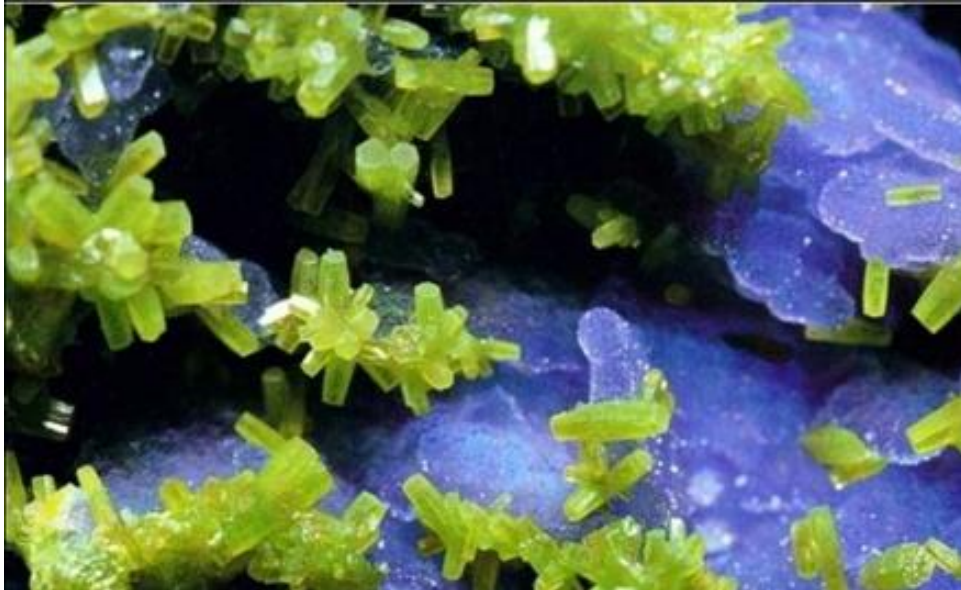


The Russell Society Newsletter



No. 78
March 2021

The BGS “Wilson Collection” of geological materials from the Wanlockhead-Leadhills mining field, southern Scotland

Graham Tulloch, Phil Stone, Beverly Bergman and Michael Togher

The British Geological Survey (BGS) holds many specimen collections, derived from disparate sources. Many of the collections were made during mapping surveys carried out by BGS staff over the organisation’s 185-year history, with others being donated by eminent professional geologists, academics or amateur collectors. Generally, the donations have good documentation confirming where the material was found, when and by whom. Unfortunately, some do not, and one such was the “Wilson Collection”, for which even the identity of the eponymous Wilson was uncertain.

The collection had arrived at BGS in the 1950s and comprises just over 800 specimens, mostly derived from the mineral veins of the Wanlockhead-Leadhills district, which are contained in a variety of glass containers: laboratory tubing and test tubes, second-hand confectioners’ tubes, and a variety of small bottles, some new but many recycled. Some specimens are labelled with mineral, mine and vein names, together with a date of collection, but for other specimens less data are recorded and inevitably some specimens have missing or illegibly damaged labels.

To try to gain a better understanding of this collection's origins, a short article in *The Edinburgh Geologist* (Tulloch & Togher 2020) included an appeal for more information. The appeal was quickly answered. Some of the confectioners' glass tubes were illustrated in the *Edinburgh Geologist* article (Figure 1) and proved to be a close match to an item in a collection which had been donated to the Edinburgh Geological Society in 2013 by the daughter of a recently-deceased member. There were also maps and labels in that collection which bore the name of David L Wilson.



Figure 1. A selection of the confectioners' glass tubes containing mineral samples from the Wilson Collection. These measure about 6 cm x 1 cm, but larger tubes range up to 16 cm x 2 cm. They originally held cake decorations. The small labels on the tubes carry only sparse information. BGS image P995093.

From this lead, it was soon established that the Wilson family had been well-known in Penicuik (not far from Edinburgh) and that David Lawson Wilson (1881-1964) had been an active member of the Edinburgh Geological Society. Contact with David's family then revealed that they were descended from Mathew Wilson, who had gone to work at Wanlockhead in 1691 and held a lease there until 1710, predominantly working the Straitstep Vein. The Margaret Vein may have been named after his daughter Margaret, born in 1704, and Wilson's Vein may also be named after him (Figure 2).

