

CHESHIRE

G & L (1858).

Gypsum var sebeuite common in marls of the
salt districts. Pseudo impressions of xls
of halite common in NRS & clay-shales of
Cheshire

Acanthite,

Ches.

West M, AE

AMPHIBOLE

CHESHIRE

(Thurstaston - erratic)

Analcime

Ches.

Thurstaston [?]

Anatase

Ches.

Alderley Edge (detr.)

ANGLESITE

CHESHIRE

Engine vein, AE
Wood mine, AE(?)
Alderley Edge

ANHYDRITE

CHESHIRE

Meadow Bank mine
Middlewich

ANKERITE

CHESHIRE

Macclesfield - Ratcliffe Wood (?)

ANNABERGITE

CHESHIRE

Wood mine, AE

ANTLERITE

CHESHIRE

Engine vein, AE

Argentite

Ches.

Alderley Edge
West mine, AE
/

ASBOLITE

CESHIRE

See also Manganese minerals, Wad, Pyrolusite

Alderley Edge

Engine vein, AE

New Venture mine, AE

Opencast mine, AE

Stormy Point, AE

West mine, AE

Wood mine, AE

Birkenhead

Daresbury

Hilbre Point

Mottram St. Andrew

Oxton

Peckforton Hills (?)

Prenton Hill

Storeton

Thurstaston

Aurichalcite

Ches.

Wood M., A.E

AZURITE

CHESHIRE

Alderley Edge

Engine vein, AE

Doc mine, AE

New Venture mine, AE

Opencast mine, AE

Stormy Point, AE

West mine, AE

Wood mine, AE

Chester

Mottram St. Andrew

Peckforton Hills

Thurstaston

BARYTE

Alderley Edge
Castle Rock, AE
Church quarry, AE
Doc mine, AE
Engine Vein, AE
New Venture mine, AE
Opencast mine, AE
Red Moulding Sand quarry, AE
Stormy Point, AE
Twin Shafts, AE
West mine, AE
Wood mine, AE
Beeston
Bidston
Birkenhead
Congleton Edge
Cut-thorn Hill

CHESHIRE

Glegg's Hall
Harthill
Helsby Hill
Jenkin Chapel
Kent Green
Malpas
Meadows Farm
Merelake Hill
Mottram St. Andrews
Overton Scar
Oxton
Peckforton Hills
Storeton
Styal

BARYTOCELESTINE

CHESHIRE

Merelake Hill

Beaverite (?)

Ches.

Aldenley Edge (?)
Wood M, AE

Bendankite

ches.

Alderley Edge.
Stormy Point, A. Edge.

Biotite

Ches.

Wood M, AE

West M, AE

Bismuth

Ches

Peckforton Hills (?)

BITUMINOUS MINERALS

CHESHIRE

Handforth (fichtelite)

Poynton (bitumen)

Stockport (artefact?)

Stormy Point, AE

Doc mine, A.E

BORNITE

CHESHIRE

Alderley Edge

Engine Vein, AE

Stormy Point, AE

Peckforton Hills.

Wood M, AE

BRAVOITE

CHESHIRE

Alderley Edge

Wood mine, AE

Engine vein, AE.

Stormy Point, A.E.

BROCHANTITE

CHESHIRE

Engine Vein, AE

Wood mine, AE (?)

Doc M, AE

CALCITE

CHESHIRE

Alderley Edge

Engine vein, AE

Astbury

Glegg's Hall

Macclesfield (Foxbank quarry,
Ratcliffe Wood)

Peckforton Hills

Stockport

Styal

Spital (?)

Upton

Sale Ees

Astbury Lst Q

CALEDONITE

CHESHIRE

Engine vein, AE (?errore for langite)

"CARBON"

See also graphite

CESHIRE

Alderley Edge (In P. A. Mohr's "carbonaceous sandstone")

CERUSSITE

CHESHIRE

Alderley Edge

Doc mine, AE

Engine vein, AE

New Venture mine, AE

Opencast mine, AE

Stormy Point, AE

Twin Shafts, AE

West mine, AE

Wood mine, AE

Chester

Mottram St. Andrew

Kidsgrrove (?)

CHALCOCITE

CHESHIRE

Engine vein, AE

Wood mine, AE

West M, AE

CHALCOPYRITE

CHESHIRE

Alderley Edge

Engine vein, AE

Stormy Point, AE

Wood mine, AE

Thurstaston

Woot M, AE

Chromite

Ches.

Alderley Edge (detrital)

CHRYSOCOLLA

Alderley Edge

Engine vein, AE

Stormy Point, AE

Wood mine, AE

Peckforton Hills

West M, AE

Mottram St Andrew

CHESHIRE

Cinnabar

Ches.

Alderley Edge
West Mine, AE.

COBALT MINERALS (unspecified)

CHESHIRE

See also Asbolite *etc cobaltite*

Alderley Edge

Mottram St. Andrew

Peckforton Hills

Storeton

Cobaltite

Ches.

Alderley Edge (Ni-iferous) (?)

Engine Vein, AE (?)

Stormy Point, AE (?)

West M, AE

CONNELLITE

CHESHIRE

Engine vein, AE (?)

COPPER, NATIVE

CHESHIRE

Engine vein, AE

Wood M, AE

COPPER ARSENATE (unspecified)

CHESHIRE

See also specific minerals, e.g. Liroconite, Olivenite, Tyrolite

Alderley Edge

West mine, AE

COPPER MINERALS (unspecified)

CHESHIRE

Alderley Edge

Yard mine, AE

Beeston

Mottram St. Andrew

Peckforton Hills

"COPPER OXIDE, HYDRATED"

CHESHIRE

Peckforton Hills (?error)

COVELLINE

CHESHIRE

Alderley Edge (also blaubleibender)

Engine vein, AE

Thurstaston

Reckforton Hills

CUPRITE

CHESHIRE

Engine vein, AE

Chester

Peckforton Hills

West M, AE

Wood M, AE

Cyanotrichite

Ches.

Engine vein, A. Edge (?)

DESCLOIZITE

CHESHIRE

Engine vein, AE (?) (Probable ^{AWGK} fraudulent claim)

Diopside

Ches

Thurstonston

Diopase

Ches

Alderley Edge
West mine, AE

Djurleite

ches.

Alderley Edge

Engine V, AE

DOLOMITE

CESHIRE

Astbury

Macclesfield - Foxbank quarry

Ratcliffe Wood

Wirral colliery

Duftite - ~~the~~

Cheshire

Moltram St. Andrew (Vanadian)
Alderkey Edge (listed)

ENARGITE

CHESHIRE

Alderley Edge (?error)

ERYTHRITE

CHESHIRE

Alderley Edge

Engine vein, AE

Stormy Point, AE

Wood mine, AE

EVANSITE

CHESHIRE

Macclesfield - Ratcliffe Wood

FICHTELITE

CHESHIRE

Handforth

GALENA

CESHIRE

Alderley Edge

Doc mine, AE

Engine vein, AE

New Venture mine, AE

Opencast mine, AE

Stormy Point, AE

Twin Shafts, AE

West mine, AE

Wood mine, AE

Yard mine, AE

Mottram St. Andrew

Kids Grove

Jers dooffite

Ches.

Aldenley Edge.

Engine Vain, AE

Stormy Point, AE

GOETHITE

CHESHIRE

See also "Limonite"

Engine vein, AE
Prenton Hill

Gold

ches.

Jr Budworth (Fred Broadh. has ref)
5-66-77
Ald Edge - West M

Graphite (See also "carbon") Ches
Alderley Edge (detrital)

Jouneite

Ches.

Thurston (erratic)

GYPSUM

CHESHIRE

Cheshire

Alderley Edge

Engine vein, AE

Stormy Point, AE

Bidston (in anal. of baryte)

Congleton

Egremont

Limekiln Farm

Malpas

Marston

Meadow Bank mine

Middlewich

Nantwich

Styal

Witton

Sale Eas
Wood M, AE

HAEMATITE

CHESHIRE

Glegg's Hall

Harthill

Overton Scar

Peckforton Hills

Alderley Edge (detr.)

Astbury LSEQ (powdery)

HALITE

Cheshire
 Agden Bridge
 Aldersey
 Anderton
 Heatley
 Holford
 Knutsford(?)
 Lawton
 Marbury
 Marston
 Marstonhall mine
 Meadow Bank mine
 Mereleigh
 Middlewich
 Mobberley
 Moulton

CHESHIRE

Nantwich
 Northwich
 (Peckforton Hills - pseudomorphs)
 Rostherne (?)
 (Styal - pseudomorphs)
 Tabley (?)
 Tatton Park (?)
 Wharton
 Wheelock
 Witley
 Wilkesley
 Wincham
 Winsford
 Witton

Hemimorphite

Ches.

Engine vein, AE

Wood M., AE

HETEROGENITE

CHESHIRE

Engine vein, AE (7) ^{AWGK} (probably fraudulent claim)

Hydrocerussite

Ches.

Alderley Edge,
West mine, $\nearrow$ AE

Idaite

Ches.

Alderley Edge (2nd "near")
cf "copper-pitch"

ILMENITE

CHESHIRE

Egremont
Seacombe

Thurstaston (erratic)
Alderley Edge (detrital)

IRON MINERALS (unspecified)

CHESHIRE

Alderley Edge("oxide of iron")

Engine vein, AE ("iron oxides and hydroxides")

New Venture mine, AE (ditto)

Opencast mine, AE (ditto)

Stormy Point, AE (ditto)

West mine, AE (ditto)

Wood mine, AE (ditto)

Edge (?)

Mottram St. Andrew ("iron oxides and hydroxides")

Peckforton Hills ("oxides of iron and manganese")

Potbank quarry ("ironstone")

Prenton Hill("iron concretions")

Storeton ("iron concretion")

JAROSITE

CHESHIRE

Engine vein, AE

Macclesfield - Rough-hay

KAOLINITE

CHESHIRE

Congleton Edge

LANGITE

CHESHIRE

Engine vein, AE

LAVENDULAN

CHESHIRE

Wood mine, AE (?)

LEADHILLITE

CHESHIRE

Engine vein, AE

LEAD MINERALS (unspecified)

CHESHIRE

Alderley Edge

Mottram St. Andrew

Peckforton Hills

LIBETHENITE.

CHESHIRE

Alderley Edge (?error)
Engine vein, AE (?error)

"LIMONITE"

CHESHIRE

See also Goethite

Alderley Edge

Engine vein, AE

Macclesfield - Ratcliffe Wood

Prenton Hill

West mine AE

LINARITE

CHESHIRE

Alderley Edge
Engine vein, AE
Wood mine, AE

LIROCONITE

CHESHIRE

Alderley Edge (?error)

Engine vein, AE (?error)

MAGNETITE

CHESHIRE

Seacombe

(Thurstaston - erratic)

Alderley Edge (detrital)

MALACHITE

Alderley Edge
Doc mine, AE
Engine vein, AE
New Venture mine, AE
Opencast mine, AE
Pillar mine, AE
Stormy Point, AE
Twin Shafts, AE
West mine, AE
Wood mine, AE
Chester
Glegg's Hall
Harthill
Mottram St. Andrew
Overton Scar

CHESHIRE

Peckforton Hills
Styal
Thurstaston

MANGANESE MINERALS (unspecified)

CESHIRE

See also Asbolite, Pyrolusite, Wad

Alderley Edge

Edge(?)

Macclesfield - Ratcliffe Wood

Peckforton Hills ("oxides")

Storeton

MARCASITE

CHESHIRE

Thurstaston

Alderley Edge.
Engine Vein, AE.
Stormy Point, AE

Massicot

Ches.

Alderley Edge (?)
Engine Kern (?)

Melacornite

Chesh.

Peckforton Hills (?)

Melanterite

var PISANITE

CHESHIRE

Alderley Edge
Engine vein, AE
Thurstaston (?)

Mercury, native

Ches.

Engine Vem, A-Edge (?)

MIMETITE

CHESHIRE

Engine vein, AE (campylite)

Wood mine, AE (campylite - error)

West M, AE (?)

MINIUM

CHESHIRE

Engine vein, AE (?)

MOTTRAMITE

CHESHIRE

Alderley Edge (?error)

Mottram St. Andrew (~~error~~)

Natrolite

Ches

Thurstaston [?]

NICKEL MINERALS (unspecified)

CHESHIRE

See also Annabergite, Asbolite, *pararammelsbergite*,
gersdorffite, *cobaltite*, *bravoite*
Storeton

OLIVENITE

CHESHIRE

Alderley Edge
Engine Vein, AE
Wood mine, AE

Osarizawaite ?

Ches

Alderley Edge. [?= beaverite]

Pararammelsbergite

Ches.

Alderley Edge (?)

Engine Vein, AE (?)

Stormy Point, AE (?)

Wesley M, AE

PHARMACOSIDERITE

CHESHIRE

Engine vein, AE

Plagioclase

Ches

Thurstaston (erratic)

PLANCHEITE

CHESHIRE

Engine vein, AE (?) (AWGK's is prob. fraudulent)
(is S. Clark's genuine?)

Plumbogummite

Ches.

Mottram St. Andrew

POSNJAKITE

CHESHIRE

Engine vein, AE

PYRITE

CHESHIRE

Alderley Edge

Engine vein, AE

Stormy Point, AE

Wood mine, AE

Macclesfield - Ratcliffe Wood

Thurstaston (*erratic*)

Kidsgrove

PYROLUSITE

CHESHIRE

Alderley Edge ("pyrolusite (wad)")

Peckforton Hills (MnO_2 dendrites)

PYROMORPHITE

CESHIRE

Alderley Edge (incl. arsenical)
Doc mine, AE
Engine vein, AE (incl. arsenical)
Stormy Point, AE
Wood mine, AE
Mottram St. Andrew
West M., AE

Pyroxene

Ches.

Thurston (erratic)

QUARTZ

CHESHIRE

Oxton

Peckforton Hills

(Thurstaston - erratic)

Rutile

Ches.

Alderley Edge (detr.)

Scorodite

Ches

Alderley Edge (?)

Engine V, AE (?)

SIDERITE

CHESHIRE

Engine vein, AE (1.)
Astbury

SILVER MINERALS (unspecified)

CESHIRE

Peckforton Hills

SILVER, NATIVE

CHESHIRE

Engine vein, AE

Smithsonite

Ches.

Alderley Edge

Engine V, AE

Storany Point, AE (?)

SPHALERITE

CHESHIRE

Alderley Edge

Engine vein, AE

Stormy Point, AE

Macclesfield - Ratcliffe Wood

Kidsgrove

West M, AE

Spionkopite
(= "blaubleibender coralline")

Cheshire

Alderley Edge

SULPHUR, NATIVE

CHESHIRE

Engine vein, AE

Tangdanite

Cheshire

("clinotyrolite", sulphate-tyrolite)

Alderley Edge (?)

Wood M, AE (?)

West M, AE (?)

Engine Vein, AE (?)

Tennantite

Ches

Alderley Edge (C?)

Ches

1400-1500 ft

Tetrahedrite

Ches.

Alderley Edge (Ag-rich)

Engine Vein, AE

Stormy Point, AE.

Thomsonide

Ches

Thurstaston (erratic)

~~SPHENE~~ *Titanite*

CHESHIRE

(Thurstaston - erratic)

TYROLITE (sulphatan? = Tangdanite) CHESHIRE

Wood mine, AE

West mine, AE

Engine vein, AE

Unidentified

Ches

Kids grove (brown and on galena)

VANADINITE

CHESHIRE

Alderley Edge (?error)

West Mine, AE (?)

Mottram St. Andrew (?error)

VIVIANITE

CHESHIRE

Tranmere

Sal. Egg

WAD

CESHIRE

See also Asbolite, Manganese minerals, Pyrolusite

Alderley Edge

Engine vein, AE

Opencast mine, AE

Stormy Point, AE

West mine, AE

Wood mine, AE

Edge

Meadows Farm

Mottram St. Andrew

Overton Scar

Peckforton Hills

Poulton

Styal

WITHERITE

CHESHIRE

Engine vein, AE (?)
Bidston (in anal. of baryte)

Breston Hill (?)
Peckforton Hills (?)

WULFENITE

CHESHIRE

Engine vein, AE

Wood mine, AE

West M, AE

Zircon

Cheshire

Alderley Edge (detrital)

ALDERLEY EDGE, Cheshire

~~HOPE~~

ALDERLEY EDGE, Cheshire (I)

See also BRYNLOW M's; DOG M.; ENGINE VEIN;
PILLAR M.; STORMY POINT; WOOD M.; WEST M.;
YARD M.; NEW VENTURE M.; SADDLEBOLE M.;
SCOUT LEVEL; → Farey's list of mines only, no minerals.
(Phil Mag 37 106. Also "General View of Agric. & Mins of Dorks")

J. Farey (1811) / "ALDERLEY-EDGE (or AUTHERLEY): "Lead",
(39) [galena]; "white ore" [cerussite]; "copper"; "cobalt";
"manganese". In alluvial grit. See descriptions of
this singular mine by H. Holland, Report on Cheshire,
p. 15 (1813) and by R. Bakewell, The Monthly Magazine,
31, p. 7.

