

The sources of flint and chert in northern Britain

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The increasing interest shown by archaeologists in recent years in the sources of flint and chert in Scotland and northern England has resulted in collaboration by the authors in the present paper. It is an attempt to list all the known occurrences of flint and chert in Northern Britain, the information being abstracted chiefly from the publications of the Geological Survey of Great Britain, with the addition of other well known works. It is hoped to have covered all possible sources of flint and chert potentially exploitable by prehistoric man.

FLINT

There are no known sources of flint nodules *in situ* in Scotland, but several deposits of flint gravels are well known. These are most abundant in the Buchan district of Aberdeenshire (Gemmell & Kesel 1979) where prehistoric mining in the form of shallow pits, may have taken place (Graham Smith 1919, 33-59, Childe 1946, 46-7). There are other sources in the north, notably in Orkney and north Caithness as well as in the east in Berwickshire and Fife. In the west sources have been recorded mainly on Mull but they are also present on some of the other Hebridean islands. Mainland sources in the west exist in Ardnamurchan, Morvern, and Ayrshire.

In addition to these mapped sources flint is plentiful on many beaches. There are large undersea deposits off the east coast from which, together with the northern Irish deposits, much of this flint may be derived. It has been suggested that the wide transport and deposition of beach pebble flint is a function of drifting seaweed which carries the nodules caught in its roots (Piggott & Powell 1949, 160). Flint may still be collected today from beaches although it is possible that an amount of the modern material is due to the dumping of flint ballast by ships.

CHERT

Chert is more abundant in Scotland than flint and, unlike flint, not all of the sources are derived pebble sources. Consequently, while in some cases the extraction of flint or chert would require similar techniques this is not always so. It will be noted that chert is most abundant in the Borders although there are deposits along the west coast on both islands and mainland and also in Orkney and the Elgin area. Similar to flint, chert may also be collected from both beaches and riverine deposits.

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DISCUSSION

From the archaeological point of view all of these sources are potentially both extractable and useable by prehistoric man and they play an important role in a consideration of many different aspects of prehistoric culture.

Although on a general scale sources are more abundant than previously thought there are areas with no local supplies. In these cases man had either to rely upon a transfer system to procure his raw materials from a distance or to develop a technology which allowed for the use of other stones or materials as efficient tools.

In an area where there were local supplies of flint, whether these were mined sources as at Buchan or beach sources the material was always collected in the form of pebbles. These vary greatly in size and quality both between sources and within a source and both factors limit the choice of pieces. Quality also affects the appropriate flaking techniques. Where chert was used even if it was not as pebbles it generally is not of such good quality as the flint. It may therefore be seen that in order to make some of the larger items found in prehistory, such as the flaked flint knives often found in chambered tombs (Henshall 1963; 1972 *passim*) the craftsman would have to use imported stone, or possibly carefully stored large pebble nodules. In either case careful specialised techniques may be expected, not only to render the task possible but also to use the rarer nodule to its full advantage with less chance of accident and waste. The implications of this for the status of some pieces have not, as yet, been fully considered.

In contrast to the south of England with its plentiful supplies of large, good quality, flint nodules, the stone knapper in the north had to cope with totally different conditions. In many cases stones other than flint or chert were flaked (Lacaille 1940; Ritchie 1968) or totally different mediums like bone were used. Technology developed locally, adapting to the available raw materials and using specialised techniques such as heat pretreatment to exploit them more efficiently (Crabtree & Butler 1964; Mandeville 1973). Tool types and frequencies are obviously affected by this and so a general picture can be constructed of diversified industries. The assemblages are not only chronologically and culturally determined but aspects such as techniques and possible trading patterns, all largely a function of local resources, also play a part.

