

WATERFORD

BM: Copper; arsenopyrite.

Kilmacthomas

~ 44 98

BONMAHON HEAD, Waterford, Ireland. (I)

See also KNOCKMAHON; KILDOWAN MINES.

[BONMAHON is W of the Mahon R. - Knockm. is to the E. is main village & used as a
Lud: Erythrite with malachite — "striking" generalis'n.]

NF(1959) 15, Cobalt-bloom on chalcopryite-bearing specimens from TRAWNAMOE LODE

g Important 19th Cent Cu producer. Chalcopryite without other sulphides, in and @ margin of quartz veins. Two biggest-mined ore shoots right beside the coast.

TMH (1868) Calcite; epidote; erythrite; malachite

Examined by RSWB

GR, GS; 1 Erythrite; malachite; chalcopryrite;
langite (BM, X-ray); brochantite (BM, X-ray);
connellite (BM, X-ray) small blue globules;
minor ~~pyrochlore~~, micro-radiating, with erythrite
↓ more likely lavendulan. (IR - too little material)
but could be impure lavendulan)

S. Moreton June 1991 good connellite, from
X 425 983 in an adit on TRAWNAMOE
Iode; ident IR, XRD, chem: Ce^0 , SO_4^{2-} , NO CO_3^{2-}
See RSWB 92-1; 94-92.

S. Moreton (Priv., 1/95)

TANKARDSTOWN M.

[THIS IS ON THE E side ~~TANKARDSTOWN~~ KNOCKMATHON side [q.v.]

Biggest mine was
behind the prominent

BONMAHON HEAD, Waterford, Ireland (II)

roadside engine ho./chimney ~ 1 mi E of Bun.
is an opencast (now rubbish tip) with
atacamite & chalcanthite on walls.

Adjacent is a small patch of waste with
minor erythrite. N. TANKARDSTOWN M.

is ~ 1 mi to the N: dumps in fields nr
eng. ho. have malachite.

At Bunmahon a
clifftop track (starting as a driveway to
a house) - go up it, past Bunm. Head &
swamble down to secluded cove,
where a level leads to a small

BONMAHON

dry slope with conellite: dumps
~~above~~ above the cliffs (TRAWNAMOE M.)
occas. give erythrite

2011 JAN 20 2011
[coll JIW, 1997 Brochantite, 1 mm-
thick compact fibrous layer
(like mini-chuquicamata material!)
coated with blue-green flaky crud.
(FTIR, RSW4 4/98) - TANKARDSTOWN MINE.
KNOCKMAMON (qv)]

CLONMEL, Waterford, Ireland

See under Tipperary.

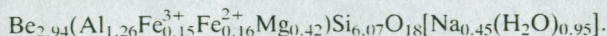
A blue sodic beryl from southeast Ireland

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Abstract

Deep azure-blue beryl is reported from veins in Upper Devonian conglomerate from southeast Ireland. Microprobe analysis, Mössbauer spectroscopy and loss on ignition suggest an unusual chemistry with an exceptionally high degree of substitution of Fe and Mg for Al, and extreme amounts of Na and water held within channel sites in the structure. The calculated structural formula is:



Refractive indices (1.603 and 1.595) and the cell edge, a , (9.292 Å) are also unusually high. Colourless beryl from the same locality, some of which forms cores to blue beryl prisms, has less octahedral substitution and a lower Fe/Mg ratio. The origin of the beryl is tentatively linked to contemporaneous volcanic activity.

KEYWORDS: beryl, Mössbauer spectroscopy, sodium, Ireland.

Introduction

BLUE beryl as a vein-filling mineral in sedimentary rocks is not widely known. It is not specifically mentioned in the review by Deer *et al.* (1986), though in recent years at least two examples have been reported (Fontan and Fransolet, 1982; Aurisicchio *et al.*, 1988, sample 1). Both examples have a high degree of substitution of Fe and Mg for Al on the octahedral site and for this reason they are referred to by Aurisicchio *et al.* (1988) as 'octahedral' beryls. In this paper we report an occurrence of blue beryl from veins cutting a Devonian conglomerate in southeast Ireland. We show it to be an 'octahedral' beryl with extreme substitution, coupled with the highest reported water content.