O. Davies "Roman Mines in Europe" (1935) 159: Partly prehistoric
(38)

(37) T M Hall (1858) 31 Asbolite; baryte; azurite;
galena; malachite; chalcopryite ("tawamk")

Rutley, 15th ed. p. 201. "Earthy cobalt" [asbolite]

(38) G & L (1858) Baryte, pink, in sandstone; malachite &
azurite, sparingly; asbolane, dissemin' in small veins, all in s't.
H. Dewey & T. Eastwood, SRMRGB 30 "Cu" p5. Detailed
(39) description of mines, with some maps.

(40) Specimens in Manchester Mus: ? Bornite, with galena.

Cheshire

?

"The Trias of the Macclesfield district with notes on its relation to the adjacent Carboniferous rocks and to the Trias of the Midlands"

H.C. Greenwood, Proc. L'pool G.S. 1919, 12, 325-338

(21)

(?title)

(apparently abstr. by RSWB)

cf. H.W. Greenwood, 1921
check both

[Mottamite]

A. Edge:- In workable granitoides:- [!]. Malachite, chalcocite, libethenite [!] mottamite, psittacinite, massicot, etc. [Ha Ha]
baryte;... In only one rock was there any trace of barium carbonate

Micros. grains in rocks of Trias - list of minerals as:

"The Trias of the Midlands"

ALDERLEY EDGE, Cheshire (II)

⁽³³⁾
Geol Mus. spec. Cat No. 11501, Case N3, presented by
Sir A. Russell. Cat. card states "sandstone
impregnated with azurite and arsenates of
copper" - Alderley Edge. No "liroconites" in
catalogue, but on display in the Economic
Minerals gallery is a (=this?) specimen
labelled "conglomerate impregnated with
azurite & malachite. As is probably
present as liroconite" - Alderley Edge, Ches.
Pres. by A. Russell.

[Liroconite seems very doubtful - There are
many arsenates of copper - evidence? - RSIOB]

⑪

RMC Eagar & FM Broadhurst, Geol. Assoc. guide [7] "The Area around Manchester" (1959) p. 18-22. Itinerary for a field trip, with details of mines, & exposures. Beryl, pink, white, also ghost xls in sandstone. Other minerals described under localities [qv]

⑦

G. Warrington, The Mercian geologist 1 [2] 111 (1965) Description, with maps. History, mineralisation, origin of ores. Mineral list*, p. 116. Pb ores almost entirely restricted to Keuper series; Cu in upper 20' of Bunter & 3 levels in Keuper. Cu + As in lirioconite (GMus) also in arsenates, prob. olivine & enargite"

* See under individual locs.

ALDERLEY EDGE, Cheshire (III)

(26)

FW Rudler (1905), 190-191. Cupriferous Bunter/
Keuper strata worked. Cu averaged ca 1.4%
"Blue & green copper carbonates, iron oxides,
manganese oxide and earthy cobalt ore". The
cobalt was in the form of asbolan. Some
of the Cheshire sandstones contained...
cerussite & subordinately galena, pyromorphite,
and vanadinite. Sir HE Roscoe described
mottamite which was found at Alderley
Edge & at Mottam St Andrews.

RSWB coll: Specimens 65-46 and 65-427 (which fit
together perfectly), came from the

Chemistry Dept, Univ. of Manchester (where Roscoe was Professor), and were labelled "Vanadium ore, Alderley Edge". These consist of light brown compact sandstone matrix of Pim Hill type (not like Alderley Edge matrix), partly coated with greenish motttramite.

The suggestion is that not only "Motttram St Andrew" but also "Alderley Edge" is an error for Pim Hill. v. infra
H.E. Roscoe, Phil. Trans. Roy. Soc. (1868) 158, 1. } See under
29 ——— Proc. Roy. Soc. (1876) 25, 109 } MOTTAM
ST ANDREW

42 CC Moore Proc Linn Soc (1898) 241 Baryte in Faia

ALDERLEY EDGE, Cheshire (IV)

③

E. Hull, Geol Mag (1864) 1 65-69. Blue & green
Cu carbonates [i.e. azurite & malachite], ores
of Cu, Co & Mn [i.e. asbolite]; carbonate of lead
[cerussite]; galena; baryte; oxide of iron;
The Co occurs as cobalt oxide, earthy cobalt,
or askolan, in the cobalt 'bed'. Calate
in a sandstone bed [PA Mohr quotes this, p4]

②7

W. Chesworth (1960) MSc Thesis, M/C Univ. ~~from~~
Geochem. prospecting. Gives mineral list:
under "specimens found whilst mapping". List
anglesite, asbolite, azurite, baryte,
cerussite, galena, malachite, pyromorphite,

and vanadinite. No sites or evidence of identification given. States that in the M/C museum are:- anglesite, asbolite, azurite, baryte, cerussite, chalcophyllite, "copper arsenate" ("apparently an anal. was made on this spec. before presenting to the Mus., & on strength of finding Cu & As in it, it was labelled 'copper arsenate'"); copper silicate [presumably chrysocolla], galena, malachite, pyromorphite. "Dewey & Eastwood (1925) record Cu silicate in azurite spheres from Eng. vein." "9 diss. 10 of these in HCl & found only silica. Thin sections showed silica cemented by azur. & mal." In the Mus are also spec's. labelled bornite & covellite.

ALDERLEY EDGE, Cheshire (V)

Pisanite & "combined Pb Cu sulphates" are found in old workings & exposures, acc. to Eagar & Broadhurst Geol. & Guide 7. Dewey notes galena with tiny kernels of calcite & blende. ^{starts Eng Vein}

P.A. Mohr (1964) ⑥ Mineralisation. Epi-syn-genetic? geochemistry. Minor elements include Mo < 3 ppm in E. Vein pyro, galena, azur. Wood M. asbol (sample 1) West M malachite. Mo 10 ppm in E. Vein unmin'd sandst. Mo 20 ppm in Wood M asbol (sample 2) Mo 120 ppm in carbonaceous sandstone from Wills Memorial,

Stormy Point. [!]

Also V, Cr.

Cr rich: - E. Vein azur, asbol, sandstone (50-75 ppm)
Carbonaceous sandstone, Wells Mem. St. Pt. (500 ppm)

V rich: Asbolite (<5 ppm, 300 ppm); azurite (20 ppm,
100 ppm); Carbonaceous sandst (700 ppm[!])

Minerals coll. by P.A. Mohr & Dr. B. Hitchon: Azurite,
malachite, chrysocolla, bornite, linarite, galena,
pyromorphite, cerussite, sphalerite " (ZnCO_3) " [!!]
pyrite, limonite, * wad, asbolite, erythrite,
baryte, gypsum, calcite, carbon [!]. "We
have never found V minerals at A.E, despite
many protracted searches".
* "pyrolusite (wad)"

ALDERLEY EDGE, Cheshire (VI)

(25)

S. Moorbath (1962) Phil Tr. Roy Soc., Ser A 254 295
Pb isotope studies - galena from Alderley
Edge dated at 210 ± 60 m.yr. old.

B.J. Taylor, R.H. Price & F.M. Trotter Mem GS (1963) (15)
Ald. Edge & Mottram St. A: Principal ore is Cu,
assoc. with Pb, Co, Mn, Sb & other metals.
Small amts Ag & Au detected in selected
samples. See full descr. by Dewey & Eastwood (1925)
Minerals in Upp. Mottled S't & basement beds
of Keeper S't - dissem but conc. in fault-veins
Above water-table $\therefore$ oxidised - mostly carbonates,

silicates, oxides & sulphates. Exception is sporadic
(vein) galena, also some chalcopy. Malachite;
azurite; chrysocolla; Minerals containing As
in assoc. with Cu probably include olivineite
Copper sulphate & carbonate crusts. Co, assoc
with Mn & As as wad & Co-bloom. Sec'y
Pb mins include linante and "caldonite".
Pb has small amts. Ag, Au, V, Sb, Co, Ni.
Gangue; - baryte. (West M, Wood M, Mottram-qv).
The recent survey has shown mineralis'n strictly
related to faulting, which is post Keup, probably
Tertiary; [NB of Moorhath (1962)] mineralis'n obv. later
& the dissem into the s'sts and the oxid'n still
later - prob. late Tert. No +ve evidence

ALDERLEY EDGE, Cheshire (VII)

Whether mineralis'n ascending or descending.
Descending diff. to imagine as above the
ore-bearing strata are sandst's
interbedded with shales & gets more & more
argillaceous upwards → Keuper marl,
thousands of feet - but these would be
good cap to ascending sol'n's. ∴ probably
magmatic.

Neil (1907) ⁽¹⁶⁾ Mottramite; copper [? native, ? ore]

Sowerby, Vol 4 p 69 (1811) ^⑨ Black oxide
of cobalt [asbolite], betrayed by cobalt
bloom of a crimson cast [erythrite], but
so mixed with sand, oxide of Cu, manganese,
etc., that it is but of little value as an
ore of cobalt.

H. Holland ^{④④} Trans. Geol. Soc. Lond. (1811), 1, 38-61: On p. 40:-
Alderley Edge - ores of Pb, Cu & Co, & masses of
barytes.

~~RAFI~~ ^{1st} ~~text~~ Riv Comm 10/71 Has found bravoite in gtz
pebbles ... pre-mineralism, pre-Trias - connection w.
Pennine mineralisation?

ALDERLEY EDGE, Cheshire (VIII)

Proeg (Ed.) 2016. (See tables & refs in.)

Table 6.1. Minerals from the Alderley Edge and Mottram St Andrew mines; first British occurrences are indicated in bold

Mineral	AE	EV	WM	SP	WD	MM	Comment
Acanthite	*		*				Noted as argentite by Milodowski <i>et al.</i> (1999) in the West Mine Boundary Fault. Argentite, the high-temperature cubic polymorph of Ag ₂ S, is no longer recognised as a mineral species (e.g. Gaines <i>et al.</i> , 1997)
Anglesite	*	*	*	U	*	*	Widespread as minute inconspicuous crystals with oxidised galena (Braithwaite, 1994)
Antlerite	*	*					As greenish crusts (Braithwaite, 1994), rare
Asbolane	*	*	*	*	*	*	Common as black sooty patches and soft crusts. Figured in Sowerby (1811). Described from the Cobalt Mine by Timberlake and Mills (2003)
Aurichalcite	*				*	*	Very rare, as blue-green radiating blades with hemimorphite (Braithwaite, 1994)
Azurite	*	*	*	*	*	*	Very common, as blue encrustations and intergranular cements, and as small nodules (Tindle, 2008)
Baryte	*	*	*	*	*	*	Abundant. Cementing sandstone and as white to pinkish veins (Rowe and Burley, 1997; Milodowski <i>et al.</i> , 1999)
Beaverite	*				*		Probably common as a yellowish encrustation (Braithwaite, 1994; Lawton, 1994)
Beudantite	*			*			As yellow-brown coatings (Braithwaite, 1994)
Bornite	*	*	*	*			An alteration product of chalcopyrite produced by secondary supergene enrichment (Ixer and Vaughan, 1982)
Brochantite	*	*		*	*		Widespread but not common (Braithwaite, 1994)
Calcite	*	*					Cementing the grains in the sandstone (Rowe and Burley, 1997), commonly ferroan
Cerussite	*	*	*	*	*	*	Common as small inconspicuous crystals, most often with galena (Braithwaite, 1994)
Chalcocite	*	*	*		*		As black impregnations in sandstone (Ixer and Vaughan, 1982; Milodowski <i>et al.</i> , 1999)
Chalcopyrite	*	*	*	*	*		Widespread, commonly altering to other copper sulphides (Milodowski <i>et al.</i> , 1999)
Chrysocolla	*	*	*	*	*	*	A common component of bluish and greenish flowstone crusts (Braithwaite, 1994)
Cinnabar	*		*				A mercury sulphide (probably cinnabar) is present in the West Mine Boundary Fault (Milodowski <i>et al.</i> , 1999)
Cobaltite	*	U	*	U			As minute inclusions in quartz at West Mine (Milodowski <i>et al.</i> , 1999); also noted by Ixer and Vaughan (1982)
Connellite	U	U					Visually identified as minute, royal blue, radiating spherules (Braithwaite, 1994)
Copper	*	*			*		Uncommon; early reports refer to copper ore, not native copper (Braithwaite, 1994)
Covellite	*	*					Common as a bluish metallic coating on sulphides (Ixer and Vaughan, 1982)
Cuprite	*	*		U	*		Rare, as wine-red crystals with copper (Braithwaite, 1994)
Cyanotrichite	U	U					A possible component of a bluish gel (Braithwaite, 1994)
Dioptase	*		*				Noted without description by Milodowski <i>et al.</i> (1999)
Djurleite	*	*					The major black copper sulphide at Alderley Edge (Ixer and Vaughan, 1982). See also Thompson (1991)

<i>Mineral</i>	<i>AE</i>	<i>EV</i>	<i>WM</i>	<i>SP</i>	<i>WD</i>	<i>MM</i>	<i>Comment</i>
Dufite	*					*	As compositionally zoned black botryoidal crusts, visually similar to mottramite, and as minute green lenticular crystals (D. I. Green, unpublished data; Tindle, 2008)
Enargite	*	*					In alteration rims and as inclusions in galena (Ixer and Budd, 1998). The identification by Warrington (1965) was considered erroneous by Braithwaite (1994)
Erythrite	*	*		*	*		Widespread, but uncommon; first noted by Sowerby (1811). See also Tindle (2008)
Galena	*	*	*	*	*	*	Common, cementing sandstone and as a fault vein filling, the major ore of lead (Tindle, 2008)
Gersdorffite	*			U			As optically zoned crystals containing Ni, Co and Fe (Ixer and Vaughan, 1982)
Goethite	*	*	*	*	*	*	Blackish botryoidal at Mottram Mine. Ubiquitous as limonite (Milodowski <i>et al.</i> , 1999)
Gold	*		*				As minute grains (Milodowski <i>et al.</i> , 1999)
Gypsum	*	*			*		As post-mining efflorescences and coatings (Braithwaite, 1994)
Hemimorphite	*	*			*		Very rare as radiating sheaves of colourless crystals (Braithwaite, 1994)
Hydrocerussite	*		*				Noted without description by Milodowski <i>et al.</i> (1999)
Idaite	*	*					Chalcopyrite alters to a brown anisotropic phase chemically close to idaite (Ixer and Vaughan, 1982). See also Thompson (1991)
Jarosite	*	*					Probably widespread as a yellowish coating (Braithwaite, 1994)
Langite	*	*					Uncommon as blue pseudo-hexagonal crystals (Braithwaite, 1994)
Lavendulan	U				U		As microscopic blue needles, identified visually (Braithwaite, 1994)
Leadhillite	*	*					Very rare, as colourless to pale green, blocky hexagonal crystals (Braithwaite, 1994)
Linarite	*	*			*		Uncommon, but locally conspicuous, as impregnations and small blue crystals (Tindle, 2008)
Malachite	*	*	*	*	*	*	Common as a green impregnation in sandstone; a major copper ore (Tindle, 2008)
Marcasite	*	*		*			Traces with other sulphides (Ixer and Vaughan, 1982)
Melanterite	*	*					As blue-green efflorescences (Braithwaite, 1994). Noted as pisanite by Thompson (1991)
Mimetite	*	*	*			*	Common, but indistinguishable in hand specimen from pyromorphite (Braithwaite, 1994)
Minium	U	U					Rare (Thompson, 1970c), possibly formed by roasting galena and therefore perhaps artificial (Braithwaite, 1994)
Mottramite	*					*	As black botryoidal or, rarely, drusy crusts (Braithwaite, 1994)
Olivenite	*	U			*		Listed by Braithwaite (1994) but early references are questionable
Osarizawaite	*						As yellow-green crusts and impregnations in sandstone (Braithwaite, 1994)
Pararammelsbergite	*	U	*	U			As minute inclusions with other arsenides (Ixer and Vaughan, 1982; Milodowski <i>et al.</i> , 1999)
Pharmacosiderite	*	*					Very rare, as minute orange-brown cubes (Braithwaite, 1994)
Planchéite	*	*					Specimens supposedly collected by Arthur Kingsbury at Alderley Edge were discredited by Ryback <i>et al.</i> (1998); however, Braithwaite (1994) notes a matrix-free spherule from Engine Vein which was not collected by Kingsbury
Plumbogummite	*					*	A powdery cream to brown encrustation on mottramite (D. I. Green, unpublished data)

