

A field study of the Clun Forest Disturbance by Martin Allbutt

Ten kilometres to the west of the Church Stretton fault system lies a parallel SW-NE trending system. In parts variously known as the Pontesford-Linley Fault, the Mainstone Faults, the Clun Forest Disturbance, the Myddfai Steep Belt, the Red Roses Disturbance, this can be traced on the BGS "TEN MILE" map as a line from Pembrokeshire to Macclesfield. Clearly such a feature has been the subject of numerous piece-meal studies which have tended inevitably to downplay its connectivity. However, by using the data from geophysical measurements of magnetic and gravity anomalies, Woodcock (1984) has clearly demonstrated its essential continuity and advanced the name "Pontesford Lineament" to embrace all its component sections.

That section, known as the Clun Forest Disturbance extends from Bishop's Castle and runs west of Clun and Knighton to Radnor Forest, although the northern part is scarcely discernible on the BGS 1:50000 Montgomery sheet 165. In part this is due to a character which is not one of faulting but of folding into a concertina of SW-NE trending anticlines and synclines which affect mainly the relatively homogenous basinal Silurian siltstones of the Ludlow Series. For example immediately to the NW of Knighton the map in Woodcock's paper (see figure 1) shows 4 anticline/syncline pairs spaced out in a zone only 4 kms. wide.

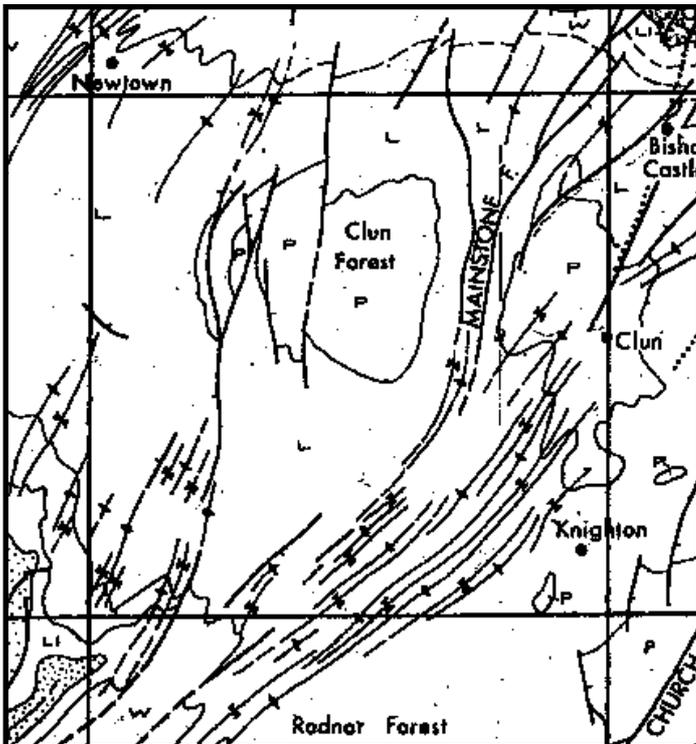


Fig. 1. Portion of map showing folds of Clun Forest Disturbance acc. Woodcock (1984) L = Ludlovian P = Pridoli

It so happens that the above zone is crossed by the north-going Offa's Dyke Path (ODP) from Knighton and crosses typical dyke country in Panponton and Cwm-sanaham hills en route to the road crossing at Selley Hall. As this author found a walk along the ODP to Selley can easily prompt two questions:

- 1) Where are all these anticlinal & synclinal folds?
- 2) How did Woodcock discover them?

Due to its large scale, 1:363636, Woodcock's map requires a multiple photocopy enlargement amounting to 1,450% to produce a version commensurate with the 1:25000 topographic OS map. This enlargement produces grid lines 0.5 cms. thick and with a lack of topographical detail to fix position makes its use to answer question (1) uncertain. However by carrying out a directed mapping of the area (there is no current BGS 1:50000 sheet available) an answer to question (2) is provided and thence to (1) also.

In spite of first impressions, which suggest grass covered sheep pasture, the ODP does pass a number of exposures of a quality to identify stratigraphy and measure dip angle and direction. These quickly establish that dip is either low, less than 10 degrees to E or NE, which is probably original unfolded strata, or high with angles from 10 to 70 degrees to SE or NW. Such dips result in low scarp slopes on Panponton and Cwm-sanaham hills. Various other footpaths explore the hill slopes to the SW and yield numbers of other exposures and sections. Their character is typically shown at Bryney where a quarry (in thin flags of the Knucklas Castle Formation) shows bedding planes inclined 60 degrees to the NW and even 75 degrees in an adjacent outcrop. Yet a short 200 metres to the east dips are 20 degrees to the SE. Clearly it can be assumed, there being no evidence of faulting, that the Bryney quarry lies in strata which lie between an anticline to the SE and a syncline to the NW.

A particularly telling example occurs NE of Selley Hall where there is a breached anticline, i.e. an anticline where erosion has removed the crest. Here close juxtaposition of steep (40 to 60 degree) dips to SE and NW fixes the position of the original crest of the anticline to within 50 metres either way.

