Geological models

Geological models are three-dimensional representations, often in simplified form, which have been used to illustrate a variety of geological structures or features. It was common practice, until the advent of sophisticated computer graphics, to construct such models during mine planning and development to assist in visualising geological structures and their complex relationships.

These models, especially those which illustrate the structural and stratigraphical relationships of mine workings, provide important evidence for features which, though of great scientific significance, are no longer be accessible for study. As important aids to the understanding of such features they are essential elements in the area's geodiversity..

Geological models in the AONB

Two important groups of geological models exist locally.

Sopwith's models:

The 19th Century mine agent and influential pioneer of geological thinking within the North Pennines, Thomas Sopwith (1803-1879), produced a number of wooden models to illustrate key geological structures encountered during mining and mineral exploration. A skilled carpenter by training, Sopwith produced these models using beautifully carved inlaid and layered combinations of woods of different colours. His models became highly regarded and were sold widely beyond the North Pennines, though examples are rarely seen today.

Killhope Lead Mining Museum is understood to hold the only set of 'Sopwith models' housed in the North Pennines. The set is especially fine, including the original explanatory notes sold with the models.

Mine models:

During the 1960s and 1970s the British Steel Corporation employed mine models to visualise underground developments at their North Pennine fluorspar mines. The models were constructed from metal rods, coloured to depict stratigraphical horizon, vein intersections etc. They were built, and kept up to date, by skilled professional model makers working in conjunction with the working plans of the mines. The models of the workings at Blackdene Mine, Weardale, and Beaumont (Allenheads) survive today in the North Pennines.

The **Blackdene Mine** model, which depicts the 20th Century workings of this mine, together with parts of early operations, is on display at the Weardale Museum, Ireshopeburn.

The **Beaumont (Allenheads) Mine** model, which incorporates parts of the 19th Century workings of Allenheads Mine, together with the unsuccessful attempts at re-opening during the 20th Century, is held at the Allenheads Heritage Centre.

Wider importance

The importance of these models spans the interests of geology, mining history and the development of geological understanding of the North Pennine mineral deposits.

Conservation issues

The Blackdene Mine model is in generally sound condition, though could benefit from some comparatively minor restoration, mainly to its paintwork. As it is currently displayed, the model is accompanied by some very brief explanatory notes, though there is no detailed interpretation.

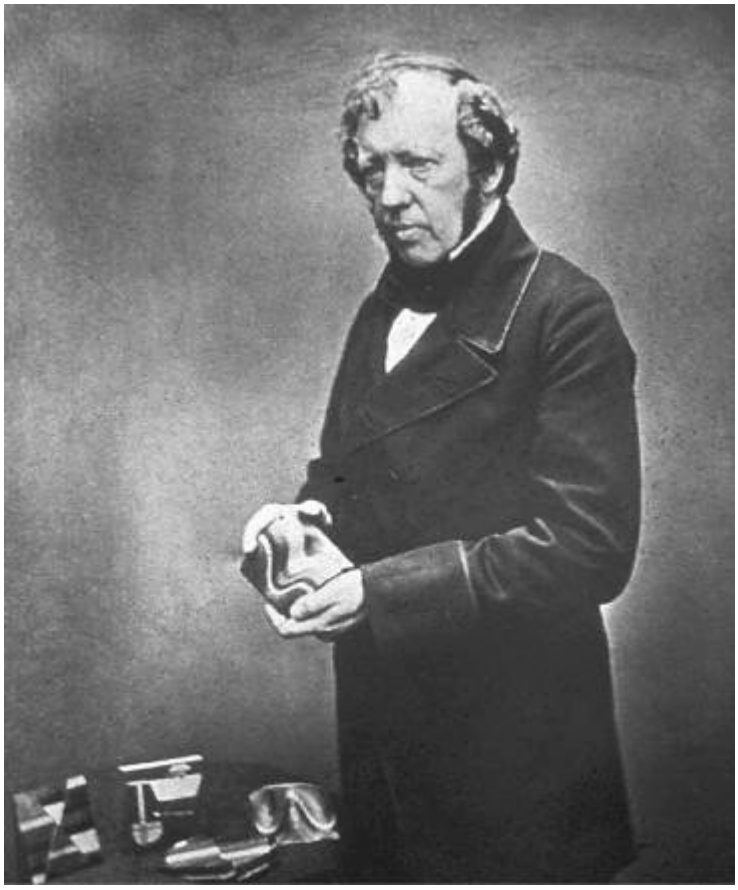
The Beaumont Mines model has recently been professionally restored and will form part of the interpretative displays soon to be opened at the Old Blacksmith's Shop, Allenheads.

Figures

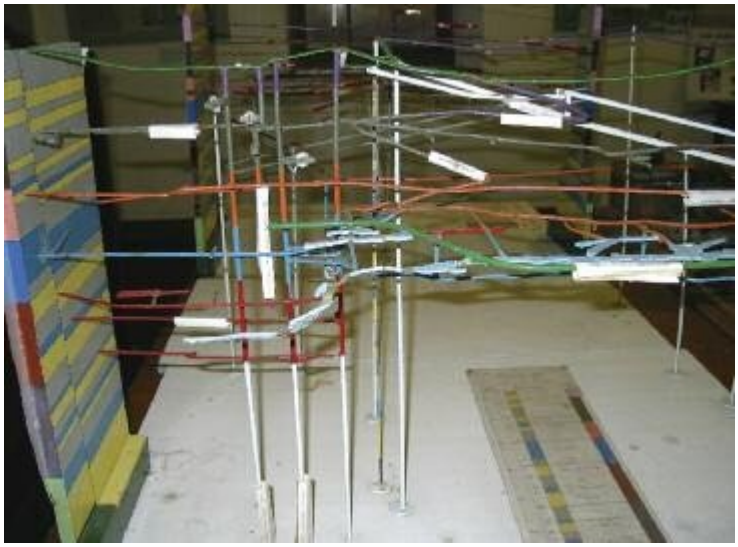
(Figure 72) Thomas Sopwith with a selection of his wooden geological models © BGS, NERC.

(Figure 73) British Steel's mine model for Allenheads. © Elizabeth Pickett/NPAP.

Full references



Thomas Sopwith with a selection of his wooden geological models © BGS, NERC.



British Steel's mine model for Allenheads. © Elizabeth Pickett.