (H Dewey & T Eastwood)

Ramsey Mem. GS (1881) "N. Wales".



1" 107, 116

SH 56 47

GLISTENING VALLEY MINE, Moel Hebog, Caern.

See also CWM LLEFRITH

AA Archer, N-F (1959), 269. Produced copper ore in 1888

JRF-S (1977) 31 Possibly = CWM LLEFRITH MINE [q.  
Produced Cu in 1889.

1" 107

SH 65 ~~14~~ 58 ~~14~~

GLYDER FACH, Capel Curig, Caern.

W.C. Davies, Priv Comm 10/76. Quartz xls  
on ridge near 658 588 ~ N slope  
of glyder Fach. [cf TRYFAN]

TMH (1868) 73 "GLYDER VACH" Steatite;  
"agalmatolite" (Hey := pinitite, pyrophyllite  
or talc)

G & L (1858) Agalmatolite said to occur  
- "GLYDER BACH"

1" 107 SH ~~745 572~~ ~~(28)~~  
750 576  
GLYN MINE Capel Curig, Caern.  
See also CAPEL CURIG

H. Dewey & B. Smith, SRMRGB 23 "Pb/Zn" (1922). Pb mine

WJL (1967) Map, p237: Lead mine

Map, p23. Roman lead mines (after O. Davies)  
marks "Caerllugwy". [OS 1" 107 marks  
"Caer Llwgwy" as Roman fort, at SH 745 572, near  
glyn mine.



JRF-9(1977)20. Small Pb mine. Worked  
on small scale since 1920?

1" 107

SH

~~775 593~~  
775 593  
(I)

GORLAN MINE, Llanrhychwyn, Caern.  
~~Llanrhychwyn~~ M. of PARC MINE

"Lead Mine" on OS  $2\frac{1}{2}$ " map SH 75.

SRMRGB xxIII (1922) 745  $\frac{1}{4}$  ml SE of Bryn-y-Fawnog.

AR, MM 27 9 (1944). Dundasite; coll by G.J. Williams  
before mine closed, 1921. Snow white downy crust  
on gum-like brown yellow allophane on  
cerussite, with small colourless anglesite xls.  
On galena, blende, radiating marcasite, & quartz.

WJL (1967), Map, p.237, Lead mine- "CORLAN FARCHOG"

Dennison & Varvill (1952) Diam. Drilling

AA Archer in N-F (1959) 269-273, Fig 2.

WW Varvill, Min. & Q. Eng. (Sept, 1954) Figs 15 & 19.

JRF-S (1977) 17. Confined to levels along  
GORLAN = N. CYFFTY V, WNW from its junct. w.  
PRINCIPAL V. @ S end of LLANRWST M.  
& also on a vein to NE from it at  
Bryn-y-fawnog. PRINC. V. only prospected  
here in shallow workings.

Worked intermitt 1862-68. Now part of PARC.



Gorlan mine, Llanrhychwyn, Caernarv. (II)

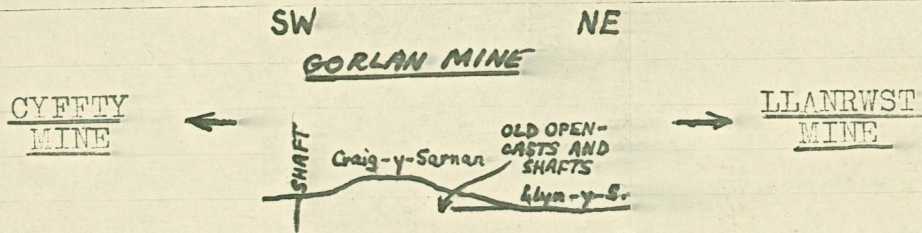
775594. Just in Llanrhychwyn parish.

Spec. Rep. Min. Res. 23(1922) - loc. 9

AR, Min. Mag. 27, 9(1944).

Dundasite collected underground in 1921 before mine closed. Snow-white downy crust on gum-like brown-yellow allophane on cerussite, etc. With small colourless anglesite xls. On galena, blende, radiat<sup>g</sup> marcasite and quartz.

Dennison and Varvill, Trans.Inst.Mining Metall.1952  
62,1:



1" 107

SH 710-8, 752-7.

7175

GRAIG LWYD QUARRY, Penmaenmawr, Carn.

See also PENMAENMAWR QUARRY, etc.

Anon, Min Quar Eng (1960) 26, 410. [MA(1963) 16 [2], 194].

To E of Penmaenmawr Quarry.

Quartz; orthoclase; hornblende above  
ca. 1000 ft. Cavities & joints are  
 lined with quartz; calcite;  
prehnite & axinite.

Cardiff Mus.: good axinite, small xls with quartz  
 in vein in felsite. 'Craiglwyd'

RSWB et al (3/64) IV 82-83. Calcite; quartz; epidote;  
prehnite xls; apatite, brown xls; axinite xls on  
 joints.



AWGK, priv comm.

Hemimorphite.

BM specs; 2 old spec RSWB 46 Malachite on  
limonite & after chalcopy; with calcite, on  
dolomite.

HF Harwood Coll. (Seen 2/66) "Linnaeite", large  
greyish octahedra ("checked") on atypical  
matrix - "picked up on the dumps" by  
a collector friend of Harwoods.  
- may be foreign to area.

R.A. Ixer & C.J. Stanley (1996) MM 60, 978-82. "Siegenite bearing  
assemblages found at the Great Orme Mine, Llandudno,  
North Wales. The "linnaeite" spec {now in}

1" 107 6" Caern I SE SH 75-78, 82-84  
7583 7584 7682 7683 7684 7782

GREAT ORME'S HEAD, Llandudno, Caern. 7783

See also LLANDUDNO MINE [S of Head] 7882  
MAFNANT M. [N of Head-trail]. 7883

TMH (1868) 73 Mt. Lim. (Cu mine). Anthracite;  
calcite; azurite; dolomite; galena;  
malachite; melanconite; chalcopryrite.

G & L (1858) 313. Azurite, with malachite and  
calcite. 39 Calcite, with brown pearl-spar  
and sometimes tinged green w. malachite  
54: Dolomite, with malachite & calcite  
311 Malachite, staining Calcite x/s.  
340 Chalcopryrite.

AWGK, priv comm.

Hemimorphite.

BM specs; & old spec RSWB 46 Malachite on  
limonite & after chalcopy; with calcite, on  
dolomite.

HF Harwood Coll. (Seen 2/66) "Linnaeite", large  
greyish octahedra ("checked") on atypical  
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R.A. Ixer & C.J. Stanley (1996) MM 60, 978-82. "Siegenite bearing  
assemblages found at the Great Orme Mine, Llandudno,  
North Wales. The "linnaeite" spec {now in}



## GREAT ORMEL'S HEAD, Llandudno, Caern. (II)

Nat Mus Wales NMW 83.416. M1459 is Siegenite (like the S. & mid-Wales material)

Mineralisation (1) Copper-dolomite association, of dolomite-altered chalcopy-calcite-malachite-rich, with pyrite-marcasite. 14 sulphides alter to banded "limonite" w. thin rims digenite, dyurite, spionkopite, covellite, "trace amounts of" "photosensitive silver-bearing minerals". Supergene calcite interbanded w. botry "limonite" with native copper, cuprite, tenorite, spionkopite, malachite, Mn minerals + "hydrocarbons". Pb, Zn, Co, Ni mins abs. (2) In situ galena ones. Rare, in a joint-plane — galena — cm x ls with

5-60  $\mu\text{m}$  diam pyrite, Ni-oan pyrite, marcasite,  
millerite, chalcopyrite. galena alt'd to  
thin rims digenite & djurleite followed by  
spinkopite & covellite then to banded  
cerussite. Late stage malachite, calcite.

- (3) Siegenite-bearing ores - a different assemblage.  
Rare, in hand spec's from dumps.  
Ores dissem through dolom-ised l'stone.  
Kaolinite clay, detrital quartz,  $\text{TiO}_2$  min's plus  
pyrite, chalcopy and zoned Ni/Co-pyrite. Some  
dol. replaced by calcite. Discontin veinlet of  
chalcopy & pyrite at ca-dol junction, with  
 $\sim 5 \mu\text{m}$  high reflectance <sup>cube</sup> phase w. opt. props. of  
gersdorffite/cobaltite. Also siegenite [analysis]  
galena, cupr sphal, tennantite; Fe-Ni-Co-sulphides.

# GREAT ORME'S HEAD, Llandudno, Caern. (III)

RAI xer & J Davies (1996) UK JMM 17, 7-14

"Mineralisation of the Great Orme copper mines, Llandudno, North Wales".

In Carb Lim. Rare galena-cupry vein cutting dolostones & extensive saddle dolom-cupry-calcite ore infilling voids in coarse-gr. l'st & dolom'd l'st close to small faults. Extensive supergene alter'n. → sec'y Cu sulphides & oxides, with multiple generations of calcite, limonite [goethite] & malachite. Also azurite.



M. Rothwell (1998) BMSN 50 2-4. Az, mal, dol, cupyr.  
During tourist development work a large  
amount of spoil was removed to a dump  
out of sight to the E of the tourist centre.

1" 107 6" Caern 1 SE Cent on SH 770 830

~~LLANDUDNO MINE~~, Llandudno, Caern. <sup>7782 7783</sup> (IV)

See also Gt. ORME'S HEAD; HAFNANT M.

Smith & Carruthers, SRMRGB 30 (1925) 51

At foot of Gt. Ormes Head. "LLANDUDNO M."

Copper ores in beds of xline Carb Lim  
which occurs among non-xline material.

4 N-S lodes. Work stopped by break-  
in of sea water.

Hunt "British Mining" (1884) 262, 456.

DC Davies "Metalliferous minerals & mining" (1888) Mines

success. worked to within last 20 yrs.

Cavitous l'st impreg. w. Cu, same type as Salop deposits.

The accumulations of Cu found & worked along flat fault ("Hanging Mawr"); crossing this NW-SE another sharper fault ("Cyllt" = Knife); largest deposits at intersection.

RSWB et. al IV 63 (2/64); V, 23 (2/66); IV 83-85 (3/66); V, 165 (4/70). & subsequently.

On dumps & in opencast on top of Head around 770 833 & on tramway track adjacent Azurite; malachite; chalcopyrite, some



# GT. ORME'S HEAD

(V)

~~WANDUDUOR MINE~~, Llandudno, Caern ~~(VII)~~

altering via pitchy Cu ore to limonite;  
some in clean sharp xls on:  
dolomite sharp xls in shrinkage  
cracks in dolomitised limestone.

calcite, late generation, after dol.,  
& Cu minerals including supergenes;  
aragonite, radiating, rare; cuprite  
rare; galena, sphalerite uncommon;  
fluorite, lilac cubes - one spec. coll. by  
a student, Maria Jones (4/70).

3/64 i- Levels in S face of Gr. Orme, at  
773 824. Dolomite; calcite; chalcopryrite;  
malachite.

~~BRIGHTSIDE SOUGH, Calver, Derby~~  
~~see under "Hassop" Outfall in Calver?~~

Level(s?) open on SW flank of Head near  
762 831. One entered - nothing collected

JRF-S (1977) 10-11. NOT known when first  
worked but Min Journ 26/1/1850 reports  
holing into ancient workings - stone tools  
& animal bones found.

Strings or leaders ~ NS intersec. by X-veins  
or faults ~ NW. Richest at intersection  
also controlled by shale beds within  
the massive white limestone.

