TEMPORARY EXPOSURES IN THE LATE PRECAMBRIAN ROCKS OF WART HILL, NEAR CRAVEN ARMS, SOUTH SHROPSHIRE

by

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Summary

A description is given of the rock types encountered at a series of temporary exposures at Wart Hill, South Shropshire. A tentative correlation is made with known exposures. Fault gouging has been observed which confirms the presence of a major NNE - SSW faulted boundary to the eastern flank of Wart Hill and a fault breccia on the western flank of the hill suggests a faulted boundary here also. Evidence at a further locality could be interpreted as indicative of sequence inversion.

Introduction

Excavation for a track for forestry purposes around the eastern and northern flanks of Wart Hill (401848) 4 km north-west of Craven Arms, Shropshire, has presented new sections in the local Precambrian rocks. The sections demonstrate the structural complexity that is expected, but so rarely exposed, in Precambrian inliers within the Church Stretton Fault Complex.

Longmyndian and Uriconian rocks form a lozenge-shaped outcrop (text-fig. 1b) within the Church Stretton Fault Complex between Brokenstones (419881) and Aston on Clun (393817). Wart Hill lies between the F2 and F3 components of the complex, but is not bounded by them (text-fig. 1b). Brecciation of rocks now exposed along the eastern flank of Wart Hill (text-fig. 1a, localities 1, 2, 3 and 4) indicates major NNE - SSW faulting; this has been inferred previously (Greig, Wright, Hains & Mitchell, 1968), and locally marks the contact between the Wentnorian and Uriconian. Sedimentary rocks, mainly greywackes (Pettijohn, Potter & Siever, 1973), pelites and conglomerates, are affected by the faulting.

Description of localities

The following vertical sections which are 1-2 m high were first examined during April 1980; and by mid-December 1980 their condition, particularly at localities 1, 2, 3, 5 and 7, had considerably deteriorated due to soil creep and rain wash.

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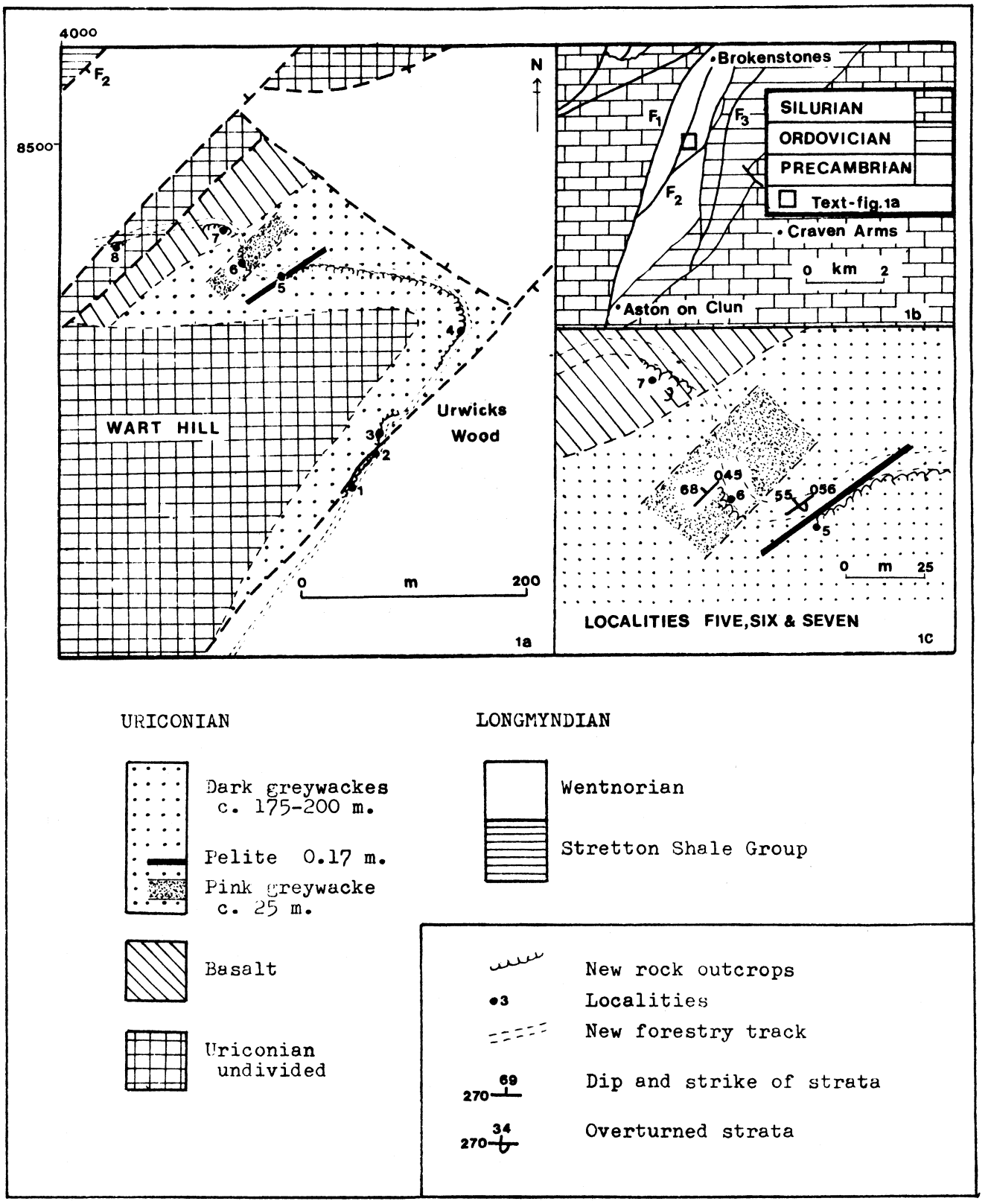
pp. 229-232, 1 text-fig.