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NOTES ON THE ABSTRACTS

- (i) Localities are listed alphabetically, retaining the names of the Scottish counties prior to Regionalisation. Scottish localities are followed by those in Northern England.
- (ii) Recent beach sources are not included.
- (iii) 6-figure grid references have been given except where an area is concerned in which case a 4-figure reference has been quoted. Where larger regions are involved no reference at all has been given.
- (iv) The references from Heddle 1901 have been included owing to the importance of this work although the localities are vague.
- (v) Each locality is numbered, both on the abstracts and on the maps.

THE SOURCES OF FLINT (fig 1)

SCOTLAND

Aberdeenshire

- 1 BODDAM DEN NK 1141
Weathered flint pebbles in a deposit 800 m × 400 m; fields to west covered with pebbles, 80–90% are flint, spherical 90–125 mm diameter, remainder quartzite.
Ferguson 1874, 514–18; Grant Wilson 1886, 20; Anderson 1943, 19–20; Gemmell & Kesel 1979, 71.
- 2 DELGATY NJ 7550
A 400 m square patch of gravels, some rounded pebbles of flint 90–125 mm diameter, remainder quartzite.
Anderson 1943, 18.
- 3 FYVIE NJ 7637
Gravels with some rounded flint pebbles 90–125 mm diameter, remainder quartzite.
Anderson 1945, 20.
- 4 HATTON, WHITEFIELD FARM NK 034319
A gravel pit with some flint pebbles.
Anderson 1943, 19.
- 5 MORESEAT NK 054405
Flint occurs on the surface of the ground.
Heddle 1901, 80.
- 6 MOUNT PLEASANT NK 085427
From Mount Pleasant to the Corse of Balloch there are similar deposits to those at Boddam Den. These also occur under peat on Smallburn Hill.
Ferguson 1874, 514–518; Grant Wilson 1886, 20; Anderson 1943, 19–20.
- 7 WINDYHILLS NJ 8040
An area 800 m² of quartzite gravels with a sandy matrix under 350 mm of peat, contains flint pebbles 50–90 mm diameter: easily dug, large reserves.
Anderson 1943, 19; Gemmell & Kesel 1979, 70.

*Argyll**Mainland*

- 8 CAMAS FEARNA NM 5761
Remanié chalk flint in Tertiary coal.
Richey & Thomas 1930, 103, 105–6
- 9 MORVERN
Silicified chalk at Beinn Iadain.
Lee & Bailey 1925, 115–16.

Islands

MULL

- 10 ARDTUN NM 3922
Waterworn chalk flints in gravels associated with the Ardtun Leaf Beds.
Bailey *et al* 1924, 62; Bailey & Anderson 1925, 54 and 58.
- 11 CARSAIG NM 5321
Remanié chalk, lenticular bed of white flints in the stream above Feorlin Cottage; sandstones with flints in the gully above Aird Ghlas.
Bailey *et al* 1924, 57; Lee & Bailey 1925, 119–20.
- 12 CRAIGNURE NM 7137
Flint conglomerate; also sandstone with occasional flint pebbles.
Bailey *et al* 1924, 58.