# GREAT ORME'S HEAD

~~LLANDUDNO~~ ~~WMAE~~, Llandudno, Caern (VI ~~III~~)

JRF-S (1977) (cont'd). 5 main NS strings  
ELLIS'S; JONES'S; HUGHES'; LLAWR MAWR;  
STRING CEFN. Llawr Mawr flat-dipping.  
4 main shafts, HIGHER; TREWEEK'S,  
OWEN'S; VIVIAN'S SHAFTS.

In 1850 worked as 2 separate units,  
OLD & NEW mines. Abandoned 1869  
as sea water entered through hidden  
fissures.

Malachite; chalcopryite; gangue mainly calci  
Mining Journ. Various reports 1854-1856.  
FJ North (1962) 58  
TM Thomas (1961) 220



S. Clark, Riv. Comm. 4/82. From adit  
above park on S face of Head: good  
malachite, dolomite etc as usual  
also one piece with a bleb of native  
copper surrounded by massive cuprite

K. Snell (1982) BMS Newsl. 6

R. A. Ixer (2001) Proc Yorks Geol Soc 53[3], 213-9 [03M/1416]  
on mineralisation GT. ORME M., details. application  
to Bronze Age (nature of ores exploited).

# GREAT ORME'S HEAD ~~LLANDUDNO MINE~~, Llandudno, Caern. (VII) (VII)

R. Soc. N. (1994) 25  
Llandudno Copper Mines, Great Orme's  
Head, Llandudno, Gwynedd [Grid Ref:  
SH 771 831] - 14 May 1994

WWB, Leader: Lionel Burch

On a very warm May day, sixteen members and guests arrived at the meeting place, the car park adjacent to Great Orme Mines Ltd. Visitor Centre. However, due to limitations on numbers only 10 members were able to participate in the full underground trip. The underground party, after being given an introduction to the mine, were taken around the section of the workings open to the public. This has resulted largely from archaeological excavations over the past 7 years. Copper mineralisation in the form of malachite was abundant. Having completed the tourist section, the party progressed to part of the mine which is still being dug out - believed to be mainly Bronze Age. The workings entered were adjacent to Vivian's Shaft. After touring the workings, the underground party rejoined those

members who had remained on the surface to comb the tips near the excavation area, and then progressed to the infilled Treweeks Quarry where much of the excavated material has been tipped.

Mineralisation on the tips was common, with dolomite, malachite and calcite being quite easily found, some excellent examples coming from quite close to the car park. Azurite was of uncommon occurrence, although a few good specimens were located on tips near Vivian's Shaft. Chalcopyrite in rather tarnished crystals was also fairly common, although frequently associated with malachite. David Lloyd found some excellent bright crystals of chalcopyrite on calcite. The meet leader broke open a boulder which yielded calcite crystal groups up to 5cm, with stepped faces similar to those from Taffs Well Quarry in South Wales. A fine group of calcite crystals dusted with malachite was collected by one member, who then carried it through the shop until threatened with a £50 charge whereupon he beat a hasty retreat!

P.T.O.

Collecting underground is not permitted, but future underground development work next winter should provide fresh material on the tips.

*NB - a more detailed account of the mine, its history, geology and mineralisation is planned for a future Newsletter.*



GWAITH MINE, Llandegai, Caern.  
See also LLANDEGAI etc.

Copper Mine

SRMR08 XXX (1925).50 Flaps and greenstone;  
on dumps, ore is mixed sulphides.

JRF-S (1977) 21 Vein in Camb. flaggy grits;  
of a mixt. of quartz & calcite in  
coarse xls, & breccia cement. by qtz.  
Chalcopyrite and galena, w. some  
pyrite, are minor vein constituents.  
Closed ~ 1860(?).

GWAYNLLIFION MINE, Bettwys-y-Coed, Caern  
See also LLANRWST M.

JRF-S (1977) 17. Reports in Mining Journ.  
betw. Aug 1853 & Dec 1854 under  
"GWAYNLLIFION" seem to refer to  
LLANRWST MINE [q.v.].

1" 107, 116

SH 504 523

GWERNOR MINE, Llanllyfni, Caern.

JRF-S(1977) 29

Small Cu mine in Ordov.

slates.

Min. Journ 25/10/1851 reports aband.

1850.



GWYDYR PARK CONSOLS MINE,  
Llanrhychwyn, Caern.

See PARC M.

1" 107

SH 77 76

GYFFIN, Conway, Caern.

Home Office List of Mines (1903) lists "NORTH

WALES FREEHOLD COPPER MINE, Gyffin, Conway;  
also called DERWEN MINE

1" 107

SH 643 672

GYRN-WIGAU, Llanllechid, Caern.

JRF-S(1977)20

Trial level prob. for Cu ore  
on SW slopes of Drosgol.



1" 107

SH 781 601

SH 783 601 (JRF-9)

HAFNA MINE, Llanrhydwyn, Caern.

Dewey & Smith

SRMRGB XXIII (1922) 645 Shafts & levels on W side of Nant Gwydyr valley,  $1\frac{1}{2}$  mi by road SW from Llanrhost, Denb. Bala ash & shale with intrusive greenstone sill.

A N-S lode.

A WNW lode, nearly vertical, worked opencast where it outcrops on top of a near pass galena, pyrite, schieferspar. (calcite) worked by five levels in the precipitous side of Nant valley.

Cockscomb pyrite, rare.

OS  $2\frac{1}{2}$ " map shows "Hafna Lead Mine" at above loc.

PTC

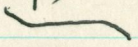
GR, 12/55

Ruins and dumps up the steep hillside  
at 781601. Very brief examination.

Dolomite abundant, some quartz. One  
spec. has 2-mm octahedra of pyrite

WJL (1967) Map, p 237 Lead mine - "HAFNAU"

AA Archer N-F (1959) 270, Map; mention.

JRF-S (1977) 15. HAFNA V ; LLANRWST No. 1. V.,  
N-S., in Bala shales & volcs; of breccia  
cemented by quartz & calcite, with galena  
some sphalerite & pyrite.

5 levels A to E; also shafts.

Reopened 1860, 1862 intermitt → 1913.

Min Journ reports 1862-1865

HAFNANT MINE, Llandudno, Caern.

JRF-S(1977), 10. Trial for Cu<sup>ore</sup> in N-S  
veins in Carb. Lim. of gt. Ormes Head,  
in 1854. Shaft through l'st to a  
shale bed. Narrow strings of ore  
only. Min. Journ. July & Aug. 1854



1" 107, 116

SH 624 519

HAFOD-Y-LLAN, Beddgelert, Caern.

See also ABERGLASLYN; SNOWDON etc; SYGUN M.

WJL (1967). Map, p. 237.      Lead mine

JRF-S (1977) 24-5      Several Cu, Pb veins  
in Ordov. volc's.      Working 1825, 1851.

Min Journ. Nov 1851, advertisement (with SYGUN).

Phillips & Darlington "Records of Min. & Met" (1857) 268

1" 107, 116

SH 516 441

HENDREDDU, Dolkenmaen, Caern

JRF-S(1977)32

Small mine, on ~ E-W

quartz veins in Ordov., with much  
pyrite, some chalcopysite.

Reported working in 1850

Min. Journ. 20/9/1850.

KLONDYKE MINE, Llanrhydwyn, Caern.

GR's 2½" map shows MS "Klondyke Mine" at above loc.

H Dewey & B Smith

SRMRGB XXIII (1922) 67-8. Levels & openworks between  
 Llyn Geirionydd & Pen-yr-Allet, ca 2 mi W of  
 Llanrhost, Denb. Bala ash & slates;  
 greenstone sills. Blende; galena; pyrite;  
 little calcite.

WJL (1967) Map, p 237 Lead mine

JRFS (1977) 13 SH 765 622. Main vein E-W,  
 intersec. by several lesser N-S veins.



galena; some sphalerite epyrnite in  
crush-breccia cemented by quartz  
some calcite. Galena 32 oz Ag/ton.  
reported.

workings f. widespread, last active 192

LLANBERIS, Caern.

See also LLANBERIS MINE; LLANBERIS VALLEY; CWM DWYTHWE  
DINORWIC Q's.

TMH (1868), 73. Camb & Lr Sil Slate. Epidote; chlorite;  
chalcopyrite.

GeL (1858) Chlorite, near Llanberis

LLANBERIS MINE, Llanberis Caern.

See also LLANBERIS; LLANBERIS VALLEY.

AA Archer, N-F (1959), 269. Lead & copper ores (1867 & 1872)

A. Atkin "Journal of a Tour..." (1797) describes a Cu  
mine "on the upper lake about half a  
mile from the village [Nant Peris-"Old Llanberis"];  
several levels into the side of Snowdon;  
chalcopryite in quartz.

2½" OS map shows workings around SH 599586-601584

GR 6/70 SH 598586 - on steep hillside. Rusty



dumps below open adit; also open  
drainage adit at road level; quartz,  
chalcopysite, superficial Cu staining.  
Further SE are two ?hushes; and a  
slate mine at 601584.

JRF-S (1977) 22. Cu mined mid 18th - mid 19th cent.  
considerable output.

Veins of quartz & calcite with pyrite,  
chalcopysite, some galena, in Ordov.  
slates & volc's.

FJ North "Snowdonia" New Naturalist series 13 130, 391,  
WM Condrey "The Sn. Nat. Park" — ditto — 47 35.  
JA Phillips & J Darlington "Records of Mining & Met." (1857) 269'

LLANBERIS VALLEY,Caern.

See also LLANBERIS; LLANBERIS MINE; CWM DWYTHWE.  
DINORWIC

geol (1858)

Epidote, in the Vale of Llanberis, in  
cat's-eye quartz, acicular & diverging,  
olive-green.

LLANDEGAI, near Bangor, Carn.

See also BANGOR; PENRHYN M.; GWAITH M.;  
CEUNANT M.; NANT FFRANCON.

FJ North (1962) Cambrian pisolitic iron ore  
worked at Llandegai [see Penrhyn M]



LLANDUDNO, Caern.

See also ~~LLANDUDNO MINES~~; GT. ORIVES HEAD; HAFNANT; BWLCHM.

TMH(1868), 73. Lr. Sil. & Mt. lim. (Cu mine). Malachite;  
chalcopryrite.

LLANDUDNO MINE, Llandudno, Caern.

See GREAT ORME'S HEAD.

W. ASSHETON, ASSHETON, PENRHYN M<sup>l</sup>s [9v]





LLANENGAN, Caernarfonshire

See also PORTH NIGEL MINE, PEN-Y-GAER MINE etc.  
 [v. infra]

G. Mus. Donation - Butler, D.E. (1967): Azurite,  
malachite.

FJN (1962) 86. <sup>Argentif. galena</sup> Oolitic iron ore, associated  
 with manganese [ore] worked as a quarry.

AA Archer N-F (1959) 261 A fault-fold trending  
ca E 17° N, ~~worked~~ displaced by several  
 N-S cross courses, worked at PORTH NIGEL  
 PANT-GWYN, TAN-Y-BWLCH, BWLCH-Y-TOCYN; DAN GOC

W. ASSHETON, ASSHETON, PENRHYN M<sup>l</sup>s [qv]



1" 107

SH 777 613

LLANRHYCHWYN, Llanrhychwyn, Caern.

JRF-S(1977)14

Short level at 777 613

tried a vein with pyrite & galena

Dewey & Smith, SRMRGB 23 (1922) 71.

1" 107

SH 779 593

782 592 (JRF-S)

LLANRWST MINE, Betws-y-Coed, Caern. (I)

of CYFFTY MINE, nearby. ? = GORLAN M. of PARC M.