<i>Mineral</i>	<i>AE</i>	<i>EV</i>	<i>WM</i>	<i>SP</i>	<i>WD</i>	<i>MM</i>	<i>Comment</i>
Posnjakite	*	*					Rare, as blue crusts: visually indistinguishable from langite (Braithwaite, 1994)
Pyrite	*	*		*	*		Widespread but uncommon (Mohr, 1964); nickel-rich (Ixer and Vaughan, 1982)
Pyromorphite	*	*	*	*	*	*	Common as colourless, yellow and green crusts and impregnations (Braithwaite, 1994)
Scorodite	U	U					Listed by Carlon (1979), but requires confirmation (Braithwaite, 1994)
Siderite	U	U					Listed as 'sparry iron ore' (Thompson, 1970c), but requires confirmation (Braithwaite, 1994)
Silver	*	*					Very rare, as minute dendrites (Braithwaite, 1994)
Smithsonite	*	*		U			Very rare (Ixer and Vaughan, 1982; Milodowski <i>et al.</i> , 1999)
Sphalerite	*	*	*	*			Uncommon but widespread (Ixer and Vaughan, 1982)
Spionkopite	*						Alteration rims around tennantite-bearing chalcopyrite (Ixer and Stanley, 1998)
Sulphur	*	*					Widespread as small rounded crystals in galena; inconspicuous (Braithwaite, 1994)
Tetrahedrite	*	*		*			Microscopic argentian and zincian inclusions in galena (Ixer and Vaughan, 1982)
Tyrolite	*	*	*		*		Rare, as thin green blades, often with chrysocolla (Braithwaite, 1994). Sulphate-rich (Warrington, 2010)
Vanadinite	U		U			U	Listed by the Imperial Institute (1924) and subsequently noted by other authors; no specimens are known; requires confirmation (Braithwaite, 1994)
Wulfenite	*	*	*		*		Rare, but relatively widespread, in tiny yellow and orange tabular and pyramidal crystals (Braithwaite, 1994)

Table 6.2. Mineral species whose occurrence or claimed occurrence at Alderley Edge is fraudulent, or based on very poor evidence, or a misinterpretation of earlier reports. Claimed first British occurrences are given in bold

<i>Mineral</i>	<i>Comment</i>
Caledonite	Erroneously reported (Eagar and Broadhurst, 1959), discredited (Braithwaite, 1994)
Descloizite	A specimen in the Kingsbury collection (NHM) is fraudulently labelled (Ryback <i>et al.</i> , 1998)
Heterogenite	A specimen in the Kingsbury collection (NHM) is fraudulently labelled (Ryback <i>et al.</i> , 1998)
Libethenite	A highly questionable interpretation of early assays of bulk ore (Braithwaite, 1994)
Liroconite	Not confirmed by modern analyses, almost certainly an error (Braithwaite, 1994)
Massicot	Not confirmed by modern methods and easily confused with other minerals (Braithwaite, 1994)
Roscoelite	All published records are based on a misunderstanding of Roscoe (1876a)
Tennantite	Reports of tennantite from Alderley Edge (e.g. Ixer and Stanley, 1998; Tindle, 2008) appear to be in error: only tetrahedrite is known from the locality (Ixer and Budd, 1998)
Witherite	Recorded (Greenwood, 1919) on the basis of a trace of carbonate in a baryte-rich stratum

ALDERLEY EDGE, Cheshire (VIII)

BM X-ray (1972) - private enquiry specimen: bendantite
[cf STORMY POINT]

BM 1970-284. X-ray, enquiry from R. Tayler, 12/70
($\frac{1}{2}$ spec. in BM, on display) :- Osarizawaite
yellow-green crust on sandstone.

BM: $Pb(Cu, Al)_3(SO_4)_2(OH)_6$. M Fleischer (1975) $PbCuAl_2(SO_4)_2(OH)_6$

RA Ixer & DJ Vaughan Min Mag (1982) 46, 485-92
"The primary ore mineralogy of the Alderley
Edge deposit, Cheshire". Mineralisation
of Cu Pb & Zn & minor Ag, Co, V, Ni, Mn within [IX]

C.J. Carlon "The Alderley Edge Mines" (1979)

Pub. John Sherratt & Sons Ltd, Altrincham.

Descrip.; geology; history.

P. Ward (1982) "Alderley Edge Copper Mines" Min. Realm 1 [6] 5-10

general descrip of project work, in partic
workings between West & Brynlow mines - of which
map-plan & section & in which galena - little, massive;
malachite; pyromorphite, "some interesting powdery Cu micros"

C.J. Carlon (1981) "The Gallantry Bank Cu mine..."

p 7-8. Illustr p 11. ^{(A) STORMY POINT} DOC M 8615.7783; DOC LOWER 8612.7784

PILLAR M. 8612.7782; ABBADINE L. 8611.7782; ARCH HOLE 8602.7790;
TWIN SH'S 8593.7793; SADDLEBOLE M. 8602.7781; DEVIL'S GRAVE 8598.7791;
PIT Sh. 8612.7783. (B) WIZ → ENGV. GREAT Sh. 8606.7773; OPENCAST M. 8605.7702 7.11.68;
CHURCH Q. Tml 8590.7739; BEACON LODGE Tr. 8588.7757; BELL PITS? 8585.7755

1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

ALDERLEY EDGE, Cheshire (TX)

from (VIII) 1st side [Ixere Vaughan MM (1982)]

The top 6 m of the Bunter Sandstone, as
dissimins in s'stone pores & in fault-breccias
Pb/Zn ass. w faults, Cu more widespread.

Parageneses show several phases of
mineralisation - detrital, inclusions in qtz
overgrowths, main S^0 cement, sec'y S^0 s. Main
sulphide phase of Fe-Ni-Co sulphides & sulpharsenides
followed by Cu-Fe, then Zn, finally Pb sulphides.
Later sec'y sulphides so abund as to suggest
that extra Cu introduced. The Ag is in
the rare tetrahedrite & in cu'py, traces in sphal,
but rich in djurite (up to 2.35 wt % Ag)

(low in Ag)

Galena has v. rare 1-2 mm inches. of a white native metal

Prim'y one assemblages similar to other red-bed Cu-Pb-Zn deposits eg Germany, France, & to N. Pennine ore fields - known to be from relat. low-T brines. Field ev. suggests that much of the min'l'n is epigenetic textural ev'd suggests that syngenetic processes have a role

	Detrital	Inclusions in qtz overgrowths	Main sulphide cement	Sec'y sulphides
Anatase, rutile	-			
Haematite	-	-		-
Pyrite	-	-	-	
Bravoite lilac-brown		-	-	
Ni-Co-Fesulpharsen			-	
Marcasite Chalcopyrite		-	-	

ALDERLEY	EDGE	Ches	(X)	
	Detr.	Qtz overgr.	Main sulph.	Sec sul.
Marcasite			-	
Chalcopy		-	-	
Tetrahed	green-grey		-	
Sphal			-	
Galena			-	
"Idaite"	brown anisotropic			-
Djurleite				-
Covellite				-

Eng. V. + Stormy Pt.: Galena most abund S^{2-} often complex intergr w sphal, cupy lesser brav & py trace marc, Ni-Co-Fe sulphates, tet'hed.

Wood M + some Stormy Pt.: Cupy, with brav, py, gal.

In detritus, rutile, anatase xls in pore spaces,
 TiO_2 overgrowths on detrital - same w. haem

Detrital relict magnetite, ilmenite, rarely
chromite, graphite, zircon.

Bravoite, large ($\rightarrow 80 \mu m$) single xls or clusters, lilac
or brown pentag dodec.

Ni-Co-Fe phases: Traces, small grain sizes, ^{e intergrowths} prevent
quantit ident. A Ni dars w $\sim 5\%$ Co, optics
near pararammelsbergite, enclosed in a
(near) nickeliferous cobaltite. Gersdorffite, zoned,
w. variable Ni, Co, Fe enclose bravoite

Main sec Cu sulphide is djurite, chalcocite
in minor. covellite, blaubleibender covellite,
Angles, ceruss, smithson, malach, azurite.

Chpy. refers to idaite, bornite, etc. cuprite etc.

ALDERLEY EDGE, Cheshire (XI)

Table II Minerals recorded from the Alderley mining district. 14 November, 1984

PUBLISHED RECORDS :

SELECTED SOURCES :

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	*
Anglesite					+		CH	+	+			+	+		+	+
Asbolite					+		+	+	+			+	+			
Azurite (chessylite)	+		+	+	+	+	+	+	+			+	+		+	+
Baryte	+		+	+		+	+	+	+			+	+			+
Beudantite															+	+
Bornite							+	+	+			+	+		+	+
Bravoite										+		+	+		+	+
Brochantite									B			+	+			+
Calcite				+			+	+	+			+	+			
Caledonite					+	+		+	?			+	+			
Cerrusite	+		+	+	+		+	+	+			+	+		+	+
Chalcocite (chalcosine)			+					+	+	+		+	+		+	+
Chalcopyrite					+	+	CH	+	+	+		+	+		+	+
Chrysocolla				+		+	+	+	+			+	+			+
Cobaltite, nickeliferous															cf	+
Copper, native									B			+	+			+
Covellite								+	+			+	+		+	+
" , blaubleibler															+	+

G. Warrington (1984)

[illegible]

ALDERLEY EDGE, Cheshire

(XII)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	*
Pararammelsbergite															?	
Pisanite					+			CH	+			+	+			
Planchelite									K			+	+			+
Pyrite							+	+	+			+	+		+	+
Pyrolusite							+									
Pyromorphite							+	+	+			+	+			+
" , arsenical									B			+				+
Scorodite												+				+
Smithsonite															+	+
Sphalerite				+			+	+	+			+	+		+	+
Sulphur, native									B			+	+		+	+
Tetrahedrite												+	+			+
Tyrolite									B			+	+			+
Vanadinite								CH	?	H		+	+			+
"Wad"							+		+	+		+	+			+
Witherite				+					+	+		+	+			
Wulfenite									B			+	+			+

UNPUBLISHED RECORDS :

Antlerite

Aurichalcite

Connelite?

Cyanotrichite?

"Descloizite group"

Hemimorphite

Heterogenite

Jarosite

Lavendulan?

Leadhillite

Pharmocosiderite

Posnjakite

Pyromorphite (arsenation to "campylitic" composition)

" / mimetite group

Silver, native

SOURCES :

pers. comm. : RSW Braithwaite

" "

" "

" "

BM (NH), coll. AWG Kingsbury

pers. comm. : RSW Braithwaite

BM (NH), coll. AWG Kingsbury

pers. comm. : RSW Braithwaite

" "

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" "

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" : JR Knight

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ALDERLEY EDGE, Cheshire (XIII)

Published records, sources :

1. Hull & Green 1866
2. Roscoe 1876
3. Greenwood 1919, 1920, 1921
4. Dewey & Eastwood 1925
5. Eagar & Broadhurst 1959
6. Taylor, Price & Trotter 1963
7. Mohr 1964
8. Warrington 1965
9. Thompson 1970a
10. Ixer 1978
11. Embrey 1978
12. Carlon 1979
13. Warrington 1980b
14. Skwarnecki 1980
15. Ixer & Vaughan 1982

Carlon (1981) "The Gall. Bank."
CONT FROM (VIII) back of:

ENG. V. ~ 8596 7751. ⑥
WEST Marea. W.M. Entr

8509. 7763. [1857-77 dressing
floor & dumps 853.774]

⑦
Windmill Wood → Brynlow

SCOUT HOLE 8529. 7756

WOOD M. entr. 8544. 7760.

Sh's around 854. 773.

LEVELS: 8553. 7721

8548. 7722

Origins of records from unpublished sources cited in 7, 8 and 9 :

B - RSW Braithwaite
CH - Chesworth 1960
GSM - Geological Survey collection
H - H G Harwood
K - AWG Kingsbury
R - P Robinson

* Identification supported by analysis of physical or chemical properties

Dr. R.S.W. Braithwaite (Department of Chemistry, UMIST, Manchester) is thanked for assistance with the compilation of this list and, with Mr. J.R. Knight (Manchester), for allowing citation of unpublished records. Mr. P.G. Embrey (Department of Mineralogy, BM (NH)) provided information on the status and identification of specimens from Alderley Edge held in the collections of the BM (NH).

ALDERLEY EDGE, Cheshire (XIV)

RSWB (1994) "Mineralogy of the Alderley
Edge-Mothram St. Andrew area, Cheshire,
England". J. Russell Soc. 5 [2] 91-102

Details culled from this card
index to 1994. Minerals, locs listed
in detail. The "blau'bleibender
covellite" of Ixer & Vaughan (1982)
reported as spionkopite. The
mothramite question reviewed - analyses
(some new) etc suggest Pin Hill as the
orig. source.

Alderley Edge Copper Mines, Alderley
Edge, Cheshire - 9 April 1995

NWB, Leader: Peter Foy ^{RSN} (195) 27

The group assembled on the public car park close to the 'Wizard' and were welcomed by the leader and members of the Derbyshire Caving Club. After the necessary formalities and the donning of suitable attire, the group proceeded to the first of the two localities, Wood Mine.

We were reminded that as the area is a SSSI and owned by the National Trust, the day's activities should be restricted to locating and identifying the minerals *in situ* only.

After lunch the group proceeded to the second location, Engine Vein Mine where again the restriction on collection was noted. Throughout the day a video (under some rather dubious lighting conditions and often silent vistas) was used to record the day's visit for posterity.

The following minerals were located and visually identified: cerussite, erythrite in two locations (one specimen was cherry red in colour), azurite, malachite, pyromorphite, absolite, galena, baryte, cuprite-bearing galena, and wulfenite.

The locality known to have once produced beaverite was also visited. A pea green, botryoidal mineral was found and initial thoughts were that this was olivenite.

G. Warrington (1996) BMS
NewsL. 45, 9-10

"Mineralisation at
Alderley Edge, Cheshire."

Iyer R & Stanley (1998)
"Enargite... Scaleby Bridge..."
Enargite-group minerals with
covell & spionkop form 20µ
rims around tennantite
bearing chalcopryite

ALDERLEY EDGE, Cheshire (XV)

Prog

D.I. Green, D.B. Thompson & R.S.W. Braithwaite (2016)

"A summary of the mineralogy of the ~~ore~~ deposits of the Ald. Edge - Mott. St. A. area, Cheshire"

List of species, mostly from RSWB (1994)

Additions are (all Brit Geo. Surv. unpubl. data):

Argentite, relict traces in W. Mine Boundary Fault,
cinnabar, — ditto —

diopase, minor 2Y min'l in Chain Sh. Fault, W. Mine,
hydrocerussite, — ditto —

T. Briggs, D.I. Green, M. Rumsey, (2005) J Russ Soc. 8 [2] 81-84
Mentions RSWB's antlerite, posnj, langite,
barryte

1" 101

Around SJ 855 773-4

BRYNLOW MINES, Alderley Edge, Cheshire
See also ALDERLEY EDGE, etc.

G. Warrington^⑦ The Merc. Geol 1 [2], 111 (1965).

Map on p114 shows "Brinlow mines", around
SJ 855 773-4

P. Ward "Alderley Edge Copper Mines" Min. Realm (1982) 1 [6] 5-10
Explor. of "Cross mine" - part of Brynlow workings,
& workings (Hough Lev) betw. Brynlow & West
Mls.

RSWB (1904)

1" 101 SJ 8560 7798

CASTLE ROCK, Alderley Edge, Ches.

DB Thompson in GAG I (1970) Baryte.

nodules, patches, & rosettes

RSWB (1994)

1" 101

SJ 859 774

CHURCH QUARRY, Alderley Edge, Cheshire

D.B. Thompson in GAG 7 (1970)⁽¹²⁾ Baryte

1" 101

SJ 861# 778#

DOG MINE, Alderley Edge, Cheshire

See also STORMY POINT; ALDERLEY EDGE, etc

RSWB ⁽³⁵⁾ II, 177, (31/10/62). Azurite, malachite, pink
baryte. I 69 (25/2/67) Stops. v.g. azurite

DB Thompson in GAG 7 (1970) ⁽¹²⁾ On map, p. 43
 Mentioned, pp 41, 47. At entrance, mineralis'n
 in basal Engine Vern Conglom

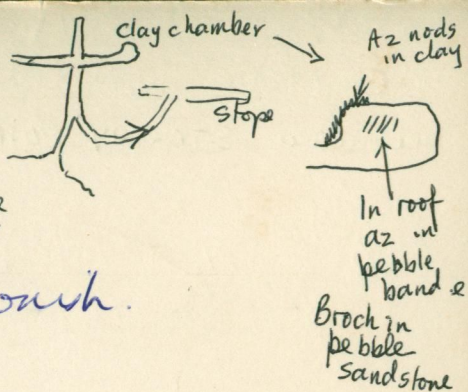
RSWB (5/71). Stops: Azurite; malachite (IR); pyromorphite,
 pale greenish nodular coatings (IR), also pale
 straw micro-needles on pink baryte.
 low As. $0-5\% \left(\frac{As}{As+P} \right)$

10/8/79 RSWB + Nigel Hoppe

Rich green xline impregs, rich
in roof of clay chamber
on examination are CO_3^{2-} free
& have $\text{SO}_4^{2-} \rightarrow$ brochantite!

