

*New prospecting methods and new discoveries*

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Gold is known to occur widely in Britain in very small amounts and has been worked from a few areas, notably in southern and northern Scotland, near Dogellau in Wales and in south-west England. In the eighteen sixties, following the excitement of the Californian gold rush, northern Scotland experienced its own gold rush, initiated by the discovery of alluvial gold in the Helmsdale River by a miner recently returned from Australia. A village of tents and huts sprang up and gold licences were issued by the Estate of the Duke of Sutherland on whose property the gold-bearing streams occurred. The alluvial workings were, however, short-lived and the bedrock source not identified. Only a relatively small amount of gold is believed to have been extracted. About 90 per cent of Britain's recorded gold production of nearly 4 tonnes since 1861 comes from the Dolgellau area of North Wales. Here, several underground mines worked gold in the nineteenth century and the two largest and most famous mines, Clogau – St Davids and Gwynfynydd, have continued to produce small amounts intermittently until the present day. Gwynfynydd currently operates as a mining and tourist attraction with the gold extracted

# Gold in Britain



*Adit at Cononish mine.*

used in jewellery. Welsh gold is famous for being used in the wedding rings of the royal family, while alluvial gold from the Leadhills area of southern Scotland was used in the Scottish Regalia. All of these old gold workings were either in streams, where grains of gold were found in the stream gravels, or veins (lodes), usually of white quartz with other minerals.

gold and, assisted by BGS regional-scale geochemical, geological and geophysical datasets, made new discoveries of gold, some in areas where gold was never thought or known to occur. Companies have also been active in applying new concepts to the search for gold in Britain, and BGS base-line data have been used extensively by them as a starting point. Their exploration has led to the discovery of two new economic deposits, near Omagh in Northern Ireland and at Cononish in the south-west Highlands of Scotland. In both localities planning permission has been granted to mine.

***“... companies have also been active in applying new concepts to the search for gold in Britain, and BGS base-line data have been used extensively by them as a starting point ...”***

**Some recent discoveries in Britain**

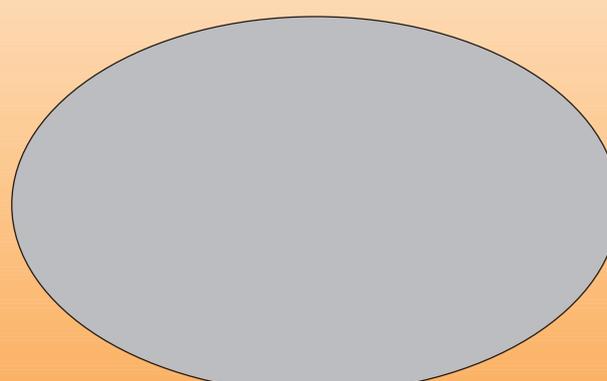
*Cononish and the south-west Highlands*

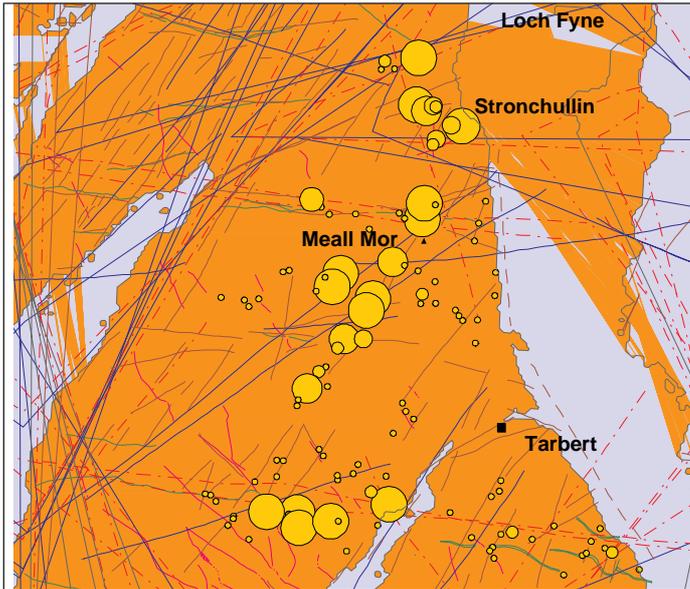
The Cononish gold-silver deposit is situated in the historic Tyndrum lead mining district of the Scottish Highlands. Modern precious metal exploration, involving the use of heavy-mineral concentrates led to the discovery of the deposit, which comprises a steeply dipping quartz vein structure up to 6 m wide cutting