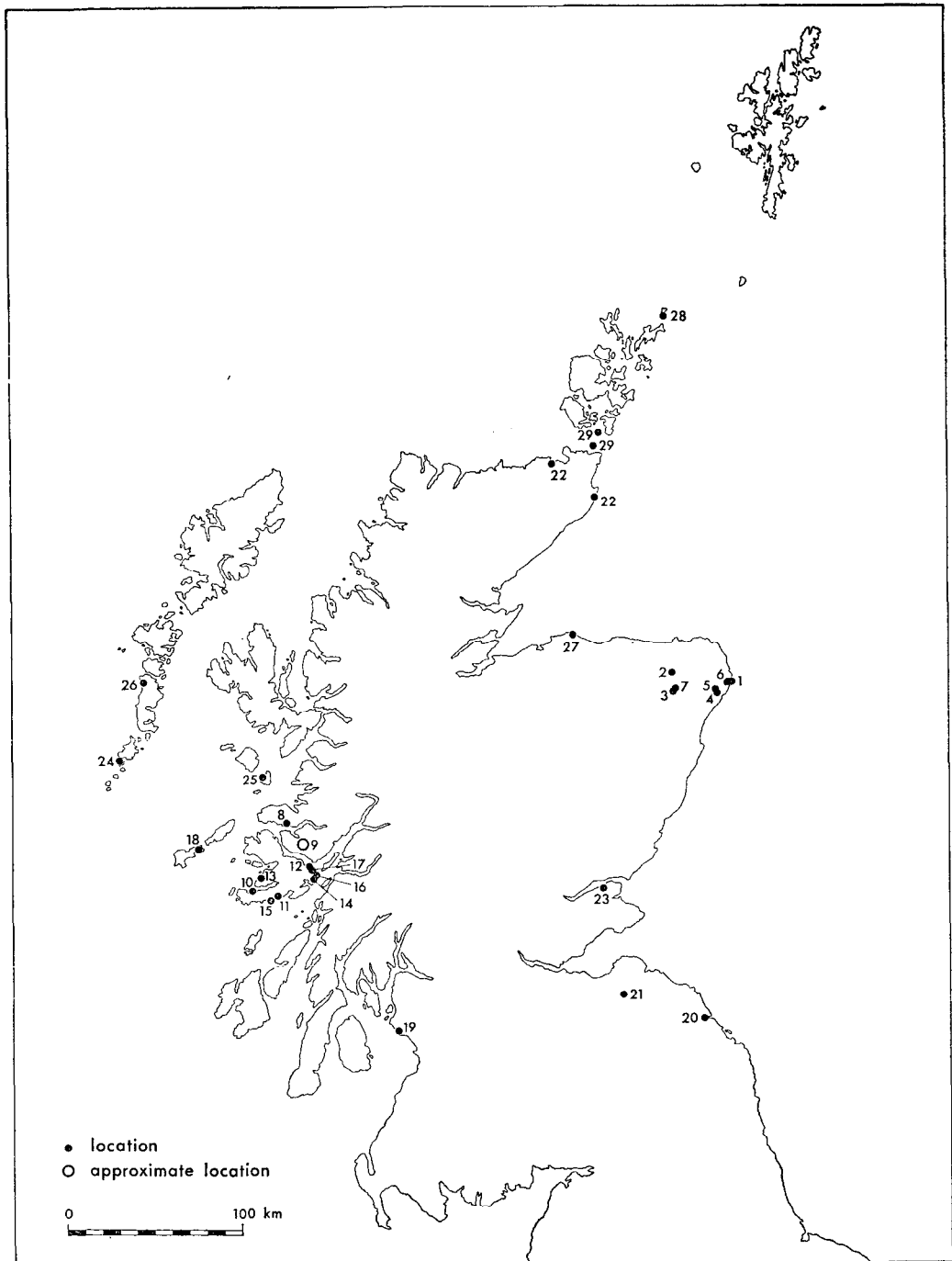


FIG 1 Sources of flint numbered as in the catalogue

- 13 GRIBUN NM 4534
Silicified chalk.
Bailey *et al* 1924, 56; Lee & Bailey 1925, 121.
- 14 LOCH DON NM 7330
Tertiary mudstone with a few flints overlying a flint conglomerate near Auchnacraig.
Lee & Bailey 1925, 118.
- 15 MALCOLM'S POINT NM 4918
Flint pebbles and a conglomerate of rolled flint pebbles up to 100–150 mm in diameter; near Nun's Pass flint conglomerate and a layer of flint pebbles near the base of sandstone.
Peach *et al* 1909, 80; Bailey *et al* 1924, 63–64
- 16 PORT DONAIN PENINSULA NM 7430
Flint conglomerate; also mudstone with fragments of flint 800 m to east of Auchnacraig Farm.
Bailey *et al* 1924, 58.
- 17 TOROSAY CASTLE NM 7235
Near Torosay Castle to the west of Duart Bay, pale grey hard siliceous limestone with a few flints; also a band of white flints overlain by tertiary conglomerate with water rounded flint pebbles.
Lee & Bailey 1925, 120.
- TIREE
- 18 TIREE
All over the eastern end of the island a large number of chalk flints, with fragments of chalk, in blown sand and loose stones.
Provan 1916, 130.
- Ayrshire*
- 19 KILWINNING NS 3043
The river Garnock exposes raised beach with a shell bed containing flints.
Richey *et al* 1930, 17–18.
- Berwickshire*
- 20 BEDSHIEL KAMES NT 9853
Chalk flints in the boulder clay exposed in the banks of the Tweed to the west of Berwick.
Goodchild 1898, 312.
- 21 LAMMERLAW NT 5162
Grey and black flints with shales exposed in the Lammerlaw Burn.
Clough *et al* 1910, 14.
- Caithness*
- 22 CAITHNESS
A shelly till containing chalk flints; exposed for example in Thurso River, Dunbeath Water, Forso Water, Wick Bay, and Scrabster Harbour.
Crampton & Carruthers 1914, 125–6.