Field occurrence

The beryl occurs within a single northeast-southwest trending outcrop of conglomerate measuring some 50 m by 10 m on the southern slopes of Croughaun Hill (Irish grid ref. S 372100) about 10 km south of the town of Carrick on Suir. Exposure in the general vicinity is good (about 25% bare rock), yet careful searching has revealed only one other beryl occurrence, a tiny showing about 300 m north of the main outcrop.

The conglomerate contains well rounded pebbles, up to 10 cm, of vein quartz and quartzite in a gritty, quartz-rich, pale greyish-green sandy matrix. It is locally clast supported; elsewhere it

contains rare, strongly cleaved, siltstone lenses. It dips fairly steeply northeast, and its geological contacts appear to be faults. Penney (1980) mapped the conglomerate and named it the Croughaun Formation. He suggested that it belongs to the local Old Red Sandstone facies, of Upper Devonian age, which rests with an angular unconformity on Lower Palaeozoic rocks.

The beryl is most prominently developed near the eastern side of the main outcrop area. Here it forms a conspicuous blue central zone, up to 2 cm wide, in a few broad, milky-white quartz veins. It also fills narrower (mm scale) veins, in the vicinity of which it replaces the conglomerate. It is nowhere of gem quality, and larger prisms (up to 5 cm long) are commonly cracked and bent. It is bright blue in colour when fresh, but its weathered appearance is a dull bluish green. One particular vein was chlorite-rich, and brecciated, and here the beryl formed colourless prisms.

Petrography

In thin section the beryl is distinctly pleochroic from pale blue (n_e) to colourless (n_o). Its vein-filling habit includes discrete prisms and larger (2–3 cm) anhedral grains. The latter commonly contain several sub-grains in near-parallel growth. They have been slightly deformed and are cut by quartz-filled micro-fractures. Some prisms have a euhedral, colourless core whose birefringence is slightly lower than that of the blue overgrowth.

KILDOWAN MINES, KilmacThomas, Waterford, Ireland.

See also BONMAHON; KNOCKMAHON.

TMH (1868) Cu. mines. Azurite; chrysocolla;
copper; cuprite; malachite.

? = "KILDUANE", just N of Knockmahon

S. Horeton Riv 1/95. N. TANKARDSTOWN M. ~ 1 mi
N of Tankardstown: malachite on dumps in
fields nr. eng. ho.

Map: NNW $\rightarrow$ SSE

KILDUANE LODGE, Knockmahon, outcrops on
coast between SEVEN DIALS and BONEY AUGHT

LODES, between STAGE 2 TANKARDSTOWN

LODES (See ~~TANKARDSTOWN~~ ALIVE
KNOCKMATION)

KILMURRIN COVE, Annestown, Waterford, Ireland

GR, GS; 8/63 In small quarry at top of
cliff, good epidote with quartz

JIW 1998 Now collapsed into sea.

Kilmacthomas.

KNOCKMAHON, Waterford, Ireland.

(I)

See also BONMAHON ~~HEAD~~; KILDOWAN MINES;

[In BONMAHON area, E of the Mahon R. TANKARDSTOWN is to E]

Lud: Chalcopryite in Cu mines which also
carried silver-lead.

TMH (1868) Cu mine: Actinolite; blende; bornite;
chrysocolla; copper; epidote;
malachite; "red sulphite;" serpentine;
chalcopryite; (= chalcocite)

GR, GS, 8/63 Cliffs near Knockmahon: - malachite

JIW (1996-8) Langite very fine in adit with
flooded entrance. Tankardstown mine sett

Beryl Taylor in Betterton et al, 1996. UKJM 17, 17-18. MA 97M/
Anafase - inky blue xls in a quartz pebble 2273
from beach near KNOCKMANON

RSWB & JIW (1998) ^{5, 10} Venn outcrop at foot of
cliff gave chalcopryite in quartz
altering to malachite (chem.); cuprite
(massive, thinish veinlets), native
copper (traces), böellakite (FTIR)
excellent long blades, individual
in sheaves. In ~~STAGSIP~~ ^{LODE} ~~tankardstown~~ area.

Other outcrops ad lib have jarosite (FTIR)
gypsum, vg langite, vg brochantite, vg conchellite,
erythrite; good lavendulan (FTIR) ^{SEVEN DIALS}
_{LODE}

Knockmahon, Co. Waterford (card 2)

GR & family, Aug. 1991.