Text-fig. 1: Geological sketch map of part of Wart Hill
(1a and 1b adapted from Greig *et al.*, 1968)

Locality 1

Here the cutting provides a section 11 m long exposing dark, weathered, brecciated conglomeratic greywackes with a buff fault gouge at the northern end. Fresh, unbrecciated fragments of rhyolite found on the track were not *in situ*. Rhyolites have been recorded from several localities around Wart Hill (Greig *et al.*, 1968).

Locality 2

This section, which is 20 m long, is 10 m north of locality 1, and before soil creep showed the following sequence of brecciated strata:

Fault breccia; composed of angular clasts of dark greywacke	39 cm
Pale grey fault gouge	15 cm
Purple fault gouge; containing rotten fragments up to 3 cm long of purple, very coarse-grained greywacke	7 cm
Purple, very coarse-grained, conglomeratic greywacke; only weakly brecciated	40 cm

Locality 3

The zonation of brecciated, dark greywackes, pale grey fault gouge and gritty purple fault gouge at locality 2 is exposed again around 24 m of a bend in the track (text-fig. 1a).

Locality 4

Dark greywackes with subordinate dark grey pelites crop out along 40 m of the track. There is no trace of bedding and these greywackes are not so intensely brecciated as those at localities 1, 2 and 3.

Similar very coarse- to medium-grained greywackes containing pelitic clasts up to 5 mm long and subordinate finer-grained pink and green greywackes crop out intermittently along 190 m of the track between localities 4 and 5. There is no evidence of brecciation in these massive, jointed rocks.

Locality 5

Here, the following, presumably inverted, sequence (see Conclusions) is inclined at 55°/326°:

Red pelite; with eroded lower surface	17 cm
Shale-pebble breccia; contains angular clasts of red pelite in a greywacke matrix	1-5 cm
Dark, coarse-grained greywacke with red pelite clasts up to 1 cm long	120 cm

Locality 6

There are several very small outcrops of finely bedded pink-stained greywackes with thin pelitic partings, dipping at 68°/315° and 63°/309°. The lateral extent of these greywackes (text-fig. 1a and 1c) is uncertain, as they could not be traced to the north-east or south-west of this locality.

Locality 7

Amygdaloidal basalts which show some internal zones of intense shearing and deformation (text-fig. 1c) crop out 37 m to the north-west of the pink-stained greywackes, and are exposed along 34 m of the track.

Locality 8

A very small outcrop of fault breccia. Fragments collected from this were mainly of a dark, weathered trachytic rock.

Conclusions

Stratigraphical relations are not easily established in this area as exposures are small and scattered, and most contacts are faulted ones. However, ½ km north of Wart Hill fossiliferous Ordovician sandstones (Hoar Edge Grit) rest unconformably on the purple Longmyndian greywackes (Wentnorian) which form much of the fault bounded Precambrian block including Wart Hill and the new exposures. Conglomeratic greywackes on Wart Hill (401848) and basalts ½ km north of Wart Hill near Upper Carwood (406852) are generally accepted as being of Uriconian age (Greig *et al.*, 1968). These rocks are similar in hand specimen to those exposed in the new sections which, until further evidence becomes available, are tentatively placed in the Uriconian. The brecciation of greywackes at localities 1, 2, 3 and 4 suggests major N.N.E.-S.S.W. faulting along the south-eastern side of Wart Hill, and fault breccias at locality 8 (text-fig. 1a) support the supposition that the hill is also fault-bounded on the north-western side (Greig *et al.*, 1968). The purple fault gouge and breccia at locality 2 is probably derived from purple conglomeratic greywackes of the type that occur in the Wentnorian succession, locally, (Urwicks Wood, 405848) and 10 km to the north around Bridges (394964) and Wentnor (384927). This speculation is based on the colour and lithological similarity of fault breccia fragments from locality 2 and typical coarse-grained Wentnorian greywackes, although no detailed petrographic comparison has yet been made. By extrapolation of the few dip values available, it is thought that there are approximately 200 m of sedimentary rocks, mainly greywackes with some tuffs, pelites and conglomeratic horizons intermittently exposed in these new sections. A local overturning of the strata may be suggested by the lower eroded surface of a red pelite which immediately overlies a shale-pebble breccia and greywackes with angular red pelite clasts (locality 5). No other evidence has been found to indicate overturning of the strata and a possible sedimentary sequence is shown in the key to text-fig. 1. The association of greywacke (Pettijohn *et al.*, 1973) and amygdaloidal basalt (text-fig. 1a and 1c) is unusual, but here these rocks are not necessarily contemporaneous and their contact, which is not exposed, could be, like many in the Uriconian, a faulted one.

The writer is currently researching this area and hopes that a more detailed stratigraphical, structural and petrographic description will be possible, particularly if imminent forestry work reveals fresh exposures.

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References

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