- Fife*
- 23 WORMIT NO 4026
From Wormit to St. Fort blue grey flint occurs in alluvial deposits.
Coles 1971, 294.
- Inverness-shire*
- Islands*
- BARRA
- 24 VATERSAY NL 6397
Boulders of chalk flint found in drift exposures at the north-east end of the island, rare but large.
Jehu & Craig 1923, 440.

- EIGG
 25 EIGG NM 4588
 White calcareous sandstone containing chalk flints to the west of Clack Alasdair at the west end of Laig Bay.
 Harker 1908, 34.
- SOUTH UIST
 26 SKIPORT NF 8238
 One boulder of chalk flint recorded in drift.
 Jehu & Craig 1925, 639.
- Moray*
 27 LOSSIEMOUTH NJ 2369
 Gravel with a few flint pebbles exposed in a pit 1,200 m south of Lossiemouth at Sunbank.
 Anderson 1943, 22.
- Orkney*
 28 NORTH RONALDSAY
 Chalk flints similar to those from the drift of Banffshire and Aberdeenshire in boulder clay drift on the south part of North Ronaldsay.
 Wilson *et al* 1935, 105.
- 29 SWONA AND STROMA ND 3884 ND 3577
 Flint in boulder clay over the islands, rounded pebbles common.
 Wilson *et al* 1935, 123.

THE SOURCES OF CHERT (fig 2)

SCOTLAND

- Aberdeenshire*
 1 BRAERIACH NH 9500
 Banded yellow and brown chert.
 Heddle 1901, 81.
- Argyll*
Mainland
 2 KILCHRENAN NN 0322
 Bands of chert in thin limestone zones.
 Kynaston & Hill 1908, 30.
- 3 MORVERN
 Cherty limestone exposed.
 Read *et al* 1925, 68.
- 4 STRONTIAN NM 8161
 Green chert at Strontian and Fee Donald.
 Heddle 1901, 81.
- 5 TOWARD NM 1367
 At Toward point on the coast and in beds immediately inland reddish nodules of chert in the Toward west limestone and Toward east limestone.
 Gunn *et al* 1897, 93.
- Ayrshire*
 6 BALLANTRAE NX 0882
 Lenticular bands of green chert in Lower Silurian formation.
 Callander 1927, 326.