During the last thirty years there have been great scientific advances in the understanding of how gold deposits are formed, and this has led to the discovery of new deposits. In Britain, the DTI-sponsored BGS Minerals Programme has applied this new geological understanding to the search for

*The village at Baile an Or during the Kildonan gold rush.*

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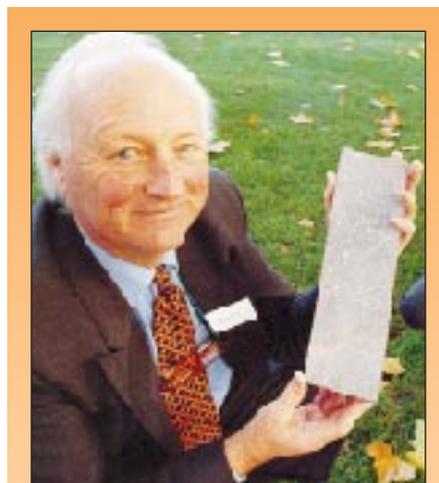
*Distribution of gold in panned heavy-mineral concentrates, South Knapdale area, Scotland.*

Precambrian metasedimentary rocks of the Dalradian Supergroup. The auriferous structure can be traced along strike for over 1 km and through a vertical distance of over 250 m. An extensive exploration programme involving over 3000 m of drilling and a 1 km long exploratory adit has defined mineable reserves of 440 000 tonnes grading 11.3 grams per tonne gold and 60.1 grams per tonne of silver. The operator, Caledonia Mining Corporation, has started underground mine development.

Since the early 1980s, several other important new prospects have been found in the Dalradian rocks of the central and south-west Highlands. There are many recorded occurrences of gold in bedrock and alluvium in the area to the south of Loch Tay, between Aberfeldy and Comrie. Follow-up of anomalous values of gold in panned heavy-mineral concentrates reported by the BGS led to the discovery in the late 1980s of gold-bearing veins at Calliachar Burn, 4 km south-west of Aberfeldy, from which a small amount of gold has been extracted. More recent studies by the BGS, based on a mesothermal gold mineralisation model and using integrated dataset analysis, have drawn attention to the potential for gold in the Dalradian metasediments of the Knapdale area. Gold has been found in panned heavy-mineral concentrates and in veins at Cruach Mheadonach, Castleton and Stronchullin.

#### *Crediton Trough*

In this area the BGS discovered gold in streams associated with Permian rocks. Subsequent rock sampling showed the gold to be commonly, but not uniformly, associated with alkaline basalt volcanic rocks and sedimentary breccias of Permian age. The discovery resulted from the application of new ideas concerning the transport and deposition of gold in rocks of this age, developed during work in South Devon for the DTI-sponsored BGS Minerals Programme. Following the publication of the BGS's discoveries, a



*Photo: Tim Cuff  
Jeremy Metcalfe, Chairman of Crediton Minerals plc, holding gold-bearing core from Permo-Triassic basaltic rocks of the Crediton Trough.*

gold licence was obtained by Crediton Minerals plc, a subsidiary of the Dublin-based company MinMet plc, to carry out further exploration work. The company has drilled one borehole that intersected buried gold-bearing rocks and is now engaged on a further programme of drilling to find out more about the extent of the mineralisation.

***“... although Britain has a long history of mining, there are still hidden deposits to be found and technological advances will assist greatly in their discovery ...”***

#### *Southern Uplands, Scotland*

A regional assessment of the potential for gold mineralisation in the Southern Uplands was carried out by the BGS Minerals Programme using advanced computer-based techniques for data integration and evaluation of multiple datasets. The conjunction of selected geophysical features, satellite lineations, regional geochemical anomalies and the location of known gold occurrences was used to identify prospective areas. Follow-up work in some of these areas revealed new evidence of gold mineralisation, suggesting strongly that the features used in the analysis were correct.

#### *Shetland*

Recent work by the BGS in collaboration with Shetland Islands Council has revealed indications of gold mineralisation in the islands, notably in the Muness area of Unst where gold occurs within a pyritic phyllite horizon 2–12 m wide. Other indications of gold mineralisation in the islands occur in Dalradian rocks of similar age to gold occurrences in the central Highlands of Scotland that have attracted considerable interest during the last 20 years. Further exploration of these rocks may well lead to the discovery of prospects with economic potential.

#### *Conclusions*

These discoveries all illustrate well the fact that although Britain has a long history of mining, there are still hidden deposits to be found and technological advances will assist greatly in their discovery.