SRMRGB XXIII (1922) 73-4 Lead mine, on N side of Llyn-y-Sarnan,

(Dewey  
& Smith)2 mi SW of Llanrwst, Denbighshire. Extensive dumps;  
gangue is friable masses of quartz, with galena  
in cubes; or saccharoidal quartz bipyramidal qtz.GR 12/55 Examined S end of the low extensive dumps, nr. an  
open shaft (from which warm air, & sound of blasting  
came - i.e. connected with Parc M workings).Large dumps of shale & ash, with abundant  
quartz & calcite. Specs. with galena; creted  
marcasite; massive friable marcasite or pyrite;  
chalcopryite. Clear almost bipyram. quartz xls.  
(Photo in GR coll).

Dennison & Varvill, Trans Inst Min Met (1952) 62 1. Diam. drilling  
WW Varvill (1954) Mine Q. Eng, Sept. Figs 15, 19

WJL (1967) Map, p 237 Lead mine

AA Archer NF (1959) Mention & map, p 270.

JRF-S (1977) 17 ~~PR~~ possibly = GWAYNLLIFION [qv]  
PRINCIPAL V. NE towards PARC M., intersected  
by LLANRWST No. 2 X-V., N-S. in Bala ashes.  
Friable white quartz, w. galena,  
subordinate sphalerite.

Worked independ. 1848-9; 1852-69; 1877-81;  
1906-7. Now part of PARC M. group.



ml

Llanrwst mine, Bettws-y-Coed, Caernarv.

(II)<sup>107</sup> SH/75

At about 780593, marked on 2 $\frac{1}{2}$ " map. Bettws-y-Coed parish  
[cf. red card].

Spec. Rep. Min. Res. 23(1922) - loc. 8

N side of Llyn-y-Sarnan, 2 ml SW of Llanrwst.

Extensive dumps; gangue is friable masses of quartz  
with galena in cubes; or saccharoidal quartz. Also  
bipyramidal quartz.

Dennison and Varvill, Trans. Inst. Mining. Metall. 62, 1(1952)

Diamond drilling at Llanrwst mine. (PTO)

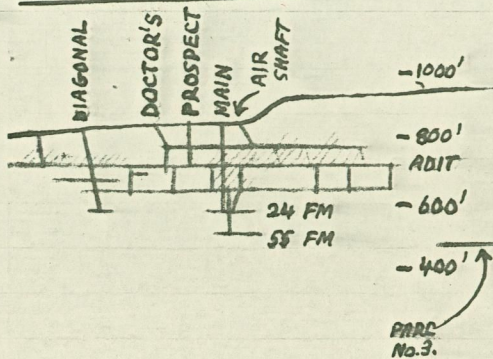
GORLAN  
MINE

SW

LLANRWST MINE

NE

PARC  
MINE  
SH/76



Llanrwst mine, Bettws-y-Coed, Caernarvon.

107 SH/75

(III)

GR + J. Pollard, Dec. 1955.

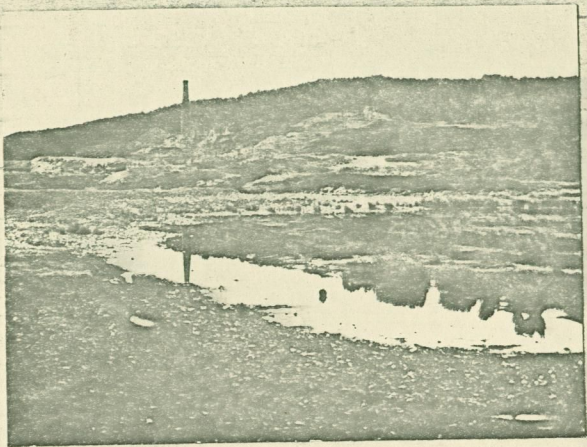
Cf. white card

Examined the south end of the low extensive dumps, near an open shaft (from which warm air and sound of blasting came - i.e. connected with Parc mine).

Large lumps of shale and ash, with abundant quartz and calcite. Specimens with galena, creted marcasite, massive friable marcasite or pyrite, and chalcoppyrite. Also clear almost bipyramidal quartz xls.

\*GR. Specimen: 55-297. Calcite, rather weathered flat rhombs in parallel growth.





Llanrwst mine, looking approx.N, Dec.1955.

"LLANRWST" ORE-FIELD, Caern. (I)

See also individual mines & localities:

Commonly used name for a compact ore-field on the W (Caern) side of the Conway valley, between Betws-y-Coed and Trefw-Dolgarrrog. Llanrwst itself is E of the river in Denbighshire, as is one of the mines - Cilcenus mine (Denb) [qv].

TMH (1868) 73. Upper & lower Silurian. "Llanrwst, Caern" -  
pyrrhotite

AA Archer N-F (1959) 269ff. One-shoots in  
interbedded shales, tuffs & rhyolites of Bala age

with intruded albite diabase, usually sills.  
The lodes, ENE (most import) N-S, & WNW, are of  
low-temp. type, with galena, sphalerite, &  
marcasite, with calcite & quartz; chalcopryite  
is rare. Map of lodes, p. 270

KCDunham Trans Geol Soc Glasgow (1954) 21, 395.  
Ankerite also.

FJ North (1962) Pb & Zn mined since 1838 [but v infra]

A. Aikin "Journal of a tour..." (1797) speaks of shallow  
independent mines here, main veins E-W, with N-S  
crosscourses. Describes a spec. bearing pyrite, ochre,  
chalcopryite, galena, "calamine" [most prob. sphalerite], qtz, calcite.



## LLANRWST OREFIELD, Caern (II)

Haggerty, R. (1995), UKJMM 15, 5-10 "The  
mineralisation of the Llanrwst Orefield,  
North Wales" Paragenesis  
is galena > sphalerite > marcasite and  
trace chalcopyrite, with no Ba minerals.

1" 107

SH 759 627

LLEDWIGAN, Trefriw, Caern.

See also CAERHEGLA M.

JRF-S (1977) 13

Trial for Pb ore in

Ordov ~ 1920.

Referred to by Smith

& Dewey [v. infra] as "CAERHEGLA" &  
misplaced on ~~the~~ map (p. 60).

Smith & Dewey, SRMRGB 23 (1922) 68. [v. supra]

1" 107

SH ~~82 83~~  
635 530

LLIWEDD MINE, (Snowdon), Beddgelert, Caern.

See also SNOWDON, etc. CWM MERCH Cu MINE (?=)

AA Archer, N-F (1959), 269. Lead & copper ores (1867 & 1872)

~~GRR (4/53)~~ Dumps of a small mine at  
SH 634 531 in

JRF-S (1977) 24  
in Ordov. volc's.  
Pb ore, 1849.

Remote mine on NW vein  
Cu ore recorded 1867-72,  
7 & 1821-43.

Min Journ (1849).

WM Condry "The Sn. Nat. Park" New Nat'nt 47 (1966) 156  
Phillips & Darlington "Records of Min'g & Met." (1857) 269.



1<sup>st</sup> 107, 116

SH

564 424

LLYN-DU, Dolbenmaen, Caern.

JRF-S(1977)32. Small Cu mine in  
Ordov. Cu produced in 1841.

JAPhillipse J. Darlington, "Records of Min'g & Met'y"  
(1857), 269.

1" 107

SH 603 558

LLYN-DU'R-ARDDU, Llanberis, Caern.

See also SNOWDON etc

JRF-S (1977) 23 Cu trials in Ordov. on NW  
slopes of Snowdon just E of the Llyn.

FJ North "Snowdonia" New Natlist 13, 130 (1949)

1" 116, 107

SH 562 500

LLYN LLEWELYN, Beddgelert, Caern.  
See also BEDGELERT, etc.

P. Thomson /70: Near the reservoir, ~~at~~  
at 562 501, thin coatings coppery-coloured  
micaceous ? stilpnomelane.

Near 563 503, small (up to ca 5 mm) but  
clear and sharp, terminated crystals  
epidote embedded in calcite-plugged  
vughs assoc. with chalcopysite, and  
small amounts axinite. On dissolving



The calcite away with dil. HCl, The  
epidote crystals project in attractive  
clusters.

LLYN LLYDAW, Snowdon, Caern.

See also SNOWDON etc

TMH (1868), 73. In Quartz Rock: Calcite; pyrite;  
chalcopryrite.

1" 107

SH 634 625

MAES CARADOC, Llandegai, Caern.

JRF-S(1977) 22. Trial for Cu in  
Cambrian, ~1862. Pyrite, chalcopyrite.  
<sup>Dovey & Cartwood</sup>  
Smith & Cartwright, SRMRGB 30 (1925) 50



MARCHLYN MAWR, Snowdonia, Caern.

See also BWLYCH-Y CYWION; NANT FFRANCON etc.

D Williams. Proc Liv Geol Soc 14 38 (1924) & 99. Olivine dolomite dykes, two types.

1. Fresh ophitic olivine-dolomite with amygdulites up to 2 cm across with colourless glassy analcite, or thomsonite.
2. Tholeiitic type, finer-grained; white felspar. Abundant 1 mm amygdulites with chouxite or serpentine.



 Moel Perfedd  
granophyre.

MARCHROS, Llanengan, Caern.

D. Hyde, Priv comm. 1968: A lead vein  
runs NNE from Nant-pig to near  
Marchros [ca SH 309250 - SH 31, 266]

1" 115

SH 32 26 ?

MAWR SHAFT, Assheton Mines, Llanengan Caern.

See also ASSHETON M., W. ASSHETON M., BOUNDARY Sh.

AA Archer N-F (1959), 261.

210 yd E of Boundary Sh.



1" 107, 116

SH 6948, 6949

MOEL DYRNOGYDD, Dolwyddelan, Caern

OS 6" map marks "Trial" at 697487, and  
"Old Level" at 697 496, on flanks  
of Moel Dyrnogydd.

NOV in OS gazz 1" 107 SH  
MOEL ELION, (nr. Llanrwst) Caern.

TMH (1868), 73. Magnetite; pyrrhotite

? Moel Eilio. SH 74 65

1" 107; 116

SM 676 493

MOEL FLEIDDIAU, Dolwyddelan, Caern.

JRF-S(1977)26 Trials, prob. for Cu & Pb ores  
Remote & inaccessible.

M. O'Keefe, Priv. Comm. 4/82. 2 levels,  
lower collapsed at mouth, wet;  
upper open, with a cavernous entrance  
leading to a slope down.  
Upper trial shaft flooded to brim; has  
small dump.

✓ Quartz; galena & sphalerite some  
(dark coloured)



in quite big pieces, to several inches

Marcasite, bright sharp xls to  
several mm, with small cubes  
pyrite. Traces copper ~~mineral~~ stains

Calcare ✓

1" 107, 116

SH 56 47

MOEL HEBOG, Beddgelert, Caern.

See also GLISTENING VALLEY MINE; CWM LLEFRITH ~~MINE~~  
CWM MEILLIONEN

TMH(1868), 73. Rock xl. in quartz rock

FW Rudler (1905) Asbestos or "fibrous hornblende" in  
[P129] veins. Has been used industrially

P. Thomson, Priv Comm (9/72) Asbestos mined  
at SH 560 478 near Ogof Owain Glyndwr.  
e also occurs below, in thin veins  
in Cwm Meillionen [qv]

JRF-S (1977) 31 MOEL HEBOG MINE poss. = CWM LLEFRIT

M. O'Keefe, Priv. Comm. 4/82. Agates, grey-white  
banded nodules occas. to several  
inches, in lava at top of YORISIAU  
ridge, near 567 474, & much better  
(→ ~5ins!) on SW side of the col Bwlch  
MEILLONEN, <sup>area</sup> ~~near scattered~~ around 559 474

M. Wolfe et al (2008) UKJMM #129 p14

Black pyram anatase → 3mm in quartz v's  
on flank of MOEL HEBOG.