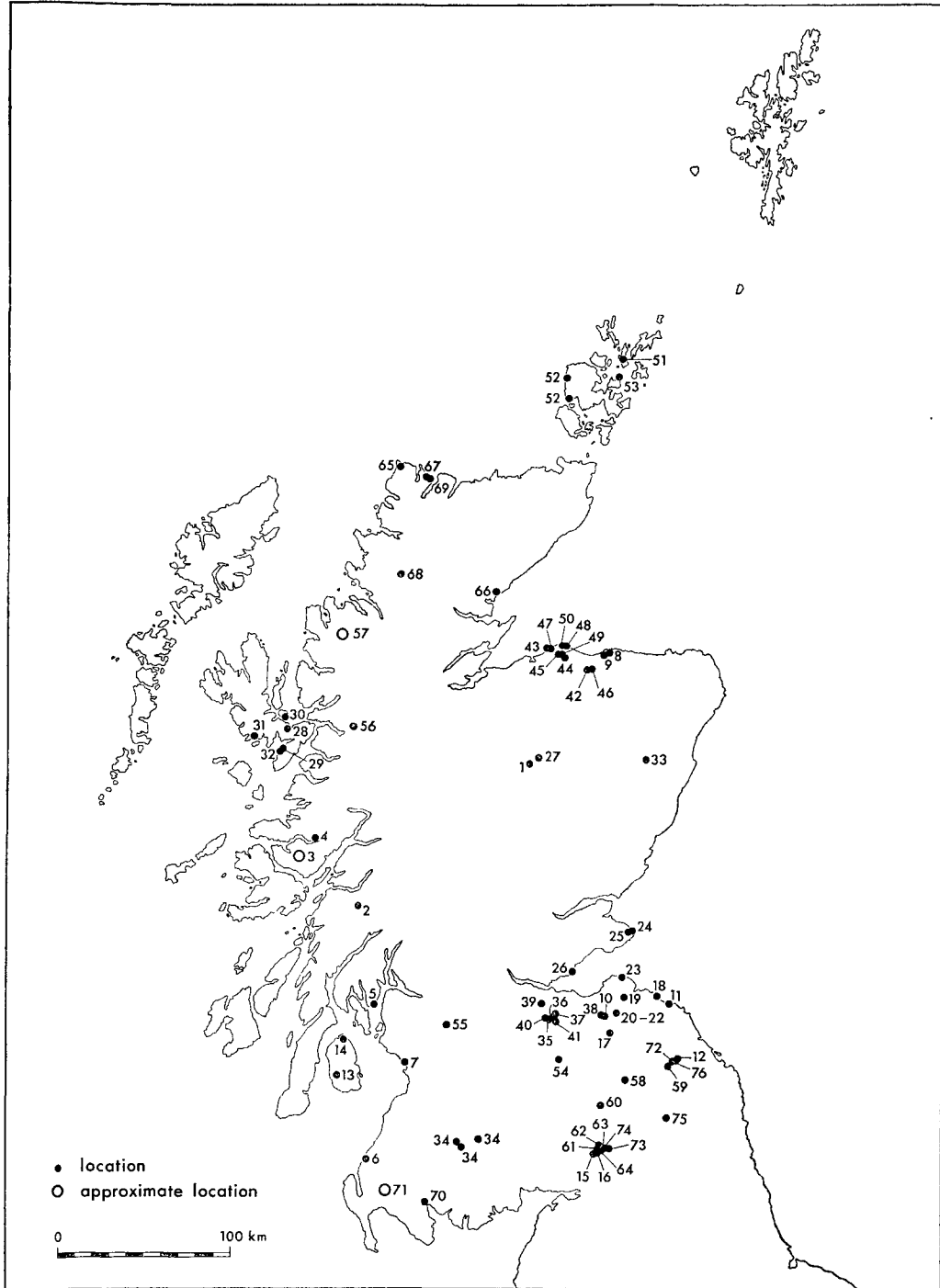


FIG 2 Sources of chert numbered as in the catalogue

- 7 IRVING
Lenticular bands of green chert in Lower Silurian formation.
Callander 1927, 326.
- Banffshire*
- 8 BINN HILL NJ 4864
From Binn Hill to Lhanbryde, boulder clay deposits with boulders of chert and cherty limestone.
Peacock *et al* 1968, 96.
- 9 DRYBRIDGE NJ 4362
Boulders of chert in a sandy till.
Peacock *et al* 1968, 97.
- Berwickshire*
- 10 HEADSHAW HILL NT 4856
Radiolarian cherts, with black shales, lying as debris on the slopes of Headshaw Hill.
Clough *et al* 1910, 15.
- 11 SICCAR POINT NT 8170
Chert lenticules in sandstone exposed on the coast between Siccar Point and Cove Harbour.
Clough *et al* 1910, 31.
- 12 TWEED
Thin beds of limestone and chert exposed around Coldstream.
Gunn & Clough 1895, 171.
- Bute*
- ARRAN ISLAND
- 13 BALLYMICHAEL GLEN NR 9331
Limestone with irregular lumps of chert exposed and also lying as blocks on the surface; also near Dereneneach and in a cave on Ard Bheinn blocks of the same cherty limestone on the surface.
Gunn *et al* 1903, 77.
- 14 GLEN SANNOX NS 0045
Black cherts in beds exposed at the north end of Glen Sannox, also grey cherts.
Gunn *et al* 1903, 4 and 18.
- Dumfriesshire*
- 15 GLENCARTHOLM NY 3779
Black chert in beds exposed in the river Esk, Haw Gill and Muir Burn.
Lumsden *et al* 1967, 108.
- 16 HARELAWHILL NY 4378
Patches of dark grey chert in limestone, also black chert on an island in the Liddel water near Penton Bridge.
Lunsden *et al* 1967, 127.
- East Lothian*
- 17 CHANNELKIRK NT 483553
Chert conglomerate exposed in quarries at New Channelkirk farmhouse.
Clough *et al* 1910, 16.
- 18 CHAPEL POINT NT 738758
Small, dark grey chert lenticules in limestone on the coast near Chapel Point and Barns Ness.
Clough *et al* 1910, 137.
- 19 GARVALD NT 5870
Radiolarian cherts with black shales exposed in stream bank to the south of Garvald.
Clough *et al* 1910, 17.