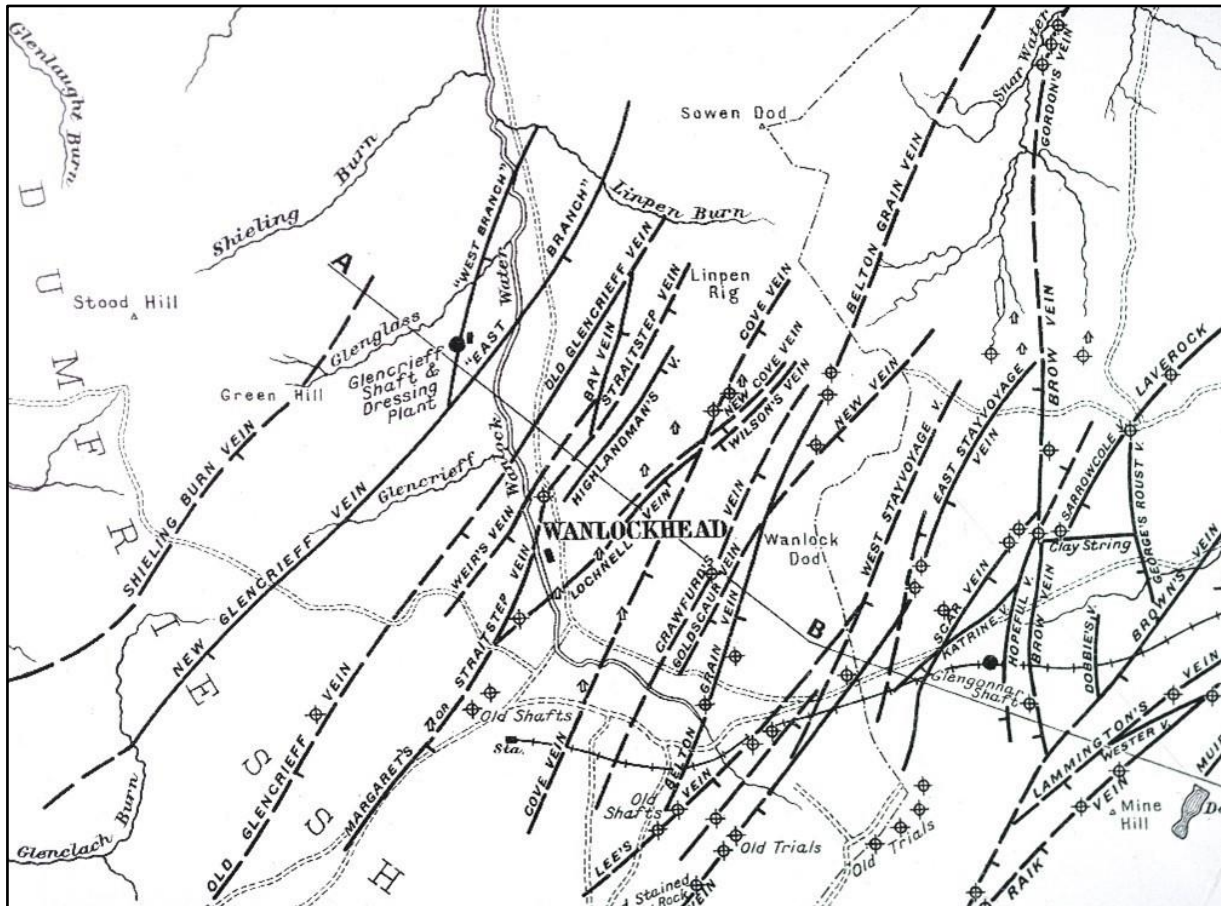


Figure 2. The western (Wanlockhead) side of the Leadhills-Wanlockhead mining field, after Wilson (1921). Note that NW is to the top of the map.

Mathew Wilson's son George did not follow him into lead mining; he became a painter and plasterer and moved with his son Charles first to Carlops, where Charles' son William was born in 1808, and then in 1839 to Penicuik where William's grandson, David Lawson, was born. However, the earliest dates on the specimens predate David's birth by about 50 years, so it is likely that the collection was started by earlier members of the family or their associates – hence the range of handwritings on the specimen labels (Figure 3). The discovery of this wealth of background information encouraged a closer look at the collection itself (Stone *et al.* 2021 - in press).



Figure 3. Four of the recycled bottles containing mineral samples from the Wilson Collection, the largest of which is 11 cm tall. Note the range of handwriting on the labels. BGS image P995106.

The Wanlockhead-Leadhills Mineralisation

The Wanlockhead-Leadhills mining field straddles the Dumfries & Galloway/Lanarkshire boundary sitting to the SE of the Leadhills Fault (Floyd 2003). The first recorded working in the area was by the monks of Newbattle Abbey who sunk a mine for lead in 1239 but it is assumed there was extraction even before then. Alluvial gold was mined in favour of lead for a period until 1562 but thereafter, and particularly from 1700 onwards, lead was the principal product along with appreciable quantities of zinc, and some silver. The principal phase of mining ended in about 1930 but with some intermittent and largely unsuccessful ventures continuing until 1958.