1" 107,116

SH 548 483

MOEL LEFN, Dolkenmaen, Caern.

JRF-S(1977) 30

Trial level in Ordov.,

prob. for Cu.

1" 107, 116

SH 680 487

MOEL LLEDR, Dolwyddelan, Caern.

JRF-S(1977)27 Trial shaft, prob. for  
Cu or Pb ones, at this remote spot

MOEL SIABOD, Capel Curig, Caern.

TMH (1868), 73. Sil. & Trap. Pyroxene; steatite

FJN (1962) 68-9 Au present in the volc. ash  
on Moel Siabod. Extravagant claim by  
an Austrian diviner...

GEL (1858) Steatite; augite.



1" 107, 116

SH 55-6 47-8

MOEL YR OGOF, Beddgelert, Caern.  
See also PARC TY'N-Y-COED, BEDDGELEERT

P. Thomson, Riv Comm 2/70

Asbestos is to be found in rock exposures  
around SH 560 478, near Ogof Owain Glyndŵr

OS 2½" map shows "Mine" near SH 558 473,  
S of the summit, at the head of Cwm  
Llefrieth. [PT - a copper mine] of Glistering  
Valley mine

1" 115

SH

277, 420-1

N.

2741

2742 (tip)

MORFA NEFYN, Carnarvonshire.

P. Thompson Priv. Comm. (3/67) On E side of tip  
 of headland of Carreg Ddu, near the  
 lifeboat station - epidote veins,  
 up to 4 ins - found a big cavity with  
epidote xls in 2 in. sheaves!!

RSLOB (7/67) V 88-89 On N tip of Carreg Ddu,  
 below CG lookout stn. Veins of xline  
epidote with calcite & patches of nice  
red jasper and in one place a fine  
 vein of axinite in sheaves of purplish-  
 brown xls. quartz, [cf LLANDOWN Is., Anglesey]

TG Bonney. Q.J. Geol. Soc (1881), 37, 40. The "so-called  
serpentine" of Porthdinlleyn.

T.H. Cope. Proc. Linn. Geol. Soc (1902), 9, 208.  
Titaniferous iron sand of Porth-Dinlleyn.  
[? Ilmenite]

MA81-3118 Gibbons, W. "glaucophanic amphibole in a Moinean shear  
zone on the mainland of N. Wales", J. Geol. Soc. (1981) 138, 139-43  
Blue amphibole, prob. crossite with blue-green actinolite  
in a narrow blastomylonite belt ~~against rock~~ produced by  
shearing against a body of tonalite - grades into actinolite  
greenschist away from the shearing. At PENRHYN  
NEVYN [OS 1" - Penrhyn Nefyn - a peninsula ~~at~~ around  
297 412]



1" 107 ~~4211~~ SH ~~4~~ 533 531

MOUNTAIN LODGE MINE, Llandwrog Caern

See also TAL-Y-SARN MINE; NANTLLE; DRWS-Y-COED M; MYNYDD MAWR; BENALLT M (Llandwrog)

AA Archer, N-F (1959), 269. A short distance S of Tal-y-Sarn Mine.

Two lodes SE-NW, with chalcopysite, galena, & blende in a quartzose gangue. See Dowe & Smith (1922) 57.

WJL (1967) Map, p 237 Lead mine

JRF-S (1977) 28-9. Small mine on 2 NW veins in Ordov. slates. Quartz, with chalcopysite, pyrite, galena, sphalerite. 3 levels to SE driven 1920-1923, but aband. before production.

Smith & Dewey, SRMRGB 23 (1922) 57-58

1" 107, 116

SH 550 515

MYNYDD DRWS-Y-COED, Bettsw Garmon, Caern.

Alan Heason, Priv. Comm. 6/76. Quartz, large  
crystals, to 6 ins, some quite clear &  
perfect, found by Dewi Jones, ca 1968  
under old forestry track at 550 515  
high on SE slope of Mynydd Drws-y-coed  
<sup>RSW</sup> Locality visited 6/76 fragments of quartz  
on surface; major digging required  
to obtain specimens. Country rock  
is a slaty shale. No other minerals  
seen.



1" 107 Around SH 540 547

MYNYDD MAWR, Llandwrog Caernarvons.

See also NANTLE; DRWS-Y-COED M; ~~THE~~ BENALLT  
M (Llandwrog), ~~THE~~ MOUNTAIN LODGE M.

SR Nockolds MM 25 35 Liebeckite - acmite microgranite

A. Harker, Geol Mag (1888) 5 221 Geol of Mynydd  
Mawr & Nantlle Valley

A. Harker Geol Mag (1888) 5 455 Blue  
hornblende of Mynydd Mawr

TG Bonney MM (1889) 8 103 Reculian var.  
of hornblende from Mynydd Mawr

GAT Colo  
Britain

MM (1892) 9 222.

Riebeckite in

NANT MINE, ~~in~~ Llanfaelrhys, Llyn Ranninsula, Caern.

See also RHIW; BENALLT M.

G.Mus. Rhodochrosite - massive but definite

W Campbell Smith, FA Bannister & M.H. Hey, MM 27 21  
 Yellow ? Mn chlorite of AW Woodland Proc geol  
 Assoc Lond (1939) 50 209 (MA 8 250) with  
 ? pyrolusite. prob. = pennantite

ARussell MM ~~221~~ (1911) ~~221~~ 221 ff. (See Also MM 27 221 (1941  
 p 234 Rhodonite with garnophyllite

EJN (1962) 100. Closed 1925. Ore worked from



levels off a main incline, all from one orebody

AM Clark, AJ Easton, GC Jones, & M. Mount. "A study of the neotocite group" Min. Mag. (1978) 42 M 26-30 (279-80).

Neotocite, 4 spec's. coll by Sir AR in 1911 from No. 2 level. Massive, black, resinous giving dark olive-green to brown translucent fragments.

T. Cotterell (2006) UKJMM 27, 51-53.

Caryopilite & pyroxmangite, thin micro-xl orange-brown veinlets in massive Mn ore.

Caryopil (1st Brit), pyroxmang (1st Welsh). Mn ore is hard dense siliceous tephroite-rich with calcite celsian jacobsite, fluorapat, ganophyll, pennantite

SH 6363

1" 107

SH 6 6

NANT FFRANCON Caern.

See also CEUNANT M.; PENRYN Q's; MARCHLIN MAWR; BWLCH-Y-CYWION  
 SWAITH, BLAEN-Y-NANT, CWM GRAIANOG, MAES CARADOC, CWM BU  
 Brown, MM 32 242 (1959): Pyrommalite, with

garnet, chlorite & iron ore as constituent  
 of metasomatised slate.

Near the old road NW of Blaen-y-Nant  
 [i.e. ca SH 64, 609]

AA Archer N-F (1959) 269 Small copper mines in or near  
 Nant Ffrancon are mentioned by Dewey & Eastwood  
 [(1925) pp 49-50]

FJN (1962) 58 Cu trials, unsuccessful.

D. Hardman spec. 10/77 ex "Stone Science" of Anglesey  
 (D. Wilson).

"?Clinoclase" - "analysed & found to ~~be~~  
contain copper arsenate"; blue-green  
blades with green crusts on rock  
"from a copper mine in Ogwen Valley".  
The blades look like wroewolfeite ✓  
& do not resemble clinoclase or any  
copper arsenate.

D. Wilson Priv Comm 8/79, Spec's → RSWB.

The "clinoclase" is from Cennant mine [9]  
& was X-rayed → clinoclase nearest  
~~fit~~ fit to reonet. No blades on  
specimens donated - blue-green  
cauliflowery → "paint" crusts.

"Caulifl": IR → Hydrated basic Cu sulphate  
No arsenate. Near "woodwardite" "engsike" chalcoalumini



NANTLLE, Carn.

See also DRWS-Y-COED M; TAL-Y-SARN M;  
BENALLT MINE (Llandwrog), MOUNTAIN LODGE M.,  
MYNYDD MAWR

G & L (1858). Pinkish crystallised  
manganiferous calcite - NANTLLE VALLEY.

1" 107, 116

SH 653 486

NANTMOR, Beddgelert, Caern.

JRF-S (1977) 32 Tied levels at head  
of Nantmor, E of Llyn Llazi, prob. for  
Cu or Pb ore in the quartz veins  
here

M. O'Keefe, Priv. Comm. 4/82. Quartz in  
big boulders on slopes high above  
mine. [ie ~ 656 487], with specks  
pyrite. Mine at ~ 1300 ft OD, at ~  
651 485 [NOT position shown on map]

has slaty dumps with no quartz  
or ones seen.



NANT PERIS, Caern.

See LLANBERIS etc

1" 115

ca SH 31 25

NANT-PIG, Llanengan, Caern.

D. Hyde, priv comm 1968: A lead vein  
runs NNE from Nant-pig to near  
Marchros. [ca SH 309 250 - SH 317 266]

NEW PANDORA MINE, Llanrhychoyn, Caern.

See WELSH FOXDALE MINE.



NORTH WALES FREEHOLD COPPER MINE,

See GYFFIN

Conway, Caern.

1" 107

SH 77 58?

PANDORA MINE, ~~near~~ Betws-y-Coed, Caern  
See also WELSH FOXDALE MINE

AA Archer in N-F (1959) 269-273. Worked N-S  
lodes.

T. Ellis (1975) Ident RS&B. Aragonite, tufts of  
white needles

PANT- GWYN MINE, Llanengan, Caern.

See also TAN-Y-BWLCH M., BWLCH-TOCYN M.

AAH er N-F (1959), 261-2. Copper ore mined. On dumps:  
galena; blende; chalcopryte; baryte.

JR F-S (1977) 36. Worked for lead ore  
independently 1882-1887, & for Cu  
ore also with TAN-Y-BWLCH &  
BWLCH-TOCYN M's in 1888-1892.

DC Davies "Metallif. Minerals & Mining" (1890 Ed)

B.S. Smith & H. Dewey, SRMRGB 23 (1922) 58-59



PANT-Y-CARW LEVEL, Llancrchwyn, Gwyn.

GR's 2½" map shows MS "Pant-y-carw level" at above loc.

HDewey & B Smith, SRMR&B 23 "Pb/Zn" (1922) 76 On S side of Pant-y-Carw greenstone quarries, by the roadside; quartz; calcite; some manganese ore.

WJL (1967) Map, p 237 Lead mine

JRF-S (1977) 13 E-W vein of quartz & calcite with galena, some psilomelane in Bala slates & volcanics. Trial level.  
1 ton Pb in 1919.

PARC CAE-MAWR, Beddegelert, Caern.

P. Thomson, Priv. Comm 9/72.

A forestry road from Afon Hafod Ruffydd-isaf to Cwm-dû, cuts through a dolerite intrusion at SH 563 503, in which epidote occurs as small, well-developed crystals lining calcite-filled vughs. The calcite can be removed by acid treatment to reveal the epidote, also axinite. Thin coatings of stilpnomelane occur on dolerite joint faces beside the same road, at SH 563 507.

1" 107

SH 788 603

PARC MINE, Llanrhychwyn, Caern. (I)

= FUCHASLAS MINE = D'ERESBY MOUNTAIN MINE = GWYDYR  
 See also BRYNEISTEDD FOD, LLANRWST, GORLAN PARK CONSOL.

SRMRGB XXIII (1922)

In Nant-Gwydyr, ca 1 ml SW

of Llanrwst, Denb.