- 20 LAMMERLAW NT 5261
Radiolarian cherts and black shales at the head of the East Burn.
Clough *et al* 1910, 16.

- 21 LAMMERLAW NT 5363
Cherts in Moffat Mudstones 800 m south south east of the Castles.
Clough *et al* 1910, 17.
- 22 RED SCAR RIG NT 5159
Grey cherts with black shales at the Friars Nose.
Clough *et al* 1910, 14.
- 23 RHODES
Irregular patches of chert at the mouth of the glen to the west of Rhodes, in limestone.
Clough *et al* 1910, 67.
- Fife*
- 24 CAMBO SANDS NO 6012
Black irregular masses of chert in limestone around the Humlie.
Forsyth & Chisholm 1977, 8.
- 25 KINGSBARNs NO 5912
Brown and yellow chert in Lower Carboniferous limestone.
Heddle 1901, 82.
- 26 PETTYCUR NT 2686
Interstices of chert in basaltic pillow lavas exposed on the shore from Pettycur to Seafield.
Geikie 1900, 65.
- Inverness-shire*
- Mainland*
- 27 CAIRNGORM NJ 0004
Greenish yellow chert occurs.
Heddle 1901, 81.
- Islands*
- SKYE
- 28 BROADFORD
Abundant small black cherts in Durness Dolomite and Limestone; limestone with many small black chert nodules e.g. on Ben Suardel and in Strath Suardel; nodules 15–30 mm thick.
Peach *et al* 1907, 424; Peach *et al* 1910, 71.
- 29 ORD NG 6212
Coastal and inland exposures; lumps and bands of chert in the Eilean Dubh group of Dolomites and limestones; up to 0.6–0.9 m thick, eg the north bank of the Ord River; nodules 15–50 mm thick.
Peach *et al* 1907, 422–3; Peach *et al* 1910, 69–70.
- 30 SCALPAY NG 6127
Dark chert nodules exposed in sandstone in the valley of the Allt Stapaig.
Peach *et al* 1910, 132–3.
- 31 SOUND OF SOAY
Chert nodules in sandstone and in the gritty shale lying above it on the north coast of the Sound of Soay.
Clough & Harker 1904, 10 and 34.
- 32 SRÒN DARAICH NG 6112
Siliceous breccia with pieces of banded chert and white quartzite.
Peach *et al* 1910, 80.
- Kincardineshire*
- 33 HILL OF FARE
A few veins of green and red chert.
Heddle 1901, 81.