Oily patches in vicinity. Brownish.

RSWB (1994)



Pragg (Ed.) 2016 See table & refs under
STORMY POINT

ENGINE VEIN, Alderley Edge, Ches. (I)
See also ALDERLEY EDGE etc.

SRMRGB XXX (1925), ⁽¹³⁾ 5 : Description, map.

RMCEagar FM Broadhurst ⁽¹⁷⁾ ~~W Jackson~~, Geol Ass Guide 7
(1958) 18: Details & section - includes information
from Sir A. Russell. Galena; cerussite; less
commonly anglesite; black earthy asbolite fairly
abundant; pisanite locally as blue-green crust on
old exposures; chalcopyrite occasionally, assoc
with galena; baryte ubiquitous; linarite and
caledonite* comparatively rare. Azurite

M/C Mus. ⁽³⁴⁾ Linarite & caledonite* on galena; Native
copper with cuprite on brown matrix (2 spec's, pres. 7/66 by
AWGK Priv. Comm. 1964: plancheite, pale; School boys)

* v. infra [Card (II)]

? P. Robinson
in ⁴ (12)

(32) Spec's in BM. (31)

AWGK, Priv. Comm. (1964): Plancheteite, light blue fibrous radiating nodules, collected on Min. Soc. visit, Sept. 1963. Heterogenite; descloizite

Prob. fault - all resemble materials

RSWB (1960) Vol I, 107-115: Malachite; azurite; pyromorphite; ?pisanite; baryte; galena; cerussite; limonite; anglesite; chrysocolla. (GR, by I-R: Pyromorphite is var. campylite).

ident - all foreign materials

RSWB (1961 - 1962): Sulphur; linarite; ?caledonite; *goethite.

See VI

(v. closely!)

DHyde (1964) Brochantite (ident by IR - RSWB)

RSWB & JRK IV, 147 (1/11/64). Minium - one small cavity in galena also leadhillite (IR 7/10) from vein at S end of rift lined with red powder. Destroyed by testing (heat - no Hg evolved). ?Covellite coating galena. Boeh.

RSWB & JRK (IV) 161, (7/2/65) Wulfenite (checked by BM), pyromorphite (IR), caledonite

ENGINE VEIN, Alderley Edge, Cheshire (II)

RSWB 1/67 ⁽³⁵⁾ Two specimens "caledonite" from M/C museum examined; both donated by WD Prince

N. 2499: Light blue impregnations in pebbly sandst. Impregnations are very soft and non-homogeneous - probably copper-stained gypsum. Colourless xls of gypsum (IR) occur on a black layer

N. 2503: Large specimen, with xline galena, partly altered, on pink baryte + sandstone on galena; native sulphur; cerussite; anglesite (IR). One patch has good linarite xls with ill-defined pale-green muck and a small, not well x-lined, patch of light blue xls in amongst sand grains.

Light blue xls + linarite put in Clerici soln. on micro. slide. Light blue xls float, linarite sinks.

Light blue xls, n consid. less than 1.75 (CH_2I_2).

NOT caledonite. Probably langite.

Several RSWB specimens of light blue col III xls tested similarly, with same results.

RSWB 168 yellow impreg with cross = ~~brookeite~~ (IR) [BM = JAROSITE]

RSWB, 25/2/67 NW end of Engine Vein opencast, on footwall (5) near ground level, brown gozzan, with dendritic native copper, fine cuprite octahedra, malachite (IR) looking like pseudomalachite; deep blue clear sharp xls langite (IR) (BM x-ray)

RSWB, 3/69 In same area as previous ref. assoc with the langite royal blue silky radiating globular? connellite [on RSWB 69-52] in traces

ENGINE VEIN, Alderley Edge, Ches. (III)

G. Warrington, ⁽⁹⁾ Merc. Geol. 1 [2], III (1965). Table, p. 116
galena; cerussite; pyromorphite; anglesite;
linante; caledonite; sphalente; malachite;
azurite; chalcopysite; bornite; chrysocolla;
chalcocite; covellite; pisanite; enargite;
olivinite; liroconite; likeithenite; asbolite;
erythrite; pyrite; baryte; calcite; witherite.
p 117. "Cu combines with As in liroconite (Geol
Survey Coll) ⁽³³⁾ also in arsenates (Dewey & Eastwood,
1925) probably olivinite & enargite" [sic!] ...
"and as the phosphate, likeithenite (Berruti in
E Hull & A.H. Green ⁽¹⁴⁾ "Geol. J. ... Stockport etc" M.G.S. (1866) p. 37)

Age of galena is $210 \pm 60 \times 10^6$ yr, comparable to that from Bulwell; Garendon Park; & Derby, acc'g to S Moorbath ^(NOTTS) ^(CLEICS) (25)
(Phil Trans Roy Soc. Ser A 254 295 (1962)).

Dewey & Eastwood (1925) ⁽¹³⁾ some masses of galena showed cores of sphalerite & calcite — in Pb ore, Ag, Cu, As, Zn, Fe, Al, Ni, Co, Mn, Pb, S. Anglesite & calcedonite referred to Eagar & Broadhurst (1959) ⁽¹¹⁾ Wetherite referred to Greenwood (1919) ⁽²¹⁾

Plans, Sections, p. 121.

Origin: Epigenetic from an acid igneous mass.

RSWB "calcedonites" that float in CH_2I_2 include. 65-42

RSWB 9/70. Spec's of 25/2/67 from rift, near surface (NW end, W wall)

broken up $\rightarrow$ pharmacosiderite minute orange-brown cubes (X-ray, BM) with nat. copper, cuprite (octah. + trichite), lang. mal. broch. atterite in pale greenish crust, (on X-ray) Posniak (looks like connell)

ENGINE VEIN, Alderley Edge, Ches. (IV)

D.B. Thompson in GAG 7 (1970) ⁽¹²⁾ galena,
cerussite, pyromorphite, sphalerite,
chalcocite, bornite, malachite,
azurite, olivine, linarite, chrysocolla,
asbolite, wad, erythrite, pyrite,
"iron oxides & hydroxides" baryte, calcite,
anglesite, covellite, chalcocite, pisantite,
enargite, gypsum, witherite, minium,
massicot, phosphate of Cu, sparry iron ore,
wulfenite (RB), nat. Cu (RB), cuprite (P. Robinson),
plancheite (A.K.) | unconfirmed: caladonite,
langite (RB), brochantite (RB) | like themite, lirocomite.

PA Mohr (1964) ⁽⁶⁾ Notes the following: galena,
pyromorphite (containing As), azurite.

BM ⁽³¹⁾ Minium (Russell coll.); Auerk's things; eg.

BM 1968, 163. One largeish & several fragments:—
Descloizite group (X-ray, 11012), pinkish orange-brown
x-line crust on pale even-grained gritty
looking sandstone. coll Auerk, 1963, ³ ~~probably~~ ^{from}
"Engine Vern opencast." [Probably foreign V. infra (VI)]

RSWB 5/71 Yellow to brownish micro x-line to
powdery jarosite (IR) in conglom. assoc. with
galena from middle of open pit, with
langite; covellite plates (BM X-ray) in
vugs

ENGINE VEIN, Alderley Edge, Ches. (V)

J.R. Knight, Priv. Comm. 7/71. Native silver minute dendritic xl. aggregates in limonite gozzan from vein rft, assoc. with a black mineral (cuprite) also

RSWB 11/72 Hemimorphite small radiating sheaves of blades found on spec. coll. 2/65 (or 3/65) of galena vein with pink barite & sec'y Pb & Cu minerals. Hem checked by IR.

RSWB 8/79 From footwall at NW end of open cut: - cyanostrichite(?) thin sky blue gel xling → rad. needles (IR; n, &) with nat copper, malachite etc.

Pete Ward 3/81 claims to have found
native mercury in vein exposure
near surface in digging connected
with capping operations

Ixere Vaughan MM (1982) [see Ald. Edge VIII →]
galena most abundant sulphide,
often in complex intergrowths with
sphalerite, chalcopryite, lesser
bravoite epyrnite; traces marcasite,
tetrahedrite. [5-15 μ m anhedr. Δ s intergr. w.
sphal, encl. in galena; high in Ag $\rightarrow$ ~14 wt%]
Ni-Co-Fe sulpharsenides ["pararammelsbergite,"
"Ni-cobaltite"; gersdorffite].

ENGINE VEIN, Alderley Edge, Ches. (VI)

^{oral}
R. Soc Newsl. (1994), 25.

After lunch in bright warm sunshine we proceeded to Engine Vein Mine and negotiated the various ladders down the underside of the main vein, examining the stunning copper sulphate/carbonate deposits. These range from a rich velvety green to pale green and blue on the lower 15 feet or so. The lower levels however showed no other appreciable mineralisation.

Back up in the main stope, more cerussite crystals were found as were galena, amorphous pyromorphite and the usual blue spherules of azurite in the clay. We returned to grass around 4.00pm having thoroughly explored both mines. Subsequently micro wulfenite, erythrite and probable copper arsenates were added to the minerals identified.

Stewart Clark (1976)
found a fragment of
planchette on dumps
beside Engine Vein rift
Pres → RSWB. (76-149)
(genuine; dropped there; or
fraudulent - cf AWGK's
claim (1964))

RSWB (1994)

p70

D. Green (priv 1998) Tyrolite (XRD)
green masses of lath-like xls.

GR, AM Clark & CJ Stanley (1998) geol. Curator
6, 317-322; GR BMS News (1999) 52 14-15

AWGK's spec's in BM falsely labelled
"from Eng Fern, Ald-Edge" :-

Descloizite $\equiv$ from 2 german locs.

Heterogenite $\equiv$ from Katanga. (Shaba) Zaïre

Planchite $\equiv$ from Katanga (Shaba), Zaïre

Prag (Ed.) 2016 see table & refs

Table 6.4. Minerals known to occur at Engine Vein Mine, with descriptions and literature references as appropriate. The identification methods are noted using the abbreviations: XRD, X-ray diffraction; IR, infra-red absorption spectroscopy

<i>Mineral</i>	<i>Identification</i>	<i>Comment</i>
Anglesite		Colourless elongated blades (Braithwaite, 1994; Eagar and Broadhurst, 1959)
Antlerite	XRD, IR	A greenish crust with posnjakite and langite (Braithwaite, 1994)
Asbolane		Black sooty patches (Braithwaite, 1994)
Azurite		As small crystals and blue nodules up to 10 mm (Braithwaite, 1994; Dewey and Eastwood, 1925)
Baryte		Common (Braithwaite, 1994)
Bornite		Widespread (Warrington, 1965; Thompson, 1970c; Braithwaite, 1994)
Brochantite	IR	As green crusts and crystals up to 0.2 mm (Braithwaite, 1994)
Calcite		Noted by Dewey and Eastwood (1925) and Braithwaite (1994)
Cerussite		Noted by Eagar and Broadhurst (1959). As tabular, prismatic and rod-like crystals (Braithwaite, 1994)
Chalcocite		Noted by Thompson (1991)
Chalcopyrite		Noted by Thompson (1991)
Chrysocolla	IR	In azurite-rich nodules (Dewey and Eastwood, 1925). As green (to bluish) crusts (Braithwaite, 1994)
Copper		In arborescent clusters to 3 mm (Braithwaite, 1994)
Covellite	XRD	As blue films on galena (Braithwaite, 1994)
Cuprite		As octahedral crystals to 0.5 mm with native copper (Braithwaite, 1994)
Djurleite		Noted by Thompson (1991)
Enargite		Noted by Ixer and Budd (1998)
Erythrite		Tiny pink radiating spherules (Warrington, 1965; Thompson, 1970c; Braithwaite, 1994)
Galena		Common (Eagar and Broadhurst, 1959; Braithwaite, 1994)
Goethite		Common
Gypsum	IR	As post-mining efflorescences (Mohr, 1964; Braithwaite, 1994)
Hemimorphite	IR	Tiny colourless radiating blades (Braithwaite, 1994)
Idaite		Noted by Thompson (1991)
Jarosite	IR	As a yellow brown powder (Braithwaite, 1994)
Langite	XRD, IR	As blue pseudohexagonal crystals to 3 mm (Braithwaite, 1994)
Leadhillite	IR	Colourless to pale green pearly pseudohexagonal crystals (Braithwaite, 1994)
Linarite		See Eagar and Broadhurst (1959). As blue blades up to 0.5 mm (Braithwaite, 1994)
Malachite		Common (Eagar and Broadhurst, 1959; Braithwaite, 1994)
Marcasite		Rare, with other sulphides (Ixer and Vaughan, 1982)
Melanterite		As blue-green efflorescences of post-mining origin (Eagar and Broadhurst, 1959)
Mimetite	IR	Phosphatian mimetite with a phosphorus:arsenic ratio of 1:3 (Braithwaite, 1994)
Minium		Very rare, bright red powdery in galena (Thompson, 1970c; Braithwaite, 1994) but possibly artificial
Pharmacosiderite	XRD	As orange-brown cubes up to 0.2 mm (Braithwaite, 1994)
Planchéite		A single matrix free spherule is probably genuine (Braithwaite, 1994)
Posnjakite	XRD	As thin blue crusts (Braithwaite, 1994)

<i>Mineral</i>	<i>Identification</i>	<i>Comment</i>
Pyrite		See Warrington (1965); some as the nickel-rich variety bravoite (Ixer and Vaughan, 1982)
Pyromorphite	IR	Small colourless, yellow and green crystals
Scorodite		Listed by Carlon (1979), but requires confirmation (Braithwaite, 1994)
Silver		As minute dendritic aggregates (Braithwaite, 1994)
Smithsonite		Noted by Thompson (1991)
Sphalerite		Uncommon (Dewey and Eastwood, 1925)
Sulphur		As small rounded crystals in galena (Braithwaite, 1994)
Tetrahedrite		Intergrown with galena (Ixer and Vaughan, 1982)
Tyrolite	XRD	As green masses of lath-like crystals (D. I. Green, unpublished data)
Wulfenite	XRD	As tiny yellow tabular crystals (Braithwaite, 1994)

1" 101

SJ 862 778 - 852 775

HOUGH LEVEL, Alderley Edge, Ches.

See also ALDERLEY EDGE, etc

J. Warrington, ⁽⁷⁾ Merc. Geol. I [2] 111 (1965). Map
on p114 shows Hough Level from
adit at foot of Stormy Point near
SJ 862 778 through Engine Vern, near
Brynlow mines, connecting with Wood
mine & re-emerging near West mine
opencut, near SJ 852 775.

Map. (MRO)

RSNOB (1994)

See Prag (Ed) 2016

NEW VENTURE MINE & LEVEL,Alderley Edge, Cheshire.

See also ALDERLEY EDGE etc

H. Dewey & T. Eastwood (13)SRMRGB 30 "Cu" (1925) p7, Map, p10.

"Carbonate of lead" [i.e. cerussite] in
pea-sized nodules at mouth of
New Venture Level.

J. Warrington (7) Merc. geol 1 [2] 111 (1965) Map
on p114 shows "New Venture Mine" around
SJ 852 776. Mineral list, p. 116: galena;

cerussite; malachite; azurite; baryte;
asbolite.

DB Thompson in GAG 7 (1970) 47 ⁽¹²⁾ galena, cerussite,
malachite, azurite, asbolite, wad, "Fe ox's & hydr's"
baryte.

RueB (1994)

1"101

SJ 861777 (?)
or 855 773 (?)

OPENCAST MINE, Alderley Edge, Cheshire.

D.B. Thompson ⁽¹²⁾ in Geol As Guide (1970) map p43; p41

Near 861777, between Engine Vein and Stormy Point. Minerals p47: galena,

cerussite, malachite, azurite, asbolite,
wad, baryte, "iron oxides & hydroxides"

Cerussite in basal Eng. Vein Conglom.

RSLOB (1994)

1" 101

SJ

861#

778#

PILLAR MINE Alderley Edge, Ches.

See also STORMY POINT; ALDERLEY EDGE, etc.

Big opening at Stormy Point, below DOG
MINE [q.v.].

RSWB (35). Malachite staining. A small hole in
the N corner of the entrance leads to a straight narrow
passage. (? → a shaft to Hough Level) (12)

DB Thompson in GAG 7 (1970) OutMap p 43

Mentioned pp 41, 49 Mineralisation at
entrance in Upper Mottled Sandstone

RSWB (1994)

1" 101

SJ 861 782

RED MOULDING SAND QUARRY, Alderley Edge, Ches

DB Thompson in GAG I (1970)⁽¹²⁾ Baryte.

RSNB, (1994)

1" 101 SJ 860 782

SADDLEBOLE MINE, Alderley Edge, Ches.

See also ALDERLEY EDGE, etc.