Bala sediments &amp; ashes.

SHALE LOSE, brecciated.

GORS LOSE, parallel. Saccharoidal quartz  
 with galena & blende Schieferspar (calcite)

H.O. List of Mines (1950).

Worked by Watende Ltd., under

W. Mitchell. Discontinued 1941.

1906 plans in Home office.GR 12/55.Visited. Working Calcite, blende, qtz, mareau  
galenaFJN (1962) 77 Reopened in 1952, much work,



including a new level  $1\frac{1}{2}$  ml long. Produced nearly  
8000 tons concentrates in 3 yrs but now closed  
[See Thomas TM (1961) "The Mineral Wealth of Wales & its exploitation" London]

Rayner's Cat (1960) "Pare or Fuchaslas Mine, Denb." Calcite,  
with marcasite.

Dennison & Varvill (1952) Diamond drilling. MeQ Eng p404

Mine & Quarry Eng'g (1963) 29 18: "The Pare mine Project"

TM Thomas "The min. wealth of Wales..." (1961) <sup>200-201</sup> Reopened 1952 for  
ca 6 yrs.

~~1961~~

AA Archer N-F (1959) 271: During the 1952-8 reopening  
a  $1\frac{1}{2}$  ml level was driven along the ENE

## PARC MINE, Llanrhychwyn, Caern. (II)

PRINCIPAL LODE, under Llanrwst, Gorton, & Cyffty mines, which were unwatered.

p 270 Map of lodes in area. In parts of the principal lode, pink colour in calcite, due to minute inclusions of haematite; in other parts there was much finely-x-bedded marcasite in the calcite. A specimen of magnetite has been identified, but not located underground. The workings on GORS LODE ("PIPE") were once known as the D'ERESBY MOUNTAIN MINE

DC Davies (1888) D'ERESBY MOUNTAIN MINE "likely to be

a large producer of blende"

Tony Ellis (1975) Riv Com  
Cu sulphates (sol) on min  
walls. + Octahedral  
? pyrite. "Arsenopyrite  
in BM".

"The Times" 24/11/62 Reopened for nearly a year in  
1962 to test an automated one-treatment plant

Archer & Elliot, Bull G. Surv (1965) 23 145 (MA 17 413)  
Andradite - honey-brown xls in the vicinity of  
an igneous dyke.

WJL (1967) Map, p. 237 Lead mine  
D. Charlton spec pres → RSWB 9/74. Stal. hydrozincite.  
chem tested (RSWB)  
[Zn<sup>2+</sup>, CO<sub>3</sub><sup>2-</sup> present]

Jan Smith Coll. & pres to RSWB 1/73 Calcite ~~flatt~~  
obtuse rhombohedra some with zonal twinning  
 some sprink w. small pyrite and malacchite  
xls - pyrite in cubes, malacchite  $\triangleleft$   $\triangleright$   $\uparrow$ .



PARC MINE, Llanrhychwyn, Caern. (III)

JRF-S (1977) 15-16 = GWYDYR PARK CONSOLS <sup>→ (1855-6)</sup>

= D'ERESBY MOUNTAIN. An amalgam. of several smaller mines.

SHALE V, ~NNW at E boundary. A shear filled w. crushed shale w. patches of quartz & calcite w. sphalerite.

GORS V. 11<sup>th</sup> & to W, v. strong 12-30 ft wide, of granular quartz w. galena, sphalerite  
Rich pipe @ GORS SHAFT.

FUCHES-LAS V., NNW, further W - Pb/Zn ores  
PARC = PRINCIPAL V., NE of breccia cemented by quartz, w. galena, sphalerite

Largest mine in area; worked intermittently →  
1954.

Min. Journ reports 1855-1865

Alwan & P.A. Williams "Nickeloan hydrozincite: a new variety"

Min Mag (1979) 43 397-398

In small cross-cut, 620 metres from adit, in No. 2 level at Pare mine, Gwynedd, SM 788 602, hydroz. forms coatings, stalacts etc on walls, floor, roof. Some on floor, cementing rubble from a shear zone was stained pale but distinct apple green.

Anal; Ni/Zn (i) 0.075 (ii) 0.082. [Ni values ~ 4%]. IR & X-ray show h'zinc pure, not a mixt. with a Ni mineral. Is a. Ni variety

PARC MINE, Llanrhychwyn, Caern (IV)

MA 82M/3735 RE Bevins, P O'Brien, S Turgooze  
and PA Williams, J. Russell Soc. (1982) 1 19-21

Nickeloan hydrozincite now reported  
from more recently worked No 3 level;  
AAS gave Ni 10.53-2.46%



1" 115

SH 305 248

PARED-MAWR, Llanengan, Caern.

JRF-S(1977) 36.

Trials in Cambrian

for Pb & Cu ores on cliffs overlooking  
Porth Ceiriad.

Min. Jour. 29/11/1851.

No record of production

PENCRAIG MINE, Capel Curig, Caern

See CYFFTY M.

1" 107, 116

SH 639 517

PENMAEN-BRITH, Beddgelert, Caern.  
See also SNOWDON, etc.

JRF-S (1977) 25. OS 1:25000 SH 65 shows  
old mine on NW shore of Llyn Gwynant  
at 639 517. See Min. Journ. 6/12/1851



PENMAEN MAWR, Caern.See also PENMAEN MAWR QUARRY; GRAIG LWYD QUARRYTMH (1868), 73, Sil Slate & Greenstone. Augite; steatiteGeol (1858) AugiteMin. Quar. Eng (1960) 26 410. (MA (1963) 16 194) See under  
individ. quarries.J V Elsdon, Quarry (1904) 10 539. Penmaenmawr Quarries.HC Sargent, Geol Mag (1915) 52 15 The Penmaenmawr Intrusion-11- Geol Mag (1916) 53 5 Axinite veins in the Penm. porphyrite.-11- Proc Linn Soc (1925) 14, 123 (MA 3 89) Notes on the

petrology of Penmaenmawr mountain II Acid  
segregations & veins.

1" 107

SH 700 75y  
6975 7075

PENMAENMAWR QUARRY, Penmaenmawr, Carn.

See also PENMAENMAWR; GRAIG LWYD QUARRY.

Anon, Min Quar Eng (1960) 26 410 [MA 16 (1963) [2] 194]

Has quartz-enstatite diabase intrusion.

In rocks: quartz; enstatite; orthoclase;  
augite; biotite; ilmenite; magnetite;  
serpentine (bastite); apatite; prehnite;  
No hornblende (cf Graig Lwyd Quarry, to E).



1" 107,116 SH 54 40

PENMORFA, Tremadoc, Caern.

TMH (1868), 74      Lr. Sil.      Steatite

Ge L (1858)      Steatite at Glydyn Rock,  
Craig-y-lebon, near Penmorfa

PENRHYN DU MINE, Llanengan, Caern

See PENRHYN M, Llanengan

PENRHYN MINE, Llandegai, Caern.

See also LLANDEGAI, etc.

cf PENRHYN MINE, Llanengan

FJN (1962) 87. Opened 1913. oolitic iron ore  
from openworks & levels. Nr. Llandegai

AA Archer N-F (1959) 261-2 On dumps; galena;  
sphalerite; chalcopyrite; baryte.  
= the Llanengan mine!



1" 115

SH 323 263

PENRHYN MINE, Llanengan, Caern. (I)  
= PENRHYN-DU = PENRHYN-MAWR

cf PENRHYN MINE, Llandegai (Fe). ABERSOCH  
See also ASSHETON M, MARCHNOS etc.

A.A. Archer N-F (1959) 261-2. On dumps:

galena, sphalerite, chalcopryrite,  
baryte.

JRF-S(1977) 34 = PENRHYN-DU = PENRHYN-MAWR

On E end of Main Vein of the area,  
strike a little N of W, in Ordov. Only  
worked lead ore, a little copper ore.

Working pre-1840, intermilt → ~ 1859

Min Journ (1851) → (1856).

B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59

Phillips & Darlington "Records of Mining Met" (1857) 269

N Hubbard & Diggreen (2005) J. Russ Soc. 8 106-107

Cotunnite in situ below High Water Mk from the  
S of 2 veins at cliff outcrop at 326 261  
Whiterish transl. blades  $\rightarrow$  4mm in ox'd galena  
w. a little sulphur. Cav. w. phosgenite  
around outcrop of Main Lode 100m to the N  
(Hubbard, 1991, J. Russ Soc. 4, 35)

PENRHYN (DU) M, Llanengan Llyn Fenn, Carn (T)

See also MARCHROS etc.

FJN (1962) 61 mentions lead mine at Penrhyn  
Du, on S coast of Llyn Fenn.

D. Hyde (Priv Comm) A lead vein runs from near  
Marchros to Nant-Pig, S of Abersoch.

WJL (1967) Map, p 237 Lead mines

N. Hubbard (1991) J. Russ Soc 4, 35

Phosgenite in cave by outcrop of Maen  
Lode in cliffs



RSN(106) 48 13. J. Davidson: "Perrhgn Du Mine  
at SH 315 263" [Prob = W. ASSHETON MINE, qv.]  
with Corn. Eng House. 1 pyromorphite  
found.

1" 107

Around SH ~~62~~ 62 65

PENRYN SLATE QUARRIES, Bethesda  
Caern.

See also NANT FFRANCON, etc

TMH (1868), 73. Camb. Slates. Rock xl; ripidolite (Heg-  
chlonite group).

GL (1858) "Aptrosiderite" [var of ripidolite] "recently  
observed by Krantz" on the large detached  
rock in the middle of PENRYN SLATE Q.

W. Pulfrey, QJG. Soc (1933) 89 401; Ann. Mag. Nat. Hist. (1933) Ser 10  
11 67. "Thuringite" - analysed (MH Heg MM (1954) 30 277  
= daphnite)

Mr Gowing, spec's shown to RSWB, 7/71. Pyrite, good

xls ( $> \frac{1}{2}$  cm) scattered on slate minor  
patches of a green transparent chlorite  
adjacent to the pyrite xls. Quartz  
veins in green & in purple slate,  
with minor calcite vein associated  
in the green slate  
Revinse Sharpe (1982) vq quartz Illustr 20, NMW 22.III.GR41  
R. Warner (1799) 133 Slate q's of Lord Penrhyn.

RSWB 74-310 vq Pyrite-twin in slate (ex D. Charlton)  
D. Butterworth, Min. Realm (1983) 2 [5], 2.  
Pyrite xls  $\rightarrow$  2 cm. Plan of quarry, showing  
collecting site [near 623 658].



PEN-Y-GAER MINE,

1" 115  
Llanengan,

SH 298 282  
Caernarvon

See also LLANENGAN

OS 6" map.      Pb mine

1" 107

SH 647 556

PEN-Y-PASS, Llanberis, Caern.

See also SNOWDON, etc

JRF-S(1977) 24

Trial shaft sunk 1850

to 60 ft to cu ore; older workings  
existed.

Min. Journ. 12/1854, 1/1855.

1" 107

SH 797 575  
796 577 (JRF-S)PEN-YR-ALLT MINE, Bettws-y-Coed, Caern.

See also ABELLYN M.

SRMRGB XXIII (1922) 64, 68 Pb/Zn.

(Dwayne Smith)

Bala shales &amp; ash.

Quartz; galena; blende Extensive  
worked along 5 levels up the hill-side, lowest  
being near railway.

Aband. 1906; Plans in Home Office.