Kirkcudbrightshire

- 34 KIRKCUDBRIGHTSHIRE
Beds of chert in the Lead Hills Black Shale Group, occurs Shinnelhead to the Border, also Stroanpatrick to High Bridge of Ken, also Deugh above Dulshanagan.
Etheridge *et al* 1877, 17-18.
- Midlothian*
- 35 CAMILTY HILL NT 0459
Blue green chert.
Heddle 1901, 81.
- 36 COCKBURNHILL NT 1464
Chert in upper sandstone conglomerate near Cockburnhill, exposed in local streams.
Mitchell & Mykura 1962, 40.
- 37 CURRIE NT 1867
Green chert pebbles exposed in the Water of Leith at Currie, in the Kinleith Burn at Braeburn and near Lennox Tower in the Water of Leith.
Mitchell & Mykura 1962, 39.
- 38 FALA NT 4360
Small fragments of chert in grits in the valley to the south-east of Fala.
Clough *et al* 1910, 28.
- 39 KIRKTON
From Kirkton to Linlithgow limestone, thickness 1.8-3.9 m with flint-like chert nodules, exposed in quarries.
Geikie *et al* 1879, 19-20.
- 40 LINHOUSE WATER NT 0662
Black chert in cementstone exposed in the Linhouse Water.
Mitchell & Mykura 1962, 41.
- 41 LOGAN BURN NT 1660
Chert pebbles in a conglomerate exposed in the headwaters of the Logan Burn.
Mitchell & Mykura 1962, 31.
- Moray*
- 42 CLACKMARRAS NJ 2458
Occurrence of blue cherty rock as glacial erratics.
Hinxman & Grant Wilson 1902, 66.
- 43 CUMMINGSTOWN NJ 1369
Bouldery till exposed in railway cuttings, quarries, contains ferruginous cherts.
Peacock *et al* 1968, 92.
- 44 ELGIN NJ 214609
Cornstone beds containing sandy cherty limestone exposed in a quarry at New Elgin.
Peacock *et al* 1968, 5, 45 & 51
- 45 FINDRASSIE NJ 207656
Lochside, chert in limestone.
Peacock *et al* 1968, 69.
- 46 FOCHABERS NJ 3459
Occurrence of blue cherty rock as glacial erratics.
Hinxman & Grant Wilson 1902, 66.
- 47 INVERUGIE NJ 1568
Cherty rock exposed (see no 48).
Peacock *et al* 1968, 54 & 69.
- 48 LOSSIEMOUTH NJ 235713
A chert bed of Triassic age, known as the Cherty Rock, is well exposed at Lossiemouth and the surrounding district.
Peacock *et al* 1968, 56 and 71.