J. Warrington, ⁽⁷⁾ Merc. Geol 1 [2] 111 (1965). Map on
p 114 shows "Saddlebole mine" near SJ 86. 782

DB Thompson in GAG 7 (1970) ⁽¹²⁾ 48 The most
N mine, in Upper Mottled Sandstone. Mineralisation
~~at entrance in Upper~~

RSWB (1994)

1" 101 SJ 8525 7755

SCOUT LEVEL, Alderley Edge, Ches.

See also ALDERLEY EDGE, etc

RSWB (1994)

STORMY POINT, Alderley Edge, Ches. (I)

See also ALDERLEY EDGE, etc. DOG M; PILLAR M; TWIN SHAFTS
SADDLEBOLE M.

(35) RSWB, TG 25/2/62, Vol II, 1-4; 28/2/62, Vol III, 5:

Azurite, malachite, especially in Dog Mine [qv]
pink baryte

(43) Mr. Lawson, (Priv. Comm.) has seen erythrite on dumps at
Stormy Point. ~~date ca 1962~~ verbal, 25/2/62

RMcEagar & FM Broadhurst (11) Geol Assoc Guide [7] (1959) 18

Remains of old copper workings visible. On
tips; malachite, less chessylite [azurite]
abundant pink & white baryte

J. Warrington (7) Merc. Geol 1 [2] III (1965). List, p. 116:
galena; cerussite; pyromorphite; sphalerite;
malachite; azurite; chalcocyanite;

bornite; chrysocolla; asbolite;
erythrite; pyrite; baryte

The pyromorphite forms masses assoc. with galena & cerussite in fault-breccias.

Several small mines (map, p. 114) mainly concerned with extraction of Pb. from the Stormy Point fault. A little Cu ore occurs in the Engine V. Beds & in the topmost Bunter.

Baryte common, with Pb ones along the fault.

M/C Mus display (1970) ⁽³⁴⁾ Baryte, limonite

P.A. Mohr (1964) ⁽⁶⁾ Asbolite, wad, abund malachite, cerussite
~~Dark~~ Dark carbonaceous sandstone nr. Wills Memorial with high concentration of Cu, Co, Ni, Sr, Pb, Zn, Ba, Cr, Mo, V.

STORMY POINT, Alderley Edge, Ches. (II)

D.B. Thompson in GAG 7 (1970).⁽¹²⁾ galena, cerussite,
pyromorphite, sphalerite, chalcopysite,
bornite, malachite, azurite, chrysocolla,
asbolite, wad, etythrite, pyrite, "iron
oxides & hydroxides", baryte, hydrocarbons
[?=Mohr's "carbonaceous sandstone"]

PDMHS Newsletter, March, 1980. A member, M.S.
Skwarnecki has identified beudantite - pale
greenish-yellow to brownish-yellow coating on

iron-stained barytic sandstone, coll. ~
Easter 1976 on surface at Stormy
Point. Ident. by XRDiffraction.
[cf ALDERLEY EDGE, Card VIII].

Ixer & Vaughan (1982) MM 485-92. (See
"Alderley Edge" cards VIII → X).

galena most abundant sulphide,
often in complex intergr. w. sphalerite,
chalcopy, lesser bravoite, pyrite, traces
marcasite, tetrahedrite, gerdörfite,
parammelsbergite (?); Ni-cobaltite (?).
Chalcopyrite with bravoite, pyrite,
galena.

STORMY POINT, Alderley Edge, Ches. (III)

RNOB (1994)

Prag (Ed) 2016. See table & refs

Ed. Coughlan 2015 → Finding well-exposed
specimens from ROCK SHAFT

Table 6.8. Mineral species known to occur in the Stormy Point area, with descriptions and literature references as appropriate. The identification methods are noted using the abbreviations XRD (X-ray diffraction), Mic (reflected light microscopy)

<i>Mineral</i>	<i>Identification</i>	<i>Description</i>
Anglesite		Possibly present (Ixer and Vaughan, 1982)
Asbolane		As black sooty patches (Braithwaite, 1994)
Azurite		Small crystals from Doc Mine (Eagar and Broadhurst, 1959)
Baryte		Common as pinkish vein fillings (Braithwaite, 1994)
Beudantite	XRD	A pale yellow to brownish coating on sandstone (Braithwaite, 1994)
Bornite		Noted without description by Warrington (1965) and Braithwaite (1994)
Brochantite		Bright green crystals from Doc Mine (Braithwaite, 1994)
Cerussite		Recorded by Mohr (1964)
Chalcopyrite		Noted by Warrington (1965)
Chrysocolla		As blue to green crusts and impregnations (Warrington, 1965; Braithwaite, 1994)
Cuprite		Possibly present (Thompson, 1991)
Erythrite		As tiny pink spherules (Warrington, 1965; Braithwaite, 1994)
Galena		Impregnating sandstone (Warrington, 1965)
Goethite		Noted by Thompson (1991)
Malachite		As impregnations (Warrington, 1965; Braithwaite, 1994)
Marcasite	Mic	Traces (Ixer and Vaughan, 1982)
Pyrite		Noted by Warrington (1965)
Pyromorphite		Noted by Warrington (1965). Virtually arsenate-free from Doc Mine (Braithwaite, 1994)
Smithsonite		Possibly present (Ixer and Vaughan, 1982)
Sphalerite	Mic	Intergrown with galena (Ixer and Vaughan, 1982)
Tetrahedrite		Noted by Thompson (1991)

1" 101 SJ 860779

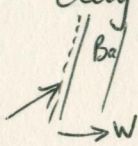
TWIN SHAFTS, Alderley Edge, Cheshire

See also STORMY POINT etc

D.B. Thompson⁽¹²⁾ in Geol Ass guide (1970), map, P43

Near 860779, at Stormy Point.

RSWB 11/71 Examined shaft that recently
appeared due to a collapse; at 859, 7790.
4th Square, ^{vertical} about 15 ft deep (floor may be real
floor, but covered by rubbish. E wall
has steps cut in it. S wall at bottom

opens into a small chamber ca 6 ft
long, rubbish floor, sloping roof one
wall a slickensided fault wall. Like
a bell-pit. Contains a 3 in. vein of
pink baryte ^{one side} abutting against a clay
vein. clay is yellow & baryte surface
against it covered with yellow
yellow clay  & occas. spots of
malachite. Other thin baryte veins occur

RSWB (1994)

WEST MINE, Alderley Edge, Ches. (I)
See also ALDERLEY EDGE, etc.

Eagar et al. ⁽¹¹⁾ Geol Assoc. Guide No. 7 (1956), 19-22:
Malachite; baryte; galena. In lower end of the
quarry streaks of bright yellow sandstone "owe
their colour to a mixture of cerussite and copper
arsenate, or a mixture of arsenates". [?? heaverite - RSWB]

RSWB, 1960, ⁽³⁵⁾ Vol I, 107-115: Malachite; azurite;
asbolite.

SRMRGB XXX ⁽¹³⁾ (1925), 7. Map. p10: "Carbonate of lead in
pea-sized nodules at mouth of New Venture Level".

G. Warrington ⁽⁷⁾ Merc. Geol. 1 [2] 111 (1965) List, p. 116.
galena; cerussite; malachite; azurite;
asbolite; baryte.

B.J. Taylor et al ⁽¹⁵⁾ (1963). Three Cu-bearing beds
said to occur; lowest = richest; in
Upper Mottled 'Sandst. & Keuper' conglom.

DB Thompson in G. Ass. G. 7 (1970) 47 ⁽¹²⁾ galena, cerussite;
vanadinite ~~vanadinite~~ or vanadiferous sandstone,
according to Dr H.G. Harwood; malachite, azurite,
asbolite, wad, baryte, "Fe oxides & hydroxides."

PA Mohr (1964) ⁶ galena, malachite

RSWB (11/75) Reopened 1975 by permission of
land owner, Mr Sorensen, of White Barn Farm.
Shaft dug by Derbs. Caving Club, near SJ 851, 7765

WEST MINE, Alderley Edge, Ches. (II)

for $\approx$ 25 ft emerging as window $\approx$ 20 ft up on E wall of entrance cavern a few feet from brick wall covering old entrance from quarry (now filled in completely). Visited 9/11/75.
2 Complex sections, cavernous, with interconnecting levels; sections connected only by "Plank shaft" at a junction, which has to be crossed to reach NW section.

Little visible mineralisation in NW workings, but a pink slickensided baryte vein prominent along wall of one level. Most mineralisation seen some barite in a layer like that in Wood Mine, - (near plank sh.)

not far from entrance. A purple coating proved to be fungus. Occas. dissems.

azurite; malachite mostly altered $\rightarrow$ chrysocolla. A mud flow prettily coloured by limonite; chrysocolla & purple fungus!! Pink baryte spotted with asbolite and chalcopysite altering to "pitchy copper ore" (cuprite & Fe oxides) and malachite. Asbolite fairly common, also limonite impregnations & stains.

Near entrance is "Fairy Grotto" - an ore heap mixed with fine sand, with structures produced by water dripping from roof onto fines. Here some sandstone impreg. with greyish galena altering to cerussite. One lump from

WEST MINE, Alderley Edge, Ches. (III)

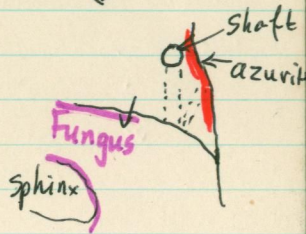
here of sandstone w. various coloured zones:—

A dark brown zone is impreg. with limonite and chalcopryrite altering to cuprite + iron oxides ("pitchy copper ore" showing relict islands of chalcopryrite). Around this is a green zone of malachite altering to chrysocolla. Streaks & patches of greyish galena altering to cerussite are flanked by a yellow zone containing a yellowish earthy impregnation of ?pyro-mimetite? Small off-white to yellow radiating crystals of pyromimetite? occur in a zone near the altered galena, rich in limonite;

with these crystals are occasional orange-yellow tabular to rectangular prismatic wulfenite crystals.



RSWB 8/79 Blue mineral on floor of gallery above Sphinx chamber, near shaft, has CO_3^{2-} & is azurite



RSWB 4/81 Small specimen picked up has tyrolite.

RSWB (1994)

D. Green (for) (1998) Anglesite, small blocky xls with galena

WEST MINE, Alderley Edge, Ches. (IV)

D.I. Green, D.B. Thompson & R.S.O. Braithwaite (*)

"A summary of...."

List of species, mostly from RSOB (1994)

Additions (all Brit. Geol. Surv. unpublished data) are:

Argentite, relict traces in West M. Boundary Fault,

cinnabar,

— ditto —

diopase, minor 24 min'l in CHAIN SH. FAULT, West M.

hydrocerussite,

— ditto —

* Published 2016 - Prag (Ed.). See table & refs.

Table 6.5. Mineral species known to occur at West Mine, with descriptions and literature references as appropriate. The identification methods are noted using the abbreviation BSEM (back-scattered electron microscopy)

<i>Mineral</i>	<i>Identification</i>	<i>Comment</i>
Acanthite		Noted by Milodowski <i>et al.</i> (1999) in the West Mine Boundary Fault, but described as argentite
Anglesite		Small blocky crystals with galena (D. I. Green, unpublished data)
Asbolane		Black sooty patches (Braithwaite, 1994)
Azurite		As blue impregnations in sandstone (Braithwaite, 1994)
Baryte		As opaque pinkish vein fillings, slickensided (Braithwaite, 1994)
Bornite		Noted by Thompson (1991)
Cerussite		An alteration product of galena (Eagar and Broadhurst, 1959; Braithwaite, 1994)
Chalcocite		Black impregnations in sandstone
Chalcopyrite		As patches in limonitic sandstone (Braithwaite, 1994)
Chrysocolla	BSEM	As green impregnations and crusts (Braithwaite, 1994; Milodowski <i>et al.</i> , 1999)
Cinnabar		A mercury sulphide (probably cinnabar) is present in the West Mine Boundary Fault (Milodowski <i>et al.</i> , 1999)
Cobaltite	BSEM	Noted by Milodowski <i>et al.</i> (1999)
Diopside		Recorded without description from the West Mine Boundary Fault (Milodowski <i>et al.</i> , 1999)
Galena		As impregnations in sandstone (Eagar and Broadhurst, 1959; Braithwaite, 1994)
Goethite		Noted by Milodowski <i>et al.</i> (1999)
Gold		As microscopic grains (Milodowski <i>et al.</i> , 1999)
Hydrocerussite		Noted without description from the Chain Shaft Fault (Milodowski <i>et al.</i> , 1999)
Malachite		As green crusts and impregnations (Eagar and Broadhurst, 1959; Braithwaite, 1994)
Mimetite	BSEM	Noted by Milodowski <i>et al.</i> (1999)
Pararammelsbergite		Noted by Milodowski <i>et al.</i> (1999)
Pyromorphite		Noted by Milodowski <i>et al.</i> (1999)
Sphalerite		Noted by Milodowski <i>et al.</i> (1999)
Tyrolite		One small specimen (Braithwaite, 1994)
Wulfenite		Tiny orange yellow tabular to prismatic crystals (Braithwaite, 1994)

WOOD MINE, Alderley Edge, Cheshire. (I)
See also ALDERLEY EDGE, etc.

BM 1958, 759. ⁽³¹⁾ Erythrite, fine granular patches, with
blue-green radiating tyrolite (X-rayed) and olivinite
 in sandstone conglomerate. Pres. W.D. Prince, 1958
 "more available". Also 757, 758 (Not X-rayed) olivinite,
 not X-rayed, also on 756. (see W.D. Prince)

M/C Mus. ⁽³⁴⁾ Linarite, erythrite, chrysocolla

⁽³⁵⁾ RSWB et al, 1960. Malachite, azurite, chrysocolla, linarite
8/9/63. Erythrite, with traces?? lavendulan & stains ?? annabergite

⁽³⁵⁾ RSWB 25/2/67 Tyrolite, on dumps, with
azurite, malachite, chrysocolla, asholite.

⁽³¹⁾ BM Cat: galena; azurite; chrysocolla; pyromorphite;
erythrite etc [v. supra]

7
J. Warrington ⁽⁷⁾ Mex Geol 1 [2] 111 (1965). List, p. 116

galena; cerussite; malachite; azurite;
chrysocolla; astrolite; baryte.

Plan e Section, p 120. galena & cerussite
as masses in fault breccia zones

15
BJ Taylor et al ⁽¹⁵⁾ (1963). Cu mineralisation
mainly in Keuper conglom.

DB Thompson in GAG 7 (1970) ⁽¹²⁾ Table, p 47: galena,
cerussite, pyromorphite, "arsenical pyromorphite"
(ascribed in error to RSOB - error for Engine Kern),
malachite, azurite, olivine, linante,

WOOD MINE, Alderley Edge, Cheshire (II)

chrysocolla, tyrolite ("RB"), asbolite, wad,
erythrite ("RB"), baryte, "iron oxides & hydroxides"

PA Mohr (1964) ^⑥ Asbolite cerussite galena
malachite, azurite

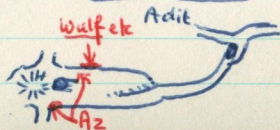
R. Ixer, Priv Comm 11/71 Grey patches in sandstone,
with green rims, are of chalcocite, with
minor chalcoprynite, pyrite with thin
zone bravoite. (Polished section microscopy)

RSWB. 3/72. Wulfenite, bipyram xls, with

pale green needles ?pyromorphite; linarite; cerussite;
?anglesite; ?brochantite; Azurite xls around
ce-pitch with ~~the~~ residual chalcophyrite kernel.

RSWB. ~~3/74~~ 3/74 Aurichalcite v small amounts
(Efferv. w. dil H_2SO_4 . Amm Merc-thioxy $\rightarrow$ cut Zn), w. traces
hemimorphite sheaves. Biotite, thin layer
in marl, looking like biotite schist, in
floor of tunnel to LHS a few yards
after end of entrance adit.

RSWB 6/74 Wulfenite pyromorphite-group mineral, azurite
cerussite, tyrolite, erythrite in situ
in sand cavern at adit level



WOOD MINE, Alderley Edge, Ches. (III)

Ixer & Vaughan (1982) MM 485-92 (See
Alderley Edge Cards VIII → X).
Chalcopyrite with bravoite,
pynite, galena.

P. Ward (1982) "The Wood Mine" Min. Realm 2[2] 33-35.
Plan. short descrip. galena; cerussite; dissem
malachite & azurite; cobalt wad; tyrolite supposed,
not seen [by P. Ward]; chrysocolla; brochantite

Alderley Edge, Cheshire -
Sunday 10 April 1994

Leader: Ian Dossett

R. Soc. N

(1994) 25

The weather for the Alderley Edge trip dawned fine and bright. In Wood Mine we started by examining the Boundary Fault. With the assistance of a UV lamp cerussite grains were quickly found flaring bright yellow in Birthday Chamber. We thought our luck was really in, when pale blue gleamed as well, whilst we stood on tiptoe to keep the water out of our boots. But after careful examination and much head scratching candle wax was identified!