GR 12/55 Trial? on W side of road ca.  $\frac{1}{2}$  ml N of B-y-C at  
797575. Goes in (between W & NW) only a very few yds.Quartz stringers (ca. E-W) in light grey rock.  
On left wall a patch of massive galena, with  
cleavages up to 1 x 4 in.FJN (1962) 86-87 Psilotic iron ore worked ca 1840,



and again ca 1880, but has too much sulphur  
for present-day needs

WJL (1967) Map, p 237 Lead mine

JRFS (1977) 20 E-W vein in black shales & volcs.  
(Bala); of breccia cement. by quartz, in which  
galena  $\approx$  sphalerite. 5 levels; fairly  
extensive. Working  $\sim$  1870-90, 1919-20.

1" 107

SM 7 7 (

POL-Y-COCHAR, Conway, Caern.

~~See also BWLCH MINE, Llanrhos, (why?)~~

See PWLL-Y-COCHION, 9 TMH [qv], PYLLAU-COCHION [= TRECASTEL  
qv]

G & L (1858). Calcutt, Poly-Cochar, nr. Conway.

1" 115

SH

167 265

POMPREN MINE, Aberdaron, Caern.AA Archer N-F (1959), 262.

Barytes mine, ca 8 ml W of  
Llanengan; and near Aberdaron. Baryte in  
pockets assoc. with a fault.

GR, 5/69 Baryte; quartz; shiny pyrolusite or prob  
psilomelane. edrr There remain a blocked  
~~the shaft~~ shaft a narrow opencut lined with  
~~the shaft~~ massive baryte & quartz, and  
overgrown dumps; further down the gully  
large lumps massive to granular  
quartz, with small xls in cavities, and



of pink to white massive to lamellar baryte,  
abundant psilomelane as botry. crusts,  
small patches among granular qtz, &  
dull black subfibrous masses

RG Casutt et al SRU ROB "Ba" 2 (1916) 878. Small  
mine at mouth of Ifon Saint; 10 ft lode  
of clean baryte with quartz near  
the walls

JRF-S (1977) 36. Small baryte mine, in  
pockets on E wall of N-S fault  
Ordov on E wall, Pre Camb on W wall.  
Working betw 1883 & 1917, intermitt.

KC Dunham et al. Geol Surv Wartime Pamph. 46. "Barmins..." (1945) 12

1"107

SH 595 463

PONT ABER-GLASLYN, Beddgelert, Caern.

See ABER GLASLYN

~~MMH (1868), 173. Sil Pyrrhotite; Chalkopyrite.~~

1" 107

SH

772

577

(DEEPA)

784

585

(JRF-S)

POOL MINE, Bettws-y-Coed, Caern.

= CWM MAWR MINE = COEDMAWR POOL MINE.

H Dewey & B Smith

SRMRGB

XXIII

(1922) "Pb/Zn" Shafts  $1\frac{3}{4}$  ml WNW of B-y-C. Shale.

p70-71. Many lodes, mainly E-W. Galena in bunches,  
with quartz & calcite. = Cwm Mawr Mine.

GR's  $2\frac{1}{2}$ " map. shows "Pool Mine" (loc 3) as a level to N  
immed N of footbridge, at above loc. Has "u/s (1955)"

AA Archer N-F (1959) 270 = COEDMAWR POOL M. — WNW lodes  
Fig 2

WJL (1967) Map, p 237 Lead mine - COED-MAWR POOL

WW Varvill, Min. & Q. Eng (Sept 1954) Figs 15 & 19.



JR F-S (1977) 19. Partly v. old. A network of  
minor veins & 8 more import. ones, eg.  
CYFFTY V, WNW; FFRIDD V, N-S; CHALLINOR V, ENE,  
in Bala slates & voles. galena > sphalerite  
in quartz & calcite.

Reopened 1851-1869; 1874-80; 1906-11.  
DEEP ADIT from SW at SH 773 577, & is  
300 ft lower than bottom of older shallow  
workings.

PORTH-DINLLÄEN, Morfa Nefyn, Carn.

See MORFA NEFYN

PORT(H) NIGEL MINE, Llanengan, Caern.

See also LLANENGAN

AAArcher N-F(1959), 261-2 Abandoned 1883. ENGINE Sh. sunk  
to 90 fm level. On dumps: galena;  
blende; chalcopryite; baryte.

OS6" map. "Porth-Neigwl mine (Pb)" shown at 295267

JRFS(1977) 36 PORT NIGEL = PORTH NEIGWL  
Most W mine on Main Vein; working 1874-83  
for Pb ore. Engine Shaft to 540 ft  
(90 fm. level) but only stoped to 80 fm level.



B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59

F. Ince BMSN ('03) 26. Linarite BMSColl 2277  
From SW 295 267

§ 1" 107, 116

SH 5 3

PORTMADOC MINE

Caern

See also BRON-Y-GADAIR ; GEST M.

JRF-S (1977) 33.

Min Journ (1849) records

Pb ore from  
referring to

PORTMADOC. May be  
BRON-Y-GADAIR

1" 107, 116

SH 58 41

PRENTEG, Cann.

See

TWLL-MAEN-GRISIAL



PWLLHELI, Carnarvon.

See also GIMLET QUARRY

BM spec: Saponite, grey-green massive,  
with calcite and actinolite on joint.

NS. Maskelyne & Flight. J. Chem Soc. (1872) 10 1049  
Pisolithic iron ore (anal.)

C. A. Matley, Q.J. Geol. Soc. (1938), 94, 556. "Geology  
of the country around Pwllheli, Carn." 11

" 107

SH

7

7

PWLL-Y-COCHION, Conway, Caern.

cf "POL-Y-COCHAR" of G & L.; PYLLAU-COCHION of JRF-S  
= TRECASTELL MINE  
TMH (1868), 73. (Pb & Zn mines). Calcute

G & L (1858) Calcute, "Pol-y-cochar" in Conway

PYLLAU-COCHION MINE, Henryd, Caern.

See TREGASTELL M.



RED PITS MINE, Henryd, Caern.,

See TRECASTELL M.

RHAFNA MINE, Llanrhychwyn, Caern.

See HAFNA M.

RHIBO MINE, Trefriw, Caern.

See CAE-CÔCH M.



1" 115

SH 22 28

RHIW, Caernarvon.

See also BENALLT M., NANT M.,

MA 8 250

Mn ore, Rhio: Tuff altered hydrothermally to chlorite, epidote, sericite, rhodochrosite etc; psilomelane nodules, collophane in the green-black rock.

A. Woodland, Proc Geol Soc. 50 205 (1939) "Petrography & petrology of the Mn ore of the Rhio district".  
A. Woodland "The Mn deposits of Gt Britain" 20th

FJ North (1962), 99-100

Mn ones.

1"107

SH 60 54

SNOWDONCaern.

(I)

[Cont'd card]

See also BRITANNIA MINE; LLIWEDD MINE; CLOG WYN BOETH M; LLANBERIS  
 LLYN LLYDAW; TWLL-MAEN-GRISIAL; LLANBERIS MINE; LLANBERIS VAL  
 TMH (1868), 73. Adularia; anatase; brookite; felspar  
ottrelite; rock xl; chalcoppyrite

GeL (1858). Quartz, v. fine, Adularia, with quartz.  
chalcoppyrite in quartz

Levy, Ann Phil (1825) Ser 2 9 140. "An account of a  
 new mineral" — Brookite from "Snowdon"  
 [See TWLL-MAEN-GRISIAL]. cf Sowerby (1809) 3 197

P. Thomson, Priv. Comm (9/72). Epidote, distorted  
 1/2" xls assoc. w. quartz veins, from an isolated



dolerite outcrop at SH 590 520; and as (weathered) 1" crystals in a quartz vein, with calcite & a fibrous amphibole, at SH 593 522.

An area of magnetite-rich rock occurs at SH 596 525, prob. a ~~magnetite~~ segregation from an assoc. dolerite - the richest areas appeared to be within a few ins. of the many N+S quartz veins in this area. Xls quite visible under hand lens, & xl aggrs  $\rightarrow$   $\frac{1}{4}$ " found on a nearby boulder. Apatite in small colourless xls occurs in a quartz vein on the ridge of Llechog, at SH 594 541. Anatase as tiny sharp, transparent, dark blue bipyramids, singles and in clusters,

## SNOWDON, Caern. (II)

See also LLYN DU'R ARDDU; CLOGWYN BOETH; CLOGWYN COCH; TERFYN;  
YPENNANT; DORLANDU; YGEUALLT; HAFOD Y LLAN; CWM MERCH

occurs in thin quartz stringers with  
pyrite, in an acid intrusion at  
SH 597 539 where it outcrops on the N  
cliffs of Llechog, overlooking Cwm Clogwyn.  
Rutile occurs as needles with the anatase,  
at 597 539, and also as "sagenite" with  
minute plates ilmenite on the margins  
of quartz veins at SH 619 518

W.C. Davies, Priv Comm 1/77. v.g. Rutilated  
quartz xls said to have come from  
S slope of Grib Goch [SH 62 55.]

Cotterell et al (2010) J. Russ. Soc., 13, 47-52. Ref to

Bering & Mason (1998) "Welsh Metallophyte...." Countryside Council  
for Wales Contract Report No. 257. At CWM TREGALEN  
on Snowdon [Cwm Tregalen of 051", at SH 60 53] minor  
scheelite between magnetite grains with inclusion  
of cassiterite. [According to Bering's book (1994) a pyrite,  
magnetite-haematite-quartz site]



1" 116, 107.

SYGUN MINE, Beddgelert

1" 116 SH 600 485  
cent on 606 486  
Caern.

See also CWM BYCHAN,

AA Archer, NF(1959), 269. Produced copper ore 1825-1847,  
1869-1870, 1903.

1"(116) OS map shows "Sygyn-fawr Copper Mine" at above loc.

P. Thomson, Priv Comm (9/72). Ilmenite, ~~min~~  
minute plates on margins of quartz  
veins at SH 485 603

JRF-S(1977) 26 = SYGUN-FAWR. System of  
linked ~NNE veins across W end of

Moel-y-Dyniewyd, in Ordov. slates, quartz & volcs  
Quartz w. chalcopysite, pyrite, some  
galena, a little sphalerite  
Extensive. In part v. old. Active  
for Cu in 16th Cent., 1825-1847, 1851, 1869-70,  
1903.

Min. Journ. 29/11/1851 Advert under name of HAFOD-Y-LLAN

TM Thomas. (1961), 218.

FJ North "Snowdonia" New Nat'l'st (1949) 13, 391.

SYMDDDY LLUAN MINE Pen-y-groes? Caern.

See TAL-Y-SARN MINE



1" 107

SH 760 658

TAI-1SAF-ARDDA, Dolgarrog, Caern.

JRF-S(1977)11 "SH 760~~7~~58" [wrong PH!]

Trials for Pb one in Ordov. Volcs.

1" ~~107~~ 107 SH ~~539~~ 533  
Llandwrog, Caern. (I)

TAL-Y-SARN MINE,

= SYMDDE DYLLUAN MINE

See also MOUNTAIN LODGE MINE;

~~Llandwrog~~ NANTILE; DRWS-Y-COED M; BENALLT M (Llandwrog)  
MYNYDD MAWR

SRMRGB XXX (1925) 49 2 ml E of Nantlle. Slate &  
grits; continuation of lodes of Drwy-y-Coed  
(Pen-y-Groes M); richer than Drws-y-Coed; some galena  
& blende in depth.

Archer, N-F (1959), 268-9 Produced Cu ore 1826-1876, 1907-1921  
Main shaft 540 ft deep. E-W lodes, with  
quartz, pyrite, pyrrhotite, chalcopyrite,  
galena, blende. Proportion of galena &  
blende increased with depth.