Mineralisation probably occurred during Carboniferous times, and the main host rock to the veins is Upper Ordovician greywacke of the Portpatrick Formation, a component lithostratigraphic unit of the Southern Uplands terrane. The Portpatrick Formation greywackes are distinctive in containing an abundance of volcanoclastic grains, and the individual beds have a generally steep dip and strike NE-SW. In the NW of the formation's outcrop are mainly thin-to-medium bedded sandstones, whilst towards the SE the formation becomes more thickly bedded. At its NW margin the strike-parallel Portpatrick Formation is faulted against older mudstone of the Moffat Shale Group, a juxtaposition that occurred late in the Ordovician, not long after deposition of the greywacke and during subduction-driven accretionary tectonics. For the most part, the Carboniferous mineral veins run NNW-SSE and terminate in the vicinity of the fault whilst failing more sporadically towards the SE (Figure 2).

The Wilson Collection

Most of the specimens originated from the Wanlockhead mineral veins and have the appearance of routine, 'run-of-mine' samples and exploration samples collected for analysis as part of mine development. Some specimens were also taken from the host rock, the crushing floors and the smelter flues. The oldest is dated 1814, but this is an outlier and the main collection commenced in 1833 and continued until the end of mining at Wanlockhead in 1931 (at Leadhills in 1929). Thereafter, geological items and curiosities unrelated to the mines were added until 1938: these included examples of ore types from other Scottish localities and from foreign sources in France, Spain, Sweden, South Africa, Thailand and Mexico.



Figure 4. Wilson Collection samples mostly contained in random lengths of laboratory glass tubing, corked at each end; in the middle of the top row a test-tube has been utilised. Note the artistic, striped creation at far right. Image by Phil Stone.

The Wanlockhead specimens largely consist of grains and granules packed into a variety of containers: confectioners' tubes (Figure 1), many branded 'Rowntrees' or 'Needlers', a range of recycled glass bottles (Figure 3) and lengths of laboratory glass tubing and test-tubes (Figure 4). One set of uniform, small glass jars (Figure 5), whilst mostly carrying dates in the 1920s, also incorporates a few very much earlier ones, so implying that there was repackaging of older samples. Many different handwritings are evident on the specimen labels and it seems likely that as mining activity declined, what had started as a semi-official mine collection was preserved and expanded by the Wilson family.



Figure 5. A selection of small bottles holding mineral samples from the 'Wilson Collection'. Each bottle has a diameter of 22 mm and is 63 mm tall. Note the range of dates on the labels despite the uniform containers. BGS images P 995082-4.

Of the Wanlockhead material, much came from the Glencrieff mine (Figure 2); some specimens are identified as such but the description of the mine by G.V. Wilson (1921) – a Geological Survey geologist, he may have been distantly related to the Wanlockhead Wilsons – allows a confident association with Glencrieff for specimens labelled only as East Branch, West Branch, Back Drift, and 80, 120, 160 and 200 levels (or fathoms).

Apart from the Old and New Glencrieff veins, and the associated West Grove Vein, other Wanlockhead veins represented in the collection are Straitstep, Bay, Cove, Belting/Belton Grain and probably Shielling Burn, the latter described as unworked by Wilson (1921). There is far less material from the Leadhills side of the mining field. References to the 'Leadhills Mine' most probably relate to the Glengonnar Shaft, which worked the Brow and Hopeful veins, both of which are separately identified as the source of other specimens. Specimens located at Snar Water probably derived from Gordon's Vein, the northern extension of Brow Vein (Figure 2).

Only a minority of the specimens have been mineralogically named, although others can be readily identified. Quartz and calcite, pyrites, galena, sphalerite (blende) and barytes are all well represented, with various references to less common minerals such as, inter alia, bornite, hemimorphite, cerussite, witherite, litharge, niccolite and calamine (smithsonite?). Some relatively rare minerals are also named – chrysocolla, lanarkite, leadhillite – but these identifications are perhaps best regarded as tentative until confirmed. There may well be other discoveries to be made in the Wilson Collection which, now fully catalogued, will hopefully soon be available as a research resources illuminating a century of mining history at Wanlockhead.

Bibliography

Floyd, J.D. 2003. *Geology of the Leadhills District*, BGS sheet explanation 15E. <http://pubs.bgs.ac.uk/publications.html?pubID=B06088>

Stone, P., Bergman, B., Tulloch G. & Togher, M. 2021 (in press). The Wilson Collection unveiled. *The Edinburgh Geologist*, 68.

Tulloch, G. & Togher, M. 2020. The 'Wilson Collection' of minerals from Leadhills and Wanlockhead. *The Edinburgh Geologist*, 67, 5-7.

Wilson, G. V. 1921. *The lead, zinc, copper and nickel ores of Scotland*. Memoirs of the Geological Survey of Scotland, Special Reports on the mineral resources of Great Britain, vol. 17. <http://pubs.bgs.ac.uk/publications.html?pubID=B02740>

Further information from Graham Tulloch (gjt@bgs.ac.uk)
British Geological Survey, The Lyell Centre, Edinburgh.