After that sobering exercise we moved on and explored the various levels of the mine, finding abundant micro cerussite along with the usual malachite, azurite and manganese impregnations.

Small crystals of azurite were located as were cerussite and a lovely thumbnail vugh of what looked like lustrous anglesites.

R. Soc. N. (1994) 25
Wulfenite from Wood Mine,
Alderley Edge

North West Branch has recently been able to confirm Keith Snell's finds of wulfenite from Wood Mine, Alderley Edge, Cheshire. It was originally discovered on the AGM fieldtrip, the location being pinned down with the assistance of the Derbyshire Caving Club. Liverpool University Geology Department are very interested in the find which consists of microcrystalline orange-yellow bipyramidal crystals of wulfenite associated with lemon yellow to white pyromorphite.

Ian Dossett

WOOD MINE, Alderley Edge, Ches. (IV)
RSWB (1994)

A. Lawton (1994); UKJMM14

Beaverite in situ ^{very} dissem in medium-to-coarse grained sandstone in WOOD MINE, with small nodular dissem. to 30 mm of galena alt'd to sec'y sulphides with a rim of malachite to 5 mm surr'd by a more extensive, irreg. dissem. of powdery yellow beaverite, confirmed by XRD (at WHM)

Prag (Ed.) (2016) See table & refs.

Table 6.6. Mineral species known to occur at Wood Mine, with descriptions and literature references as appropriate. The identification methods are noted using the abbreviations XRD (X-ray diffraction), Chem (chemical methods), Mic (reflected light microscopy), IR (infra-red absorption spectroscopy)

<i>Mineral</i>	<i>Identification</i>	<i>Comment</i>
Anglesite		As tiny colourless blades with wulfenite (Braithwaite, 1994)
Asbolane		Black sooty patches (Braithwaite, 1994)
Aurichalcite	Chem	Pearly blue-green radiating blades with hemimorphite (Braithwaite, 1994)
Azurite		As small blue crystals and impregnations (Braithwaite, 1994)
Baryte		Opaque, pink (Warrington, 1965; Braithwaite, 1994)
Beaverite	XRD	As a powdery yellow mineral in sandstone (Lawton, 1994)
Brochantite		Minute crystals with wulfenite (Braithwaite, 1994)
Cerussite		Impregnations in sandstone and as small crystals (Mohr, 1964; Braithwaite, 1994)
Chalcocite	Mic	As grey patches (Braithwaite, 1994)
Chalcopyrite	Mic	Small scattered masses (Ixer and Vaughan, 1982; Braithwaite, 1994)
Chrysocolla	IR	As impregnations and green to blue rippled crusts (Warrington, 1965; Braithwaite, 1994)
Copper		Noted by Thompson (1991)
Cuprite		Noted by Thompson (1991)
Erythrite		Tiny pink radiating spherules (Braithwaite, 1994)
Galena		In faults and disseminations in the sandstone (Mohr, 1964; Braithwaite, 1994)
Goethite		Noted by Thompson (1991)
Gypsum		As post-mining efflorescences (Carlon, 1979)
Hemimorphite		Colourless sheaves with aurichalcite (Braithwaite, 1994)
Linarite		As minute royal-blue blades (Thompson, 1970c; Braithwaite, 1994)
Malachite		Common in green impregnations (Warrington, 1965; Braithwaite, 1994)
Olivenite		Very rare, with tyrolite (Thompson, 1970c; Braithwaite, 1994)
Pyrite	Mic	Noted by Ixer and Vaughan (1982), also as the nickel-rich variety bravoite
Pyromorphite	IR	Pale yellow crystals with wulfenite (Braithwaite, 1994)
Tyrolite	XRD	Sulphate-rich (possibly clinotyrolite), with chrysocolla, as fan-shaped aggregates (Braithwaite, 1994)
Wulfenite		Tiny bipyramidal orange-yellow crystals (Braithwaite, 1994)

YARD MINE, Alderley Edge, Ches. (2)

See also ALDERLEY EDGE, etc.

G. Mus. Cat. (33) galena, copper ore.

RSWB (1994).

CHESHIRE, apart from Alderley Edge.

~~CHAPPEL-EN-LE-FRITH~~

1" 101

SJ 715 868

AGDEN BRIDGE, Agden, Ches.

See also HEATLEY

BJ Taylor et al (1963), 80: Halite in
boxes along canal NW of Agden Bridge
[ie in Lymm pH]. Described by Calvert (1915)
and Sherlock (1921) p. 49.

1" 109

SJ 46 56

ALDERSE (A/Y)

Ches.

GW Ormerod (1869) Halite - Aldersea

1" OS map: Aldersey pM SJ 46 56.

1" 101

SJ 64 75

ANDERTON

Cheshire

T. Ward (1882), (1897) Halite

1" 110

SJ

84 61

ASTBURY Newbold Astbury, Ches.
See also ASTBURY L'IST Q.; CONGLETON

GS Mem. "Macclesfield" (1968). In a shale
exposure near Astbury, thin bands
calcite → dolomite → siderite.

1" 110

Alcumlow SJ 862 593

ASTBURY LIMESTONE ϕ y Congleton, Cheshire

See also ASTBURY.

L. Burch (1998) RSN 33, 25-27. In small Carb.
Lim outcrop now quarried away, flooded.
Limst. blocks are found with calcite
scalenohedra, powdery red haematite.

BEESTON, Cheshire

See also PECKFORTON HILLS

JS Neil (1907) Baryte- BEESTON CASTLE

SRMRGB 30 (1925) Cu ores in sedimentary rocks

OW Jeffs, Proc Liv G S (1886) 5 139-144. In small
quarry [SJ 539 590?] at foot of Beeston Crag
[SJ 538 592], Keuper, much broken, full of
veins of baryte; also sandstone with traces "copper".

CC Moore, Proc Liv GS (1898) 241

Tras

Baryte m

C J Carlton (1981) "The Gallantry Bank Copper mine,
Bickerton, Cheshire." Brit. Mining 16,

Witherite "recorded from Bearton Hill" [No ref.
given] [? BIDSTON, Birkenhead, qv]

BICKERTON, Cheshire.

See PECKFORTON HILLS

1" 109

SJ 2890

BIDSTON ~~Warrington~~, Birkenhead, Cheshire.

See also PRENTON HILL.

JS Neil (1907)

Baryte - BIDSTON

CC Moore, Proc Liv. G.S. (1898) 8 241.

Baryte,

highly xline, in both Bunter & Keuper.

In anal. of Bunter specimens, a small quantity of BaCO₃. Keuper specimens have no BaCO₃ "of course", but CaSO₄.

Arborescent xls., $\frac{1}{4}$ - $\frac{1}{2}$ " inch long, or concretions

up to 1 inch.

the windmill

[287 8985].

observatory

In Keyser - on summit, from
[277, 8945] to the observatory

In Bunter - from the
to Bidston village [290 900?]

BIRCHENWOOD COLL'y, Kidsgrove, Ches.

See KIDSGROVE

1" 109, 100 Cent. on SJ 31 88

BIRKENHEAD, Cheshire.

See also OXTON, EGREMONT, BIDSTON, PRENTON HILL,
SEACOMBE, TRANMERE, STORETON, SPITAL, UPTON,
WIRRAL COLL'Y, HILBRE POINT, THURSTASTON.

CC Moore Proc Liv GS (1898) 241. [Asbolite],
specimens with both Ni & Co found :-
Borough Road, B'head [Cent. on 3187. Runs from
320 885 to 317 861]; ~~formulations of technical~~
~~Schober~~

HW Greenwood & CB Travis. Proc Liv GS (1915) 12 161-188
Baryte in BH No 8, SPRING HILL water wks, Birkenhead

1" 109 Cent. on SJ 40 66

CHESTER, Ches.

BM: cuprite, cerussite [~~!! surely error~~
~~for Cheshire - probably Alderley Edge~~]

BM 63141 Cerussite, with cuprite &
malachite on Roman copper coin,
Chester. Found 1885. Pres. G. S. Shrubsole

BM 63140 cuprite with malachite and
chessylite [azurite] on Roman bronze
coins, Chester. Pres. G. S. Shrubsole 1888.

See L. Fletcher, MM (1887) VII p 187

1" 110 Cent^r_{on} SJ 86 63

CONGLETON, Ches.

See also CONGLETON EDGE, ASTBURY L¹ST Q.

G.S. Mem. "Macchesfield" (1968). Red gypsiferous
marls exposed around Congleton

1" 110

SJ

88 60

CONGLETON EDGE, Ches.

See also CONGLETON.

GS 6" map Staffs 3: Baryte in vertical joints

Dick MM (1908) 15 124 "Well-crystallised
Kaolinite" [? dickite] in Mill gut of a quarry
at Congleton. Hexag. scales between grains. [There is
ambiguity - uncertainty whether it is "normal" kaolinite
or the "variety" i.e. dickite, described elsewhere in this paper]

GS Mem. "Macclesfield" (1965) COPPER HILL GANISTER QU.
(SJ 877 606)

BM Xray = Kaolinite

COPPER HILL GANISTER QUARRY,
Congleton, Ches.

See CONGLETON EDGE

CUT-THORN HILL, Wildboarclough, Ches.

P. Thomson, Riv. Comm. (3/71) Baryte

bearing fault-vein in grit exposed,
following bed of stream at
005-008 689, at N foot of Cut-Thorn
Hill

SK(07) 013 700
1" 11" Wildpoort Clough, Cheshire
DANE BOWER QUARRIES, ~~Harlington Upper Cr., Derbs.~~

DARES BURY, Cheshire

CC Moore, Proc Liv. GS (1898) 241: [Asbolite],
specimens with both N i e Co found in
a quarry at Daresbury.

OS 6" map (1954) Two quarries, close together,
shown at Daresbury, at 57658290 and
57808295.

EDGE, Ches.

Poole & Whiteman, MGS "...Nantwich..." (1966).

- (a) N end~~s~~ of Edge Scar, at 477₄ 504₅ - impreggs
of black spots of manganese [wad].
- (b) S bank of brook opp. Edge Farm, 478₄ 499₇
- black Fe or Mn-rich veins.

EGREMONT, Birkenhead, Cheshire

See also BIRKENHEAD, etc.

GH Morton Proc Linn GS (1872) 91 Gypsum, in
Boulder Clay. Isesine [ilemite] in
greenstone in Boulder Clay.

EW Binney Tr. M/c G. Min Soc (1862) 38 Gypsum, var
selenite, large xl., found in till or drift
clay between Egremont & Birkenhead.
Others, accord. to W. Roby Barr, between
Egremont & Seacombe

GALLANTRY BANK, Bickerton, Ches.

See PECKFORTON HILLS

1" 109 SJ 48 53

GLEGG'S HALL, Broxton, Ches.

Poole & Whiteman, MGS "...Nantwich..." (1966):

- (a) Roadside at 488₈ 538₂ Baryte, pink & white. No Cu.
- (b) 40 yd SW of Hall - 487₅ 538₅ green copper carbonate
[malachite] small patches along fault-plane.
- (c) Old qu, 180 yds E of Hall - 489₃ 538₈ . Baryte, veins,
heavily haematitised; calcite cement.

1" 107
SJ 66 77
GREAT BUDWORTH, Ches

Fred Broedhurst has a reference to suppressed
gold. Gold (Fred Broedhurst has ref)

HANDFORTH, Ches.

Macadam, M.M. 8, 135 (1889). Anal. of fichtelite
[? tetradecahydro-1-methyl-7-isopropyl phenanthrene
-Hey's Index] from under bark of semi-
fossil pine logs in moss near Handforth.

1" 109

SJ 50 55

HARTHILL, Ches.

Pool & Whiteman, MGS "Nantwich..." (1966):

Malachite, small patches in N part of
exposure at RAW HEAD, at 508₃ 548₄.

Baryte veins, up to 1/2 in, with haematite,
THE DROPPINGSTONE, 510₉ 552₀

1" 101

SJ 69 88

HEATLEY, Lymm, Cheshire

See also AGDEN BRIDGE.

BJ Taylor et al (1963)⁸⁰: Halite in boxes in
and around Heatley village and nr.
Agden Bridge. Described by Calvert (1915)
e by Sherlock (1921), p. 49.

1" 100, 109

SJ 49 75

HELSBY HILL, Helsby, Ches.

Mervyn Simpson, Priv. Comm 4/71: Baryte veins
in Trias.

1" 109

SJ 2088

HILBRE POINT, Hoylake, Wirral, Ches

See also BIRKENHEAD etc

CC Moore, Proc Liv. GS (1898) 241. [Asbolite],
specimens with both Ni e Co found.

1" 101; 110

SJ

~~69 71 74~~
71 74

HOLFORD, Lostock gralam, Cheshire

BJ Taylor et al (1963) p117, 80. Halite proved
in the great Holford brinefield.

OS 1" 101

~~Holford Villa 694 750~~

Holford Hall 709 754

Holford Moss 7174
Brine wells cent
on 7174

OS gazz.

Holford, Ches. not mentioned.

OS 110

JENKIN CHAPEL, Rainow, Cheshire.

Chapel-en-le-Frith memoir, (1971). Baryte, coarsely tabular,
in veins in quarry at 9815 7590.

1" 110

SJ 83 57

KENT GREEN, Odd Rod, Cheshire.

Maccles. Memoir GS (1968): Baryte, concretions
in Bunter Pebble beds, in a cutting at
SJ 8377 5704, on the old mineral
railway from Hall o'Lee colliery.

KIDSGROVE, Cheshire.

R. Garner "Nat. Hist. of Staffs" (1844) pp 238 ff.
galena, in coal measures, "KIDCREW", "Staffs"

A. Lawton, Priv. Comm. 23/12/93. "Kidcrew is
old potteries dialect for KIDSGROVE" [which
is in CHESHIRE.

In KIDSGROVE BRICKWORKS Q., on site of
disused BIRCHENWOOD COLLIERY, at
SJ 855 542, are Westphalian (up. carb) slts
& shales. In joints in some s'stones are
linings of black sphalerite & massive
galena. Occas vughs have galena

octa. & cubo-octa to 10 mm. The gal.
is usually coated w. a brown rind
(currently in for XRD) ~~with~~ Rumours
of cerussite micro-xls. Sphalerite
and pyrite in nodules in shales.

KIRKLEY DITCH, Mottram St. Andrew, Ches.

See MOTTRAM ST. ANDREW

1"101

SJ 7578

KNUTSFORD, Cheshire

BJ Taylor et al (1963), 80: Active subsidence
in Knutsford area indicates salt deposits

1" 110

SJ 82 56 (?)

LAWTON, Church Lawton, Cheshire

H. Holland (1811)

Halite

NOT in OS gazz.

OS 1" 110 shows Church Lawton at 8256; Lawton
gate at 8156; Lawton Hall at 824565; Lawton
Heath at 8056

LEFTWICH, Northwich, Ches.

See NORTHWICH

1" 110

Newbold

ST 86 59

LIMEKILN FARM, Astbury, Ches.

Mem GS "Maccles." (1968): Carb. lim. was
worked in q'y at ST 862 592, now
flooded - gypsum veinlets.

MACCLESFIELD, Cheshire ^{1" 110} ^{SJ 9, 73}
(I) ^{SJ 96}

BM. Evansite, "Ratcliffe Wood" (see Woodward, 1884)

D₆ 846 & "Evansite" from a small fissure
D₇ 923 in the Yoredale rocks, Ratcliffe Wood,
nr. Macclesfield. $\text{Al}_3\text{PO}_4(\text{OH})_6 \cdot 6\text{H}_2\text{O}$

OS 6" SJ 96 NW shows "Ratcliffe Wood"
around SJ 923 693, just above "Fool's
Nook". Several quarries in the area,
including Hawkshead Quarries.

GS 1" map shows Yoredale beds (shales &
sandstones) in the Ratcliffe Wood area.

Greenwood (1919) Proc L'pool Geol Soc 12, 325 "The
Trias of The Macclesfield District". Mentions
"Radcliffe Wood or Fools Nook" exposure.

AS Woodward, Proc Manch Lit Phil Soc (1882) 21 115-124

Hydrated oxides of Mn-[wad] in Yoredale
rocks of Ratcliffe Wood when stone-pits were
being worked - (NOT noted when area
resurveyed - GS Mem "Macclesfield" (1968)) [V infra
[cont'd II)]

AS Woodward MM (1883) 5 333 Evansite in a
small fissure in The Yoredale Rocks, Ratcliffe
Wood.