Cuan Cove (X): a small side-road so signposted leads steeply down to a small cove with a boat-launching ramp. At E end, cliffs with prominent Cu staining, especially at mouth of a sea-level adit (photo) with daylight from a shaft to surface some way in. Collected green crusts from roof a metre or less inside adit:

91-36. Deep-green crusts on porphyritic rock or on 4-mm quartz layer on rock; mostly 0.1 mm thick subtranslucent, but in places up to 0.5 mm botryoidal opaque. IR K960, K973 = UNIDENT. (hydrous silicate? but not chrysocolla?); x8880F = ATACAMITE + PARATACAMITE + BOTALLACKITE.

On part of a specimen, the botryoids are coated with a paler, duller green layer (too thin to sample for IR).

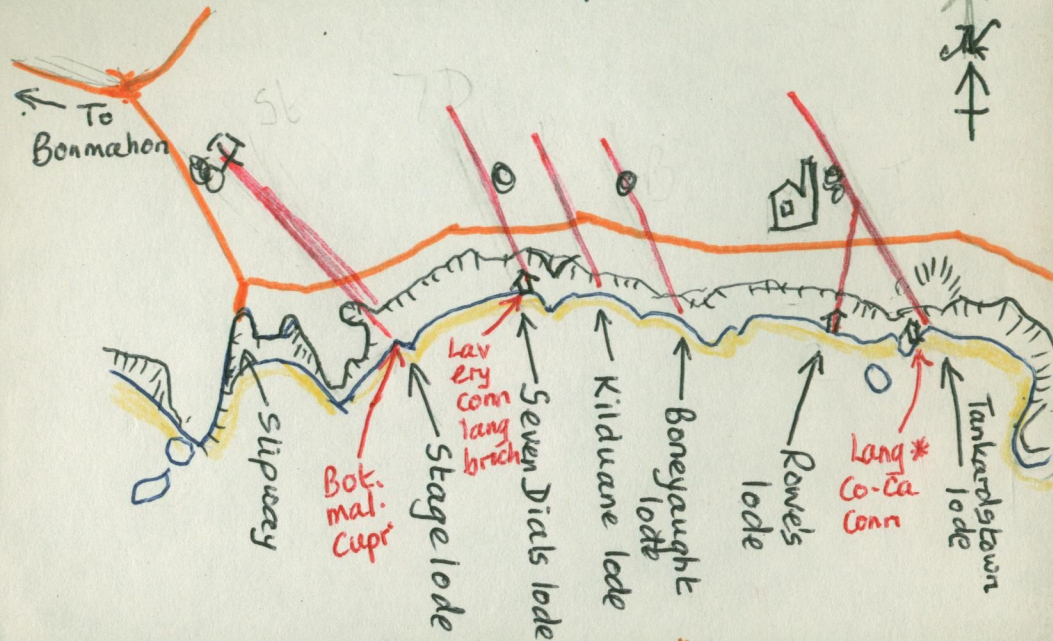
? - CLINOATAE.

S. Moreton, Priv. 1/95 O'cast behind TANK. eng. ho.
has atac + chalcant on walls. Minor erythrite
on small adjacent tip.

JIW Coll 1997 Brechantite 1mm thick compact
fibr layer (FTIR 4/98) - TANKARDSTOWN M.

JIW Coll 4/200 Found shallow angle quartz
vein (nr Kilduane Lode?) near beach level,
or pod
Alpine-type - vughs have "rock xl" with well
xld clinochlore, dolomite (IR), minor orthoclase (IR)
[possibly source of ^(IR) B. Taylor's anatase?]

KNOCKMAHON, Waterford, Ireland (III)



KNOCKMAHON, Waterford, Irel. (IV)

RSWB & JIW, J. Russ Soc (2001) 7 [2], 96.

"Botallackite, including good crystals from Irel'd"

From Stage lode at X 444 986 at beach level,
good xls botall, w. mal, cuprite in vein qtz.
(FTIR) traces conellite & nat copper

TALLOW, Waterford, Ireland

Cole (1922) 87 (Fe). The iron ore of Araglin, Cork [qv] probably came from Tallow, ca 10 ml SE of Araglin, on the Bride. Limonite (Boate, p 127 - "Ireland's Naturall History (1652)).

TANKARDSTOWN MINE, Knockmahon, Waterford,
Ireland

See ~~also~~ KNOCKMAHON, (BUNMAHON)

~~FIELD~~,

Tankkardston M
JW 4/02

Engine to
shaft

Proposed level

7 yd

Road

4 yd

"waterfall"

stope

Flooding shaft

Pigeon
level