- 49 SPYNE NJ 231659
Chert in limestone exposed at the Old Palace of Spynie and at Scarffbanks to the north-east, a dark chert deposit about 2.4 m deep.
Peacock *et al* 1968, 69-71.
- 50 STOTFIELD NJ 2270
Cherty limestone exposed.
Read *et al* 1925, 68.
- Orkney*
- 51 EDAY
Chert pebbles in sandstone all over Eday, for example exposed on Eday Sound between Spancy Geo and Strang Quoy.
Wilson *et al* 1935, 102.
- 52 MAINLAND eg HY 2407
Chert nodules in Stromness Flagstone on the west coast of Mainland, for example on the east side of the Noust of Nethertown.
Wilson *et al* 1935, 16; Mykura 1976, 74.
- 53 SHAPINSAY
Chert pebbles in boulder clay on the north part of Shapinsay.
Wilson *et al* 1935, 113.
- Peeblesshire*
- 54 MELDON BRIDGE NT 2040
Chert nodules have been collected by one of the authors (CWJ) from the confluence of the Meldon Burn with the Lyne Water.
- Renfrewshire*
- 55 CATHKIN HILLS
Green chert occurs.
Heddle 1901, 81.
- Ross & Cromarty*
- 56 BEN MORE
Chert pebbles in Torridon Sandstone.
Peach *et al* 1907, 279-280.
- 57 STRATH LINGARD
Chert pebbles in Torridon Sandstone.
Peach *et al* 1907, 279-280.
- Roxburghshire*
- 58 BEDRULE NT 5917
Red chert in limestone.
Heddle 1901, 81.
- 59 HADDEN NT 7836
Red chert in limestone.
Heddle 1901, 81.
- 60 HARDEN BURN NT 4416
Bed of black chert 0.9 m thick crops out north of Harden Burn and east of the Queen of Fairies Hole; also on the west spurs of Hurklewinter Knowe.
Lumsden *et al* 1967, 101.
- 61 KERSHOPE
In Kershope Burn, exposure of grey chert beds in shale, irregular patches of chert outcrop on the Kershope Burn between the Dykecrofts and Castle Hill faults.
Clough 1889, 10; Lumsden *et al* 1967, 100.

- 62 LARRISTON FELLS
A band of black chert 0.9 m thick in sandstone on the Larriston Fells.
Lumsden *et al* 1967, 94.
- 63 SCOTCH KNOWE NY 5688
Blocks of chert found scattered on the surface around the Kershope Burn, none *in situ*.
Lumsden *et al* 1967, 115.
- 64 TWEEDEN BURN NY 5186
Black chert exposed.
Lumsden *et al* 1967, 115.
- Sutherland*
- 65 CAPE WRATH NC 2574
Chert pebbles in Torridon sandstone.
Peach *et al* 1907, 279-280.
- 66 DUNROBIN NC 8400
Cherty limestone exposed in the Golspie Burn around Dunrobin Castle.
Read *et al* 1925, 67-68; Peacock *et al* 1968, 73.
- 67 DURNESS NC 3868
Dolomites and limestones with cherts, a shore exposure 400 m east of Eilean Dubh in Balnashiel Bay.
Peach *et al* 1907, 391.
- 68 LOCH AILSH
Chert present in the dolomites of the Eilean Dubh group.
Read *et al* 1926, 96.
- 69 SMOO CAVE NC 4167
White chert nodules in Cambrian dolomites on the west side of the Geo.
Heddle 1901, 81; Peach *et al* 1907, 391.
- Wigtownshire*
- 70 WIGTOWN
Lead Hills Black Shale group with beds of chert, fairly general distribution.
Geikie & Irvine 1873, 17-18; Etheridge *et al* 1877, 17-18.
- 71 WIGTOWNSHIRE (AND ADJACENT AREAS OF KIRKCUDBRIGHTSHIRE)
Bands of white cherts with grey flinty flags in the Lead Hills Black Shale group occur to the north of Wigtown, large expanses exposed in a few places.
Irvine 1878, 15-16.

NORTHERN ENGLAND

Northumberland

- 72 CARHAM NT 7938
In Carham Burn, chert bands with irregular limestone bands and many lumps of pink and grey chert, in limestone all around Carham.
Gunn & Clough 1895, 22; Lindsay Scott 1951, 41.
- 73 CRANECLEUGH NY 6685
Dark grey chert bands in limestone exposures.
Clough 1889, 31.
- 74 KIELDER NY 5986
Akenshaw Burn and Lewis Burn, limestone boulders with chert in drift deposits, dark grey and brown chert bands; around the Lewis Burn bright red chert in drift deposits.
Clough 1889, 31.

- 75 REDESDALE
Chert in rough surfaced flaggy sandstones, the lower freestones.
Clough 1889, 4.
- 76 WARK NT 824387
Chert limestone in drift exposed in a quarry pit in the Kaim on which the castle stands.
Gunn & Clough 1895, 77.

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