MACCLESFIELD Cheshire (II)

GS Mem "Macclesfield" A section in Sneyd
Brickworks Co's Q'y at SJ 924 684, at
Rough-hay, shows jarositic mudstones
& siltstones. [Gawsworth Common, nr Oakgrove]
The cement of sandstone in Foxbank
Q'y SJ 9345 6944 is dolomite, with
some calcite in cavities

AS Woodward P.M.L. Phil Soc (1882) 21 115-124 (cont'd): The

Red Rock Fault runs from N of Stockport to Talk o' th' Hill, Staffs. Disturbs Yoredales eg in Ratcliffe Wood. Yoredales here thin sandst. & shale beds, alternating, quarried in tunnels. MnO_2 in fissures produced in these beds - soot-like wad. Assoc mins: brown iron ore - thin crusts, fibrous - stalact, & hollow spheres. In fissures, xls of calc-spar & pearl-spar, the latter curved, tinged with oxide of iron [?ankerite]. Pyrite abundant, well xlied; sphalerite ^{"blende"} in small masses scatt'd among the calc- & pearl spar.

1" 109

5J 48 47

MALPAS, Cheshire

Poole & Whiteman "Nantworch..." (1966) p.36: Baryte,
nodular-weathering xls in lane [in village]
at 4884 4708. p38. Gypsum, veins in
mudstone, exposed in brook at 4980 4585

1" 101

SJ 6576

MARBURY

Ches

H. Holland (1811) Halite

1" 101

SJ 66 75

MARSTON Cheshire

See also MARSTON HALL MINE

T. Ward (1882) (1897) Halite, gypsum.

De Rance, Tr. M/C G. Soc (1895) 22 269-302 "Results of
The Salt Union boring at Marston nr Northwich."
Details of cores. Halite, gypsum.
down to 2610 ft.

1" 101 SJ 664 762

MARSTONHALL MINE, Marston, Northwich, Ches.

See also MARSTON

OS 1" map shows "Marstonhall mine" at SJ 664 762
-presumably salt mine.

1" 110

SJ 65 68

MEADOW BANK MINE, Winsford, Cheshire
 See also WINSFORD

RSWB 12/57. Underground salt-mine, run by ICI.
 good rock salt. Colourless to brown. Fine
 cleavage cubes collected.

TM Hall (1868) p 31 Winsford, Ches. Rock salt in
 New Red Sandstone

BM: Anhydrite, massive, with impressions of halite cubes

De Rance, Tr M/C & Soc (1895) 22 269-302. BH at
 Meadow Bank Rock Pit No 1. - Rock salt [halite]
 brown granular gypsum

1" 109

SJ 45 48.

MEADOWS FARM, Horton, Ches.

Poole & Whiteman, M.G.S. "... Nantwich..." (1966) Old
quarry at 456, 4828, 450 yds SE of Meadows
Fm., mineralised with baryte, pale
nodular xs, & black manganese oxide [wad].

1" 110

Summit SJ 811 539

MERELAKE HILL, Alsager, Cheshire

W. Gibson & CB Wedd "Geol of Stoke on Trent"
(1905) 49. Merlake Hill, nr Alsager—
thin veins of barytocelestine in
joints in sandstone, also baryte stars.

1" 101

SJ 80 75

MERELEIGH, Chelford, Cheshire

BJ Taylor et al. (1963), 80: Halite, proved in
Mereleigh borehole, at 8092 7520. See
Sherlock (1921) p 65.

MIDDLEWICH, Cheshire

TM Hall (1868) p 31.
and Marls

Rock-salt in New Red Sandstone

GeL (1858). Nahle

GS Mem Macclesfield (1968).

Abundant
anhydrite nodules, beds & scattered xls
in Mid. Keuper Marls cut in boreholes
E, SE, & S of Middlewich, also salt-veins
and gypsum.

1" 101

SJ 79 79

MOBBERLEY, Cheshire.

BJ Taylor et al (1963), 80. Halite in boreholes
at Beeches Farm, 80128116; Stubbs Farm,
8001 8002 and Mount Pleasant Farm,
8095 7987 [NB. OS 1" 101 shows a Mt. Pleasant
Farm at 791780]

MOTTRAM ST. ANDREW, Cheshire (I)

= Kirkleyditch. See also ALDERLEY EDGE

Malachite (KSWB) (19/7/59) See field report. — from

(35) KIRKLEYDITCH QUARRY, SJ 875 784. On pebbles

(36) Mottramite ^{Vanadinite} ~~Vanadinite~~ "from here" is really from Pim Hill, Salop
(= Harmer Hill, Preston Gubbals nr. Shrewsbury). AWOK, AR.

SRMRSBxxx "Cu..." (1925), p. 5. ⁽¹³⁾ Cu ore in sedimentary rock.

Ex cop lab report at Tech: "Vivianite" (?) [NOT indexed!]

H E Rozege Phil Trans Roy Soc, 25? pp 3, 109, (1876)
see also Phil Trans Roy Soc p 1 (1868-9). V Jones
from dumps at Mottram — moltramite &
Vanadinite. [BUT v. supra]

⑦ Warrington, Merc Geol L [2] III (1965). List, p 116

galena; cerussite; pyromorphite;
malachite; azurite; asbolite; baryte;
(?) moltramite (?) vanadinite

Loc. known at least as early as Roman times. Working renewed ca 1807 (acc'g. to C. Roeder, Trans. Lanc & Ches. Antiq Soc. 19 (1901) 78) but soon ceased. Reopened ca 1865 for short period, mining Pb, Cu, Co ores. Now disused > a century, & flooded. Few records exist & workings now inaccessible. Twofold orebody

- (i) A conglomerate horizon outcropped in Kirkley ditch Q'y & extensively worked down-dip. = Engine V. Beds.
- (ii) A lode - prob. a mineralised fault - Cu ore v. rich Map, p 126. Cu ore richer than Alderley Edge, esp. in "lode".

MOTTRAM ST ANDREW, Cheshire (II)

(26)

FW Rüdler (1905) 190. Cupriferous Bunter (or Keuper) strata worked, chiefly in a hard quartzose conglomerate, averaging ca 5% of copper ore (cf 1.4% Cu at Alderley Edge) Mottramite found here by Roscoe!

(29)

H. E. Roscoe Phil Trans Roy Soc (1868) 158 1. (The Bakerian Lecture, read 19/12/1867) "My attention was directed some time ago to the occurrence of V in some of the Cu-bearing beds of the Lower Keuper Sandst. of the Trias worked at Ald. Edge & Mottram St. Andrews' in Ches., & I was fortunate

enough to secure a plentiful supply of this rare metal by the purchase of a lime ppt containing V, which had been obtained as a residue in the extraction of Co from the Co-bed sandstone at Mottam by the Eld. Edge Cu Mining Co.

[Descrip. of beds according to Hull, Geol Mag (1864) 1 65]

The sandstone from which the 'V. ppt' was prepared possesses a light colour & contains from 0.1 to 0.3% of the oxides of Co, Ni, & Cu dissem. as small black, green & red specks.... crushed... diss in HCl.... bleaching liquor & milk of lime added $\rightarrow$ alkaline $\rightarrow$ Pb, Fe, As, V, some Cu pptd.

As the Mottam mine is now closed I have been unable to obtain a sample of the above mentioned sandstone for examination,

MOTTRAM ST. ANDREW, Cheshire. (III)

and therefore I cannot state positively whether the V occurs as vanadinite, although for other reasons [unstated] I am inclined to think that it does."

[~~the~~ (A) states that the Cu-bearing beds were worked at A.E. & Mott - and not necessarily that V occurs at both. (B) states that V in Cu-bearing sandstone from Mottram. - probably error for Rim Hill material processed at Mottram. (C) fits Rim Hill sandstone (D) Shows no evidence for

vanadinite either at AE or Mott - Motttramite had not yet been discovered!].

H.E. Roscoe, ⁽³⁰⁾ Proc Roy Soc. (1876) 25 109.

Describes two new V mins. (1) Roscoelite - sample given by Dr J. Blake of San Francisco. No loc. given; presumably American, NO ref. at all to Cheshire etc..

(2) "The ~~second~~ V mineral, to which I propose to give the name of 'Motttramite', occurs as a xline incrustation on Keuper sandstone found at A. Edge and at Mott. St. Andrew's, in Cheshire, and at other localities." [Here, Roscoe has

MOTTRAM ST. ANDREW, Cheshire (IV)

perpetrated an ambiguity! This can be taken to mean that Mottramite occurs at A.E., Mottram & other locs., or that Keuper Sandstone occurs at these places - which of course it does!]

E. Hull, Geol Mag ⁽³⁾ (1864) 1 65-69 Blue and green carbonates of Cu, discovered about 6 years ago [ie azurite, malachite] with cobalt ore, black oxide of Mn [ie asbolite, wad], and carbonate of Pb [cerussite]

BJ Taylor RH Price FM Trotter (1963) ⁽¹⁵⁾ Cu mineralisation
mostly in Keuper conglomer. - see under Alderley
Edge.

CJ Carlon (1981) "The Gallantry Bank Cu mine..."
p 7. galena, pyromorphite, cerussite, azurite, malachite,
vanadium minerals?

P. Ward (1982) "Mottam mine, Cheshire" Min. Realm 2[2],
11-13 Surface maps. Short descrip.
"Copper carbonates"

CJ Carlon (1979) "The Alderley Edge Mines" Pub. J. Sheratt
& Sons, Altrincham

MOTTRAM ST. ANDREW, Cheshire (V)

RSWB (1994) "Mineralogy of the Alderley
Edge - Mottram St. Andrew area, Cheshire,
England". J. Russell Soc 5 [2], 91-102.

Details with loc. & mineral
lists & discussions, including
discussion of the origin of Roscoe's
~~original~~ mottramite. Analyses
(some new) etc suggest Pim Hill
rather than Mottram. Pim Hill
material is low in As & has a little Zn,
Mottram (in-situ) material is arsenation
& Zn-free (or v. low). Shows up in IR, too.

D. Green (1998) Priv. Comm.

Plumbogummite, powdery cream-brown encrust. on mottakite-duftite (XRD)

" α -Duftite" black botry crusts (often mis-labelled "mottamite") vanadian (XRD)

"Vanadian β -duftite" ^{minute} lenticular xls
e sage-green crust on goethite
Chrysocolla, in flowstone crusts.

MOTTRAM ST. ANDREW, Cheshire (VI)

D.I. Green, D.B. Thompson & RSW. Braithwaite ()

"A summary of the mineralogy of the ore deposits of the A. Edge Mott St. A. area, Ches."

List of species, mostly from RSWB (1994)

Table 6.7. Mineral species known to occur at Mottram Mine, with descriptions and literature references as appropriate. The identification methods are noted using the abbreviations XRD (X-ray diffraction), IR (infra-red absorption spectroscopy), EDX (energy dispersive X-ray analysis)

<i>Mineral</i>	<i>Identification</i>	<i>Comment</i>
Anglesite		Noted by Thompson (1991)
Asbolane	EDX	Powdery to botryoidal, recorded as cobalt ore (Hull, 1864) and as asbolite (Warrington, 1965)
Aurichalcite		Noted by Thompson (1991)
Azurite		Recorded by (Braithwaite (1994) and Hull (1864)
Baryte		Noted by Carlon (1979)
Cerussite		Noted by Hull (1864)
Chrysocolla		In flowstone crusts (D. I. Green, unpublished data)
Duftite	XRD	As compositionally zoned black botryoidal crusts, visually similar to mottramite and as minute green lenticular crystals (Tindle, 2008). There are two distinct structural types, which have been labelled duftite-alpha and duftite-beta (D. I. Green, unpublished data); both occur at Mottram Mine
Galena		Recorded by Carlon (1979)
Goethite	XRD	As black botryoidal crusts with overgrowing duftite (D. I. Green, unpublished data)
Malachite		Hull (1864) noted green carbonate of copper (Warrington, 1965; Braithwaite, 1994)
Mimetite	IR	Calcium-rich pyromorphite forms shells around phosphatian calcium-rich mimetite (Braithwaite, 1994)
Mottramite	XRD, IR	Considered to be the type locality (Roscoe, 1876a); later workers suggested Pim Hill (Braithwaite, 1994)
Plumbogummite	XRD	As a brownish encrustation on mottramite-duftite (D. I. Green, unpublished data)
Pyromorphite	IR	Recorded by Warrington (1965). Calcium-rich pyromorphite forms shells around mimetite (Braithwaite, 1994)

1" 110

SJ

6569

MOULTON

Ches.

H. Holland (1811)

Halite

MOW COP. Ches-Staffs border.

See "MOW COP" under Staffs.

NANTWICH, CheshireTM Hall (1865) p 31Rock-salt in New Red MarlsGeL (1858)HaliteBM.Gypsum, var. selenite, a group of
clear 3 inch xlsT Ward (1882) Halite mined, up to 1847EG Pooke & AJ Whiteman (1966) "Geol of ... Nantwich & Whitechurch" 100-102

In boring at Nantwich in 1853, brine & gypsum.
At Acton [SS 63 53] 1 ml W of Nantw. is a weak brine spring.

NORTHWICH, Cheshire.

TM Hall (1888) p31.

Rock salt in New Red MartsGEL (1858). Halite

H. Holland (1811)
GW Ormerod (1869)
T. Ward (1882)
T. Ward (1897)

} Halite
→ also Winnington [6474], Lefwich [6672]

1" 109

Cent on SJ 470 490

VERTON SCAR, Overton, Cheshire

OS 1" - NE-SW scarp, facing NW, wooded, from
near 466 485 to 475 496.

Pool & Whiteman, MGS "...Nantwich..." (1966).

VERTON SCAR - much baryte; haematite; sooty
? manganese oxide [?wad].

Between base of S extremity of VERTON SCAR
& top of old quarry at 469, 4842 - exposure
with haematite & traces malachite in
grit.

1" 109

SJ 2987

OXTON, Birkenhead, Cheshire

See also BIRKENHEAD etc.

GH Montan Proc Liv GS (1872) 91. Quartz, in Keup. Sandst.

CC Moore, Proc Liv GS (1898) 241. Ni & Co in wad
[askolite], in marl & sand. Baryte

1" 118

SJ 51-4, 54-9

PECKFORTON HILLS, Cheshire (I) Bickerton PM

See also ~~BEESTON~~ ~~HART HILL~~ ~~S. of Tarporley~~
 6" SJ 55NW Peckforton Hill proper - only quarries
 6" SJ 55SW - Between Bickerton & Bulkeley, just near road, at on
 Bickerton Hill, a "Cu trial" & a "Cu mine"
 GLEGG'S HALL;

Tooke: "Mineral Topography of gr. Britain" (old). p. 40. : Copper, lead,
and cobalt minerals.
 [Analogous to Alderley?]

M/C Mus Spec 1960 Donor: P. Smith. Malachite & azurite staining in conglomerate.
 v similar to Alderley specimens. From Keuper beds. Mine shaft
 (ca. 400 yds E of Mine Chimney) in copse 100 yds N of Nantwich -
 Wrexham Rd. in Peckforton Hills. [ie SJ 520 5445]

(1925)
 GRMRGB XXX "Cu" p5: Cu ores in sedimentary rocks.

p. 17: Peckforton & Beeston: Gallantry Bank, on E flank of

Peckforton Hills. 6" ches 54 NE. gallantry Bank ca $4\frac{1}{2}$ miles NNE of Malpas.
E of ridge a great metalliferous fault. Azurite; malachite; oxides of
Iron & manganese.

OW Jeffs, Proc Liv GS (1886) 5 139-144. Earliest ref
to gallantry Bank lode in Dr Holland in Trans & Soc Lond
(1811) p 39. E Hull "Geol Mem of the Trias" (1869) p 76
- the boundary fault is metalliferous, producing
principally green & blue carb. of Cu & oxides
of Mn & Fe - the vein or slickenside is white
quartzose rock with occas. calc spar.

Jeffs: 3 shafts @ Gall. Bank:-

- ① Southernmost: On dumps, some marl with
halite ψ -morphs & MnO₂ dendrites [pyrolusite]
- ② ca 100 yds from ① - opening, where vein seen
close to surface

PECKFORTON HILLS, ^{Bickerton} ~~Peckforton~~, Ches. (II)

- ③ Shaft further N in an enclosure; ca 15 yds deep. Sandstone, with grains coated with green carbonate of Cu [malachite]; the dark spots in the interior "are hydrated oxide of copper"

Murchison "Silurian System" (1839) Trial shafts (Cu) in Peckforton Hills. One in veins & lumps where the sandstone is dislocated & fissured

E Hull, Geol Mag (1864) 1 65-69 Copper ones in New

Red Sandst. on E side of Peckforton Hills

E G Poole & A J Whiteman. Geol of... Nantwich & Whitchurch (1966)
p. 98 Map and section of mine at Bickerton, section
"based on one by Owen Edwards in 1890"

In Upp. Mottled Sst. along Bickerton-Bulkeley Fault [NE]
Shafts sunk before 1679. Mining began in 1697 & 1735
Engine Sh. at 5174 5422 deepened to 156 ft in 1807 but
mine soon abandoned. Operating again in 1857 & 1890
Spectros anal of samples from dumps at Eng. Sh.
"Ba - moderate; Co, 0.1; Cu, 0.8; Mn, 0.05; Ni, 0.05; Sr, 0.01%

Map gives shafts in line to NE from Engine Shaft
at 5174 5422; No 1; 2; 3; 4; No 5 Sh. ^{near} 5215 5450
From mine, & fault: - Baryte; calcite; haematite; chrysocolla; cuprite
opaque sooty manganese oxide [wad]. Silver "has been recorded"

PECKFORTON HILLS, Bickerton, Ches. (III)

C. J. Carlon (1981) "The Gallantry Bank Copper Mine, Bickerton, Cheshire". Brit. Mining 16, Northern Mine Research Soc.

Baryte; wad; witherite "recorded from Beeston Hill" [No ref. given.] → [? BIDSTON, Birkenhead, q.v.]; malachite, chrysocolla, celcite, minor "Cu sulphides"; azurite; cesbolite; bornite, covellite, melanconite recorded.
David Thomson (Leeds Univ) Priv. Comm. 22/4/89

The man from the Geo. Surveying Co. at Shrewsbury claims to have found bismuth at Gallantry Bank.