FJN(1962) 57-8 Big Cu producer. Shaft to 540',  
abandoned @ end of the war.

TM Thomas (1961) 218

OS 1" map (107) shows "Tal-y-sarn" at SH 48 53,  
2 ml W of Nantlle

J.R.F-S (1977) 27 = SYMDDE-DYLLUAN SH 539 533

[E of Nantlle]. 4 veins, a little N of E,  
No's 1-4 (S→N), ~ 14 ft apart, in Ordov.  
slates & grits. No 2 (major one) = "RICH V.",  
W contin of those of DRWS-Y-COED M.

Quartz, with chalcoprynite (predom. in shallower  
levels), galena & sphalerite (more in depth)

Working early → 1921.

Fullerth "Snowdonia" New Natlist 13 (1948) 129 WM Condry, ibid 47  
(1964) 25



## TAL-Y-SARN MINE, Llandwrog, Caern (II)

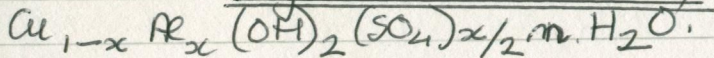
EH Nickel (1976) MM 40 644-7. Nat Mus Wales  
spec 27111-GR-463 labelled "Woodwardite,  
coating grass [sic!], Simddle Dallhuan,  
Drosg-y-coed, Nantlle, Carnarvonshire" [-X-ray  
on JCPDS card 17-132] XRD, IR/heat, part.  
anal shows near but not = woodwardite  
- Cu/Al ratio low. Hydrated Cu, Al, SO<sub>4</sub>.

[= hydro woodwardite, v. infra Witzke (2000)]  
G. Raade et al. (1985) MM 49 583-590. E.H.  
Nickel's (1976) "woodwardite": -XRD, chem anal  
is nearly Zn-free, probably the Cu-analogue  
of glaucozerimite. = hydro woodwardite  
(Witzke 2000)

Witzke, T (1999) Neu. Jahr. für Min, Monatsh. 75-86

"Hydrowoodwardite a new mineral from ... Saxony  
... other locs". Abstr Min Rec (2000) 31 203.

Nickel's (1976) near-woodw. is ident with the  
new min. hydrowoodwardite, trig.



TAMOW MINE, Llanllyfni, Caern.

See TY-MAWR M.



1"115

SH 308 267

TAN-Y-BWLCH MINE, Llanengan, Caern.

= TAN-YR-ALLT MINE.

See also DEULCOCH; BWLCH-Y-TOCYN; PANT-GWYN.

AAArcher N-F(1959) 261-2 Copper ore mined. On dumps:  
galena; blende; chalcopysite; baryte

DC Davies (1888): In 1878, the most import copper mine in Caern.

JRF-S(1977) 35 Working 1851, 1873, 1887,  
 1888-1892 with BWLCH-Y-TOCYN & PANT-  
 GWN. 1873-1892 with DEULCOCH  
Pb, Zn, Cu ores.

Min Journ 1851-1859 under "TAN-YR-ALLT"

B. Smith & H. Dewey, SRMRGB 23 (1922) 58-59

1" 107

SH 547 565

TAN-Y-GARREG, Bethws-Garmon, Caern.

JRF-S(1977)27 Cu trial advertised for  
sale in Min. J. 8/4/1854



1" 107

SM 639 667

TAN-Y-GARTH MINE, Llanllechid, Caern.

JRF-S(1977)21 Series of small quartz  
veins & lenses in Camb. grits, with  
pyrite, arsenopyrite, chalcopyrite,  
pyrrhotite.

4 levels, with 2 shafts on the  
232 tons Aspy. ("mispickel") recorded.

H. Dewey SRMRGB As/Sb 15 (1920), 44.

RSWB 31/8/79 On S side of spur.

Arsenopyrite, rarely xls to  $\frac{1}{2}$  cm  
embedded in granular massive  
(common) ~~in~~ quartz. ~~There~~ Some  
alteration to pale greenish-white  
scorodite in vughs. Much very  
red to brown ~~goethite~~ iron-ore.  
(goethite) + ?

TAN-YR-ALLT MINE, Llanengan, Caern.

See TAN-Y-BWLCH M.



1" 107

SH 776 613

TAN-YR-EGLOWYS MINE, Llanrhychwyn, Caern.GR's 2 1/2" map shows MS "Tan-yr-Eglwys Mine" at above locH. Dewey & B. Smith, SRMRGB 23 "Pb/Zn" (1922) 77. In a  
slate quarry 1/2 ml S of Llanrhychwyn church;  
pyrite; galena; quartz; calcite.WJL (1967), Map, p. 237      Lead mineJRF-S (1977) 14 E-W vein @ S end of Llanrhychwyn  
slate quarry; worked for lead ore. Vein of  
pyrite w. some galena in breccia  
cemented by quartz & calcite.  
Old workings reopened for exam. in 1919

1" 107, 116

SH 612 507

TERFYN, Beddgelert, Caern.

See also SNOWDON etc

JRF-S(1977) 25 Trial for Cu & Pb ores  
in Ordov. volc's, prob. ~ 1860-1870.

1" 107

SH 761 745<sub>5</sub>

TRE CASTELL MINE, Henryd, Caern (I)  
= PYLLAU-COCHION = RED PITS; cf POL-Y-COCHAR;  
PWLL-Y-COCHION.  
GR's 2½" map: Lead mine.

Cardiff Mus (Nat M.W.) "Mountain leather" - big chunks  
(ca 8") [? Palygorskite]

H. Dewey & B. Smith SRMRGB 23 "Pb/Zn" (1922).  
Sphalerite; calcite, good xls in vughs.

AA Archer N-F (1959) Pbe Zn produced, 1892-1913;  
closed in 1920; reopened 1948-1953. A pyrite  
ore body was found by drilling, but  
the pyrite was finely divided & hard to



mill; a galena-sphalerite-calcite lode was also explored.

WJL (1967) Map, p 237 Lead mine

JRF-S (1977) II = RED PITS or PYLLAU-COCHION M.  
2 main veins: PRINCIPAL V. ~ EW; ABERLLYN V. ~ NE (a shear zone), both in bedded Bala ashes w. sills of diabase. Shaly in depth - one shoots become patchy.

galena, sphalerite in calcite, quartz.  
Some pyrite orebodies, explored 1956.

Reaches 570' depth @ Engine Sh (No 2 sh.) with an ~~air~~ inclined winze to 630 ft from surface. Worked:- old times; 1892-1920. 1948-1956.

TRECASTELL MINE, Henryd, Caern (II)

FJ North (1962) 56 . Water wheel .

Min. Journ (1855) Tonnage record only.

TM Thomas (1961) 203, 228

TREFRIW MINES (or Llanrwst), Caern.

See also PARC M; LHANRWST M & CAERHEGLA M, BELLI-LYDAN M,  
COED-GWYDIR M; CAE-COCH M (?)

TMH (1868), 73. Sil. slate. (Pb). galena; pyrite;  
pyrrhotite.

NB Mine shown on OS 1" 107 at Rhifo, 1 mi N  
 of Trefriw, at SH 773 653

MA 1 88 TREFRIW pyrite deposit. 6 ft thick  
 orebody on an intrusive diabase  
 containing ophitic augite, serpentine,  
chlorite & ilmenite.

GeL (1858) Pyrrhotite - "TREFRIEW (?)"



1" 107, 116

SH 56 40

(I)

TREMADOC, Caern.

See also FRONOLEN, ~~the~~ TWLL-MAEN-G-RISIAL.

TMH (1868), ~~73~~ 74. Fr. Sil. Albite; anatase; brookite

~~G.R.~~ <sup>Another</sup> ~~the~~ brookite loc is in a quarry just outside Arenig Station.

Ge L (1858) Pea iron ore (limonite). Anatase occasionally in good-sized xls, but usually small with brookite & cleveite (albite), Tremadoc. Albite, flat transparent twinned xls with quartz & the Ti minerals, Tremadoc.

BM. Ripidolite, grey-green powder

Thomas (1961) 176-7 (off GR's card)

Lr. Palaeoz. iron ores: small scale mining.

Tremadoc, Caernarvonshire(card (II)) (C)Cf. red card.    Fron-oleu, 579411.    Tremadoc parish.\*Letter from B.M. to G.R. (24.4.53).

Classic brookite loc. is a small abandoned quarry at Twll-maen-grisial, Prenteg, on the west side of the Beddgelert road 1½ ml N of Tremadoc. The crystals occur with anatase and albite on joint planes of an altered (presumably albitised) dolerite. The loc. has been temporarily exhausted by assiduous collectors using blasting and unless further opening-up has taken place you are rather unlikely to find any specimens.



\*Rayners Cat. (1960).

Brookite, albite, quartz, Twll-maen-Crisial, Prenteg.

\*Greg + Lettsom (1858).

~~Mineralogical~~ Albite, flat transparent twinned xls, with quartz and the Ti minerals. Anatase, occasionally in good-sized xls, but usually small, with brookite and cleavelandite [albite]. Sphene, occasionally in small xls with brookite at Fronolen near Tremadoc. Brookite, magnificent xls with albite and sometimes anatase, in a white quartz rock at Fronolen, on the road from Beddgelert to Snowdon [sic!], near Tremadoc; occasionally 1 inch long.  
Limonite (pea iron-ore) at Tremadoc.

Levy, Ann.Phil. 1825, ser. 2, 9, 140.

. An account of a new mineral (brookite from Snowdon).

Tremadoc, Caernarvonshire (card (III) (C))

Rudler (1905).

Brookite, on walls of clefts in a quarry of eruptive rock near Fronolen.

\*Sowerby, vol.3, 197 (1809)

Fig. of platy red brookite on large crystals of quartz, with transparent xls of adularia. From near Snowdon, per W.Lowry. (later, another specimen from same loc.)

\*Dana 6th edn, p.241. p.715.

Anatase with brookite, Tremadoc. Brookite at Fronolen near Tremadoc. Sphene with brookite near Tremadoc.

\*Dick, Min.Mag. 1888, 8, 15.

Kaolinite (?), from Tremadoc; microcrystalline, apparently a single mineral. Anal. = ripidolite. Properties similar to those of ripidolite from New Rosewarne mine, Cornw.

SiO<sub>2</sub> 26.03

Al<sub>2</sub>O<sub>3</sub> 17.87

FeO 34.84

MgO 8.58

H<sub>2</sub>O 12.90

100.22

+ tr. Mn, Ca.

Fearnside, Proc.Geol.Ass. 1912, 23, 199.

Petrology of Prenteg brookite-bearing rock.

Sowerby, Ann.Mag.nat.Hist. 1838, ser.2, 2, 293.

Locality for brookite.



Tremadoc, Caernarvonshire

(card

IV)

107 SH/54

Davis, QJGS.1846, 2, 70.

Geology.

Rose, Ann.Phys.Chem.1844, 61, 515.

. Anal. of brookite from Snowdonia.

$\text{TiO}_2$  98.59,  $\text{Fe}_2\text{O}_3$  1.41 = 100.00. den.4.13.

card author

Caernarvonshire: bibliography

J.E.Davis, Quart.J.Geol.Soc. 1846, 2, 70-75.

"On the geology of the neighbourhood of Tremadoc,  
Caernarvonshire." [SH/54]

card abstr authno

Caernarvonshire: bibliography

\*A.Dick, Min.Mag. 1888, 8, 15-27.

"On kaolinite". [Tremadoc, SH/54]

TREMADOC card author

Caernarvonshire: bibliography

(V)

Levy, Ann.Phil. ser.2, 9, 140. (1825).