When dips of all reasonably accessible exposures were plotted on the 1:25000 topographical map a pattern of alternating anticline and syncline began to emerge. It was then found that the 1450% enlargement of Woodcock's map could be so positioned as to correspond to this pattern, in particular by fitting to the measured position of the Selley anticlinal crest. (This also revealed that the previous difficulty in doing this was due to 0.5 km errors in grid line positions on the enlarged map.)

Thus figure 2, with a scale of 1:25000, can be lain over corresponding grid lines of the 1:25000 OS topographic map to disclose ground positions of the crests and troughs of the folding consistent with the dips in local exposures.

An additional bonus from the supporting field work was the discovery that a recently excavated track running east from Nether Skyborry has exposed an exemplary section through an anticline the axis of which corresponds exactly to an extrapolation of an anticlinal line on the Woodcock map - marked by a dashed line in figure 2. The section also contains the stratigraphic boundary between fossiliferous bioturbated thick flags of the Cefn Eionon Formation and the underlying thin, flat bedded and unfossiliferous flags of the Knucklas Castle Formation.

Ref: Woodcock, N.H. 1984. The Pontesford Lineament, Welsh Borderland. *J. Geol. Soc. London*, Vol. 141, pp.1001-1014.

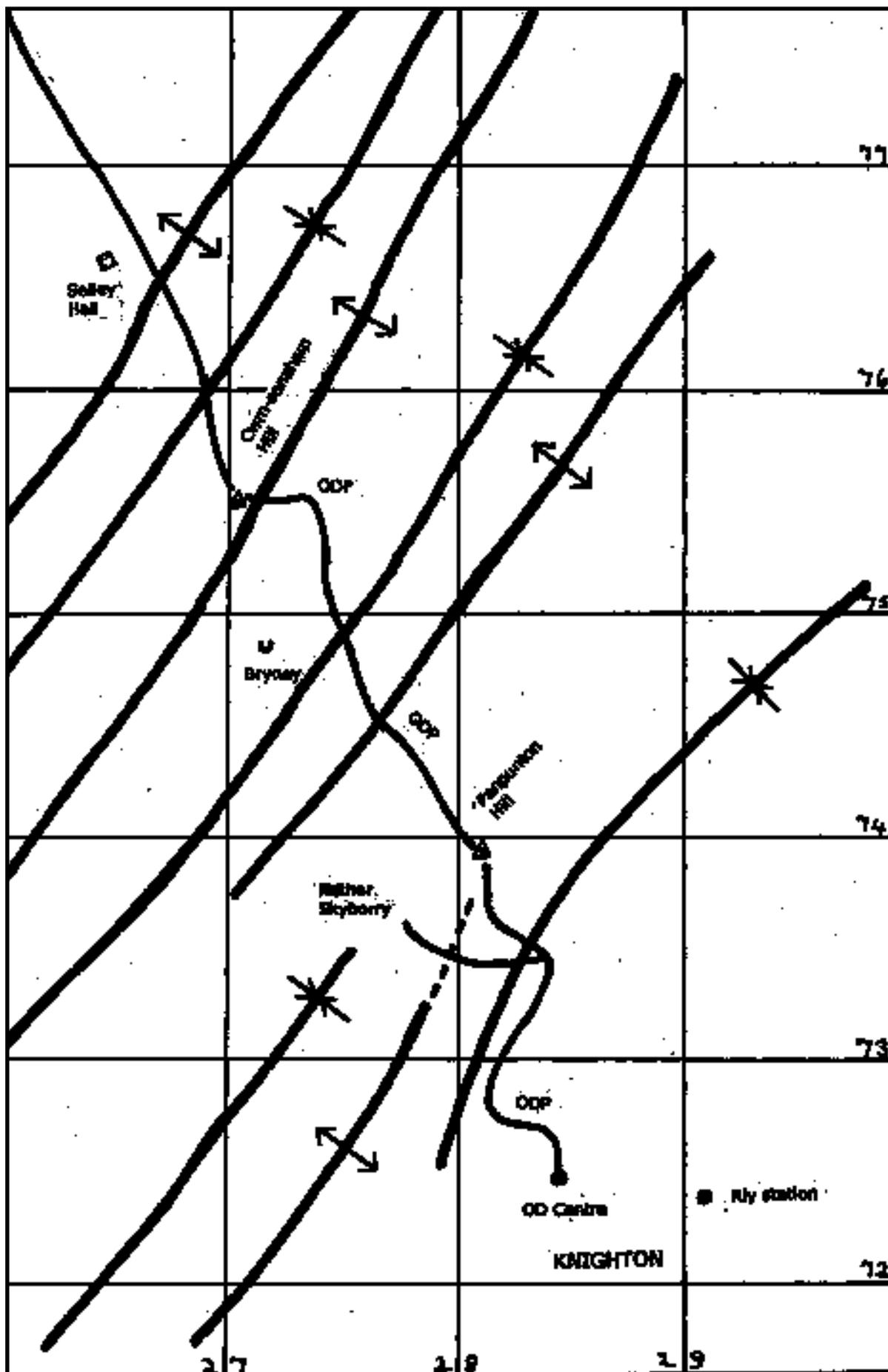


Fig. 2. Folds of the Clun Forest Disturbance NW of Knighton