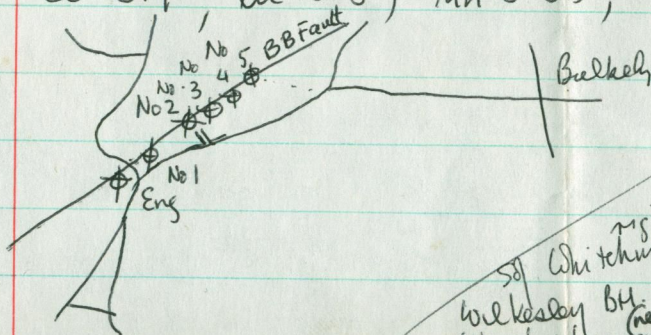
EG Poole & AS Whiteman Geol of the coun arund Nantwich & Whiteh (1966).

p 98 Cuore. Map of ~~Black~~ Bickerton. & section "based on one by Owen Edwards in 1890"

~~8th~~ In upp ~~Moxley~~ SST aboy Bickerton. Bulkeley Fault. Sh's sunk before 1679. Mining begun 1697 & 1735. Engine sh at 51745422 deepened to 156 ft in 1807 but min soon aband.

Opdy again in 1857 & 1890.

Spectr anal of samples from dump @ Eng sh. — Ba moderate; Co 0.1; Cu 0.8; Mn 0.05; Ni 0.05; Sr 0.01 %.



p 100-102 Salt & Brine.
Boring @ Nantwich: 1883 - brine, gyphs.
Acton In NW of Nantw - weak brine spring
also @ Badshley 6049
Hatherton 8647
brine Anderton area 6643 P.T.W.
nr Adderley (shown)
salt beds right down to
St. Whitechurch.
Walsley by. lowk.
(Nantwich area) (63, 410)

14/6/81

1st February 1980

1983

35 years from 1962

SPD Ltd
(Guaranteed by Unilever Ltd)

London Road, Watford
offices

30th June 1980

every 5 years

25 years from 1975

London Borough of Haringey

London House, 35 Station Road,
Green, N22
offices

Dear Richard,

Sorry to have missed
you last week but I was in
London erecting a display
stand at Earl's Court. Since
I sent my note I have been
to Gallantry Bank twice - my
routes are on the map overleaf -
hope you find it of interest.

I shall not be in today
but would like to call on you
some night this week if
possible for some info. on
Cardston mines

Regards,

Stuart

GAUNTTRY BANK MINE

X COMMON VIPER SEEN HERE!



CHIMNEY

ENGINE
SHAFT



NETTLES

SHALL EXCAVATION
MADE BY ME -
PRODUCED BITS OF
BARITE WITH MALACHITE
CRUSTS

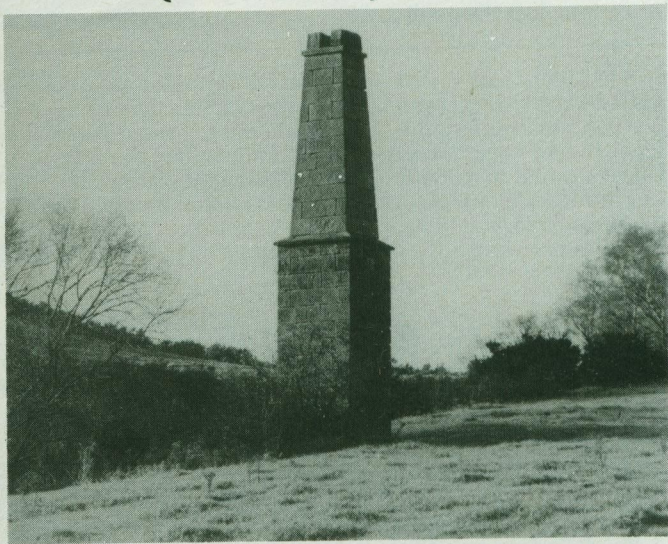
SHALL EXCAVATION
MADE BY COWS! - PRODUCED DEBRITES OF
MANGANESE OXIDE AND ONE FAIRLY GOOD
MALACHITE COATING

GATE

ROAD

PARKING

Where (and what) is it?



Fred Done's puzzle picture this month is a reminder of an old mid-Cheshire industry. That industry has gone but the landmark remains. Turn to Page 120 to find out all about it.

1" 110

SJ 8693 5929

POTBANK QUARRY, Newbold Astbury, Ches.

Mem GS "Maccles." (1968): Ironstone bands
e nodules

POYNTON, Cheshire.G.C. Greenwell. Trans. Manch. G. Min. Soc (1895)22, 444.

"Bitumen from a coal seam
at Poynton, nr. Stockport" #
block of bitumen found in a small
fault in the Reform or Waterloo Seam,
at PARK OVAL PIT, Poynton & Worth Collieries.

[OS¹"₍₁₉₄₇₎ "Park Pit" - SJ 935 846]

1" 109

SJ 3085

PRENTON HILL, Birkenhead, Cheshire

See also STORETON; BIDSTON HILL

CC Moore, Proc Liv. GS (1895) 8 241 On E sideof road near the water station (in Prenton Wood) on Prenton Hill, many "iron" concretions.

Black grains in one such, analysed:

Ox. of Mn 2.78; Ox's of Co & Ni 3.90% V, Cu, abs.
[i.e. asbolite]A black sample from same loc = limonite (which is goethite)

1" 101

SJ 7483

ROSTHERNE, Cheshire

BJ Taylor et al (1963) 80 Active subsidence
in Rostherne area suggests salt deposits

1" 101

SJ 79 92

SALE EES,Sale,CheshireSeen by
RWB
10/72I. M. Simpson, Priv. Comm. 10/72.

small round patches of powder-blue powder in clay from motorway excavations, with pieces of wood, beetles, etc.

Vivianite,T.K. Stoner, Priv. Comm 3/73

Gypsum, var. satin spar, veins → 3 in thick, white;

[seen by RWB], in sandstone or marl in excavations for marina or motorway near SJ 79 92

TKS. Pr Comm 4/74 Calcite (small rhombohedra in vugh) PTO

see there's still room for
creative craftsmen like
Ray Hodgkiss.

M.C. Eye News 22/11/72

Getting warm

FROM dead beetles and other insects found in the bark of trees dug up in Sale, and said to be 5,000 years old, Birmingham University geologists may be able to find out what the climate was like when the trees were growing.

Specimens sent by Dr I M Simpson, head of the geology department at Manchester University were sufficiently interesting to make the Birmingham geologists visit the Mersey Valley site known as Sale Ees. They collected several large pieces of wood and also found beetles and insects. They are hoping the wood will be identified by botanists and dated by chemists.

The trees were found during excavations for the extension of the M53 from Stretford.

ST 79 92

VEIN Matlock, Derby

ensley

RSWB, 4/73 Gypsum var. satin spar - many near-horizontal interlacing veins $\frac{1}{2}$ - 4 ins thick, over vert range. δ at least 12 ft. in greenish marl in giant excavation centred on 799 928. Tends to occur in the W end, near 798 928.

Also found: - v.g ripple marks, fossil wood.

RSWB, PT 12/5/73. Vivianite patches in mud & on wood. ~~the~~ wood is birch (bark, leaves found). Gypsum also in centre of pit.

SEACOMBE, Birkenhead, Wirral, Cheshire

BM: Ilmenite & magnetite sand - SEACOMBE FERRY.

GeL (1858) Magnetite sand in bed of R.

Mersey nr. Seacombe Ferry, ^[ilmenite] Iserine according to
Traill ^[infra] on Mersey shore ca. opp. Lpool, with magnetite

TH Hall (1868) Iserine Sand, Seacombe Ferry.

TS Traill, Trans. G.S. Lond (1817) Ser. 1. 4 447. Notice
of some magnetic iron sand, Cheshire
Magnetic iron sand mixed with much
iserine [they; var of ilmenite] on shores of the

Mersey, opp. L'pool, at Seacombe Ferry.
After heavy rain it oozes out of a
deep bank of clay.

OS 6" map: Seacombe Ferry is at SJ 325908

SPITAL, Bebington, Cheshire
See also BIRKENHEAD etc

EG Hancox. Proc. Liv. G.S. (1933) 16 106-8.

Calcareous tufa [? calcite] near Spital
Petrifying spring on steep wooded S bank
of the Dibben ca 200 yds E of the railway
crossing. CaCO_3 .

OS 6" (1954). "Petrifying well" at SJ 3418, 8250.

STOCKPORT, Cheshire.

A. Pikin, Trans Geol Soc Lond (1817) 4 445. A
green waxy substance found in the alluvial
soil nr. Stockport, Ches. Specimen of Dr.
Henry. Chem. exam $\rightarrow$ resin + pitch + sand.
? artefact

BM: (A. Russell coll; printed label - J.W.G.)

Calcite, xls in vughs in calcareous band
from "Lower New Red Permian", ROBINSON'S

BREWERY, LOWER HILLGATE, STOCKPORT.

100, 109
STORETON, Wirral, Cheshire 55 30 84

See also PRENTON HILL; BIRKENHEAD, etc

G. Mus. Cat: Co, Mn, Ni ones in Bunter sandstone

CC Moore, Proc Linn GS (1898) 241. In Bracken Lane [not on OS 6" map], Stretton, black grams in an "iron" concretion have Co, but very little. Insufficient material to detect Ni. [is askolite. MnO_2 assumed from context of paper]. Baryte - "Stretton"

AN Tate, Proc. Linn. GS (1863) 16 MnO_2 in black sandstone in Trias

STYALCheshire

DB Thompson in FMBroadhurst et al Geol Assoc Guide 1 (1970)
34-39.

"Loc 3" "Badger Hole" [834 824]. Veins bearing
baryte & wad. "Loc 8" "The Weir" [83258285] -
baryte. In Great Wood, at 831 834, nodules of
gypsum, pseudomorphs after halite, malachite
on bedding-planes of Lr. Keup. Marl some 15 ft
above their base. - prob. related to Styal
Fault 50 ft to the W. Giant Castle Rocks, at

827 835 - geodes with calcite (cf ^{de V} G. Klein, Geol
Mag 99 137-144 (1962))

RSWB, DBH (1967) Gypsum, masses with selenite xls
in vughs near brickworks at ~~near~~ 813 830 near
Oversley ford. In new road cutting
adjacent, fibrous gypsum veins.

1" 101

Centred on SJ 7278

TABLEY, Cheshire

BJ Taylor et al (1963) 80. Active subsidence
at Tabley suggests salt deposits.

OS 1" map.

Tabley Inferior	SJ 718 773
Tabley House	SJ 725 778
Over Tabley	SJ 724 800

1" 101

Centred on SJ 7581

TATTON PARK, Tatton, Cheshire

BJ Taylor et al (1963) 80 Active subsidence
at Tatton Park suggests salt deposits.

1" 109

SJ 24 84

THURSTASTON, Wirral, Cheshire (I)

See also BIRKENHEAD etc

C.C. Moore, Proc. Liv. GS (1898) 241 [Asbolite]

specimens with both N & Co, found in
Thurstaston Cutting (SJ 2383)

RFD Parkinson's Stock 7/71 (Not in catalogue).

THURSTASTON, Cheshire;— sandstone richly
impregnated with covellite, pyrite + chalcopyrite
malachite; azurite; ?pisamite efflorescences.

(K. Iyer, polished section)

Hacarmarcasite

(Spec's collected by Jerry Cotter of L'pool!!)

RFD Parkinson's Catalogue (1971). Sphene,
"in dolomite," Thurstaston, Cheshire"

Spec's ~~seen~~ seen & purch'd by RSWB 9/71:-

sphene, transp. yellow xls $\rightarrow$ 2 mm, with
magnetite octahedra, quartz, plagioclase
pyrite, ^{green glass} fibrous amphibole (? tremolite), in
vughs in a granitic rock. Almost
certainly from the well-known glacial
boulders on the coast - origin
prob. Scotland. Amphibole - grünende (x-ray
L'pool)

black pitchy laths - Willemite Rock is pyroxene/plagioclase
+ quartz. (!).

THURSTASTON, Wirral, Cheshire (II)

BMS Newsl (1995) (June) 41.10. Fine diopside xls (14M)
from Thurstaston beach.

BMS Newsl (2000) 56 7: thomsonite (2220) [J. Dickinson]

J. Dickinson & M. Rothwell (1985) BMS N'l 13

R. Harkey (1998). BMSN 50, 9. ~~thomsonite~~ Erratics on
beach yield titanite (sphere), magnetite,
analcime?, natrolite? [Is he confusing
some with the rather similar
Burscough, LANCs. erratics?]
[w.r.to the analcime & natrolite]

TRANMERE, Birkenhead, Cheshire.

See also BIRKENHEAD, etc.

W. Mawby, Proc. Liv. G.S. (1893) 7 162-4 "On

the occur. of phosphate of iron [vivianite]
coating sand grains at Tranmere."

On a sandstone wall in the neighbourhood
of Higher Tranmere, at the top of the Prenton
Road, enclosing "a kitchen garden heavily
dressed with pig sty refuse saturated
with urine & decaying veg. matter". Blue
- the source of the phosphorus.

patches (anal. $\text{Fe}, \text{PO}_4 = \text{vivianite}$). ~~The same~~
deposited along mortar joints & over
face of wall. Little penetration.

UPTON, Birkenhead, Cheshire

See also BIRKENHEAD, etc.

W. Schofield, Proc. Liv. Geol. Soc. (1940) 18, 4-6

Calcite, nodules in Keuper Marl.

In cable trench in Upton village. Cavities with white to blue-white crystals, of several habits.

Analysed by J. Caspel

Proc Liv. Geol Soc (1940) 18, 7-8. CaCO_3 91.04;

MgCO_3 , 1.2; Fe, Al oxides 0.96; Insol HCl (sand, clay, etc), 6.6% a calcite "with a little dolomite" [ie slightly magnesian calcite]

1"110

SJ 66 66

WHARTON

Ches

GW Ormerod (1869) Halite

1" 110

SJ 74 58

WHEELLOCK

Ches.

GWormerod (1869)

Halite

1" 101

Near SJ 6179

WHITLEY

Ches.

H. Holland (1811) Halite - Whitley.

OS 1" map: Whitley PH includes Higher Whitley
at 619800, & Lower Whitley, at 614791

1" ~~18/11~~ 110

SJ 62 41

WILKESLEY, Dodcott-cum-Wilkesley, Ches.

Poole et al. M.G.S. "Nantwich & Whitchurch" (1966) 101.

The Wilkesley BH shows that salt beds in
2 main groups, separated by ca 1100 ft
mudstone. $\therefore$ reserves of area doubled!

1" 101 SJ 680 750

WINCHAM, Northwich, Cheshire.

G. Mus. (1967) Donated by AR Clayton: Stalactitic
halite from old Canal Bank Salt Works.

OS 1" map (1947) shows "Salt Works" beside
canal at Wincham, at SJ 680 750

T. Ward (1882), (1897) Halite

WINNINGTON, Northwich, Ches.

See NORTHWICH

WINSFORD Ches.

See also MEADOW BANK MINE.

GeL (1858). Halite.

H. Holland (1811)
GW Ormerod (1869)
Tward (1882) } Halite

TM Hall (1868) 31 Winsford, Ches: Rock salt, in NRS

1" 109

Near SJ 29 76 ?

WIRRAL COLL'Y

Neston ??

Cheshire

A. Strahan, Q.J.G.S. (1901) 57 297-306. On the passage
of a seam of coal into a seam of dolomite.
Analysed: almost theor. pure dolomite, with
a little iron.

DAWray, Brit. Reg. Geol. "The Pennines & adj. areas" (1948) p 54
map shows small Wirral coalfield, just S
of Neston, hence near SJ 29 76.

1" 101

SJ 66 75

WITTON, Cheshire

H. Holland (1811) Halite & gypsum, Wilton

OS 1" map. "Wilton Flashes" at 660 750