FIELD EXCURSION TO SOUTH SHROPSHIRE.

Leader: J. Moseley. Sunday 31st May, 1981

Introduction

The oldest rocks exposed in this area (text-fig.1) are late Precambrian calc-alkaline volcanics (the Eastern Uriconian) that evolved in a marginal continental setting and may be underlain by basement rocks of Rushton schist or of Malvernian type. These volcanics are succeeded by very late Precambrian or early Cambrian (529± 6 ma, Bath, 1974) sedimentary rocks (the Longmyndian) that were tilted and perhaps folded into an isoclinal syncline (text-fig. 2, James, 1956, Greig, *et al.*, 1968) by pre-Lower Cambrian earth movements. The Longmyndian sedimentary pile indicates estuarine and molasse sedimentation