An account of a new mineral (Brookite from Snowdon).

[Tremadoc, SH/54]

card author

Caernarvonshire: bibliography

H. Rose, Ann.Phys.Chem. 1844, 61, 515.

"Ueber die Titansäure". [Anal. of brookite, Snowdonia]

[Tremadoc, SH/54]



card author

Caernarvonshire: bibliography

W.G.Fearnsides, Proc.Geol.Ass. 1912, 23, 199.

Report of an excursion to the Portmadoc and Criccieth  
District of South-East Caernarvonshire; with an Appendix:  
Notes on the petrology of the decomposed brookite-bearing  
rock of Prenteg, near Tremadoc, North Wales.

(see Tremadoc, SH/54)

TREMADOC

Caernarvonshire: bibliography

(VI)

PTO

\* G.B. Sowerby, Ann. Mag. nat. Hist. 1838, ser. 2, 2, 293.

Locality for brookite.

[Tremadoc, SH/54]

Bed collected. Also andalusite  
and cleavelandite.

\* This is actually London & Charlesworth's "Mag.  
nat. hist. & Journ. zool., bot., min., geol. &  
meteorol." Vols 1-9 (1828-1836); ser. 2,  
vols 1-4 (1837-1840). [Later combined  
with "Annals of nat. hist..." (vols 1-5, 1838  
1840  
as "Ann. ~~nat.~~ & Mag. nat. hist..." (vol 6 →,  
1841 →, 2 vols per year).]



TREWEEKS QUARRY, Llandudno, Caern.

See LLANDUDNO MINE

1" 115

SH 367 474

TRWYN-Y-TAL, Llanaelhaiarn, Caern.

JRF-S(1977) 33

OS 1:25,000 map SH 34 show

"Old shaft" at 367 474, Prob. a trial  
for Pb or Cu; in Ordov.

1" 107

SH

66

59

TRYFAN, Capel Curig, Caern.W.C. Davies, Priv Comm 10/76, Spec → RSWB (76-20)

Quartz, fine large clear crystal  
 in clay-filled pockets or vein on  
 N side of Tryfan. [From the MS at  
 663 603 go S, over 2 stykes, keeping to  
 RHS of spur. up "easy" gully then 150  
 yds on to irregular gully where the  
 qtz xls are found, in a clay band] <sup>near</sup> 665591  
 Also quartz xls SW of Tryfan top,  
 on ridge near 658 588 (N slope of  
 Glyder Fach)



1" 107, 116

SH ~~5845~~ 5845 4120

TWLL-MAEN-GRISIAL, Prenteg, Tremadoc, Caern. (I)

See also FRON-OLEU; TREMADOC.

Rayners cat (1960) Brookite, with albite equantz (7x4x4" 24

BM, Riv. Comm to GR (1953) This is the "Fron Olu" loc for Ti mineral

TMH (1868) 74. Lr. Sil. Brookite; sphene. ("Fron Olu")

RSWB (7/67) V, 87. Found the loc, at above ref.  
Quartz veins, with albite; brookite  
plates.

GEL (1858) "TREMADOC" [qv] Anatase; brookite; albite (va  
cleveandite); quartz.

"FRONOLEN" [qv] Brookite; albite; anatase; quartz;  
Sphene.

Levy, Ann. Phil. (1825) Ser 2, 9, 140. "An account of a  
new mineral" - Brookite from Snowdon

G.B. Sowerby, Ann. Mag. Nat. Hist. (1838) Ser 2, 2, 293  
Locality for brookite

GB Sowerby (1809) Vol 3, 197. Brookite "from near  
Snowdon" figured.

RSWB other occasions. Black wad containing (gives  $Cl_2$  w.  $H_2O$ )  
earth fills some open spaces in some  
parts eg quartz vein ~~to~~ a few yards E of  
main vein. This vein has brookite rich  
pockets but the brookite is fragmented  
& supported by the wad, so breaks up  
on washing.

RE Starkey & GW Robinson (1992) Min. Rec. 23, 391-9  
"Famous mineral localities: Prenteg, Tremadog,  
Gwynedd, Wales" Brookite xls in quartz-  
albite veins cutting chloritized dolerite, with  
anatase, calcite, aluminian chamosite, fluorapatite, galena,  
halloysite, ilmenite, monazite-(Ce), pyrite, rutile,  
titanite; illite (in bordering slate)



TWLL-MAEN-GRISIAL, Prenteg, Tremadoc, Carn. (II)

W.G. Fearnside, Proc. Geol. Ass. (1912) 23, 199. Report  
of an excursion to the Portmadoc etc. area,  
with appendix: Notes on the petrology of the  
brookite-bearing rock of Prenteg, near  
Tremadoc, N. Wales.

RSWB, PT. 4/70 (I 161, 163) brookite; quartz; albite; calcite  
porcellanous-clay mineral; "peachy" chlorite;  
anatase; ? sericite (silvery); brookite altered  
to oriented close-packed sagenitic rutile. ~~Rutile~~  
~~needles in qtz & alb.~~ Hydroxyapatite, tiny clots  
equant  (IR). Rutile in qtz & in albite & fre

TWLL-MAEN-GRISIAL, Prenteg, Caern. (III)

M. Rothwell (1998) BMSN 50, 2-5.      Now an SSSI

- no hammering allowed.

Calcite, albite, quartz, brookite, anatase,  
pyrite, rutile, monazite-(Ce), fluorapatite,  
glaucophane, halloysite, ilmenite, titianite,

1" 107

SH 534 568

TYDDYN-BACH, Bettws-Garmon, Caern

JRF-S(1977)27 A Cu mine advertised for  
sale in Min. J. 8/4/1854.



1" 107

SH 509 534

TY-MAWR MINE, Llanllyfni, Caern.

JRF-S(1977) 29 = TAMOW. Cu mine  
in Ordov. slates. E-W main vein crossed  
by a counter-vein.

Shaft to 50 ft reached Cu ore;  
adit driven ~ 240 ft to meet shaft.

Min. Journ. 25/10/1831

1" 115

SH 29 24

TYNEWYDD, Llanengan, Caern.

OS 6" map shows "Trials" near coast near  
Tynewydd, at SH 290 2505, 291 250, ~~289~~ 244  
and 289 243. [Presumably for lead,  
cf Porth Nigel mine]

1" 107 SH 7865 616

TY'N TWLL OPENCASTS, Llannrhychiwyn, Caern.

GR's 2½" map shows MS "Ty'n Toll Opencasts" at above loc

H Dewey & B. Smith, SRMRGB 23 "Pb/Zn" (1922) 76-77.  
Calcite, var. "schieferspar" on dumps.

WJL (1967) Map, p. 237 Lead mine

IRF-S (1977) 13. A N-S vein intersects an E-W vein  
in Bala slates & volcs. Galena, sphalerite  
some pyrite in breccia cemented by  
quartz & calcite.  
Old mine; working 1856-1875, not since.



TY'N-YR-ARDD, Llanrhychwyn, Caern.

See FFRITH-SIAN M.

I" 107

SH 767 601

WELSH FOXDALE MINE, <sup>JRFS</sup> Llanrhydwyn, Caern. (I) <sup>JRFS</sup>  
= NEW PANDORA MINE = WILLoughBY = WILLoughBY FOXDALE M

Dewey & Smith.

SRMRGB XXIII (1922) 68-70 Shafts  $\frac{1}{2}$  ml E of Tal-y-Llyn,  $2\frac{1}{2}$  ml  
 SW of Llanrwst. Bala slates, with ash in  
 southern part.

GODDARD LODE, N-S: blende; calcite.

NEW LODE, NNE: galena; blende; calcite.

CHAMPION LODE, NNE.

Prior, MM, 14, 167 (1906):

Dundasite on cerussite

Coll. by Collins from the 23 ft level, FRANCIS

LODE, Welsh Foxdale Mine. Small silky white tufts on  
cerussite with beautiful small glassy opherules allophane

OUN spec. 9816: Dundasite on long acicular

cerussite. Pres by H.F. Collins, 1905.

GR's 2 1/2" map shows MS "Welsh Foxdale Mine" at above loc.

DC Davies (1888) Mentions Pandora Zn mine

WJL (1967) Map, p 237 lead mine, - "NEW PANDORA".

RSWB (4/70) I 163. Big dumps, at SM 768 602  
Much sphalerite some in good xls;  
galena with tiny xls cerussite &  
anglesite in cavities; quartz;  
calcite; ankerite



ml

Welsh Foxdale mine, Llanrhychwyn, Caernarv. (II)<sup>107 SH/76</sup>

= New Pandora mine. At about 767601. Llanrhychwyn pari

Spec. Rep. Min. Res. 23(1922) - loc. 5

Shafts  $\frac{1}{2}$  ml E of Tal-y-Llyn,  $2\frac{1}{2}$  ml SW of Llanrwst.  
Slates of Bala age, with ash in southern part.

Three lodes: Goddard (N-S; blende, calcite); New  
(NNE; galena, blende, calcite); Champion (NNE).

Prior, Min. Mag. 14, 167(1906).

Dundasite on cerussite. The specimens were collected  
by Collins from the 23-ft level of Francis Lode.  
(small silky white tufts, assoc. with small glassy  
spherules of allophane).

Oxford Univ. Mus. specimen 9816.

Dundasite on long acicular opaque cerussite.  
Presd. by H.F. Collins, 1905.

\*Davies (1888), 246.

From Hunt's Statistics: Zn ore, Caernarvonshire (Pandora)

JRF-9 (1977) 14-15. 3 main veins, NEW (= EAST &  
WEST) V. <sup>(NNE)</sup>, GODDARD (= MAIN = NORTH & SOUTH) V.,  
CHAMPION V. (NNE - a series of sub ll veins),  
of brecciated Bala slate with galena,  
sphalerite pyrite in calcite (cementing breccia)

Main sh → 55 fm level, adit at 33 fm level  
Acc. to note in Min Journ 3/9/1853, the mine  
then "WILLOUGHBY" v. ancient & about to be reopened  
Working 1877-1911; 1919.  
D'ERESBY LEVEL nearby, worked 1879-91,  
1901

WELSH FOXDALE MINE, Llanrhychwyn, Caern. (III)

AA. Archer, N-F (1959) 270. Mention

Min. Journ 3/9/1853

WMV

Min. & Q. Eng (1954) 404. Fig. 15.



Y-DDAULLT, Beddgelert, Caern.

See Y-DDUALLT

WILLOUGHBY [FOXDALE] MINE,  
Llanrhychwyn, Caern.

See WELSH FOXDALE M.

1" 107, 116

SH 579 471

Y-DDUALLT, Beddgelert, Caern.

See also BRYN-Y-FELIN, AFON-GOCH, BWLCH GOLEU

JRF-S(1977)33. ["Y-DDUALLT" in Index, but

"Y-DDAULLT" in text]

Trial level

for Cu in order.



1" 107, 116

SH 613 516

Y-GEWALT, Beddgelert, Caern.

See also SNOWDON, etc

JRFS(1977) 24

V. inaccess. Cu trial

(? 1850-70)

1" 107, 116

SH 593 519

Y-PENNANT, Bethws-garmon, Caern  
See also SNOWDON etc

JRF-S(1977) 25 Trial level at 593  
519, prob for cu? In Order.  
No details for hist. known.

P Thomson 9/72 See SNOWDON CARD. Adjacent  
to this mine found epidote in quartz  
with calcite, amphibole.

YSTRAD MINE, Betws Garmon, Caern.

See BET(T)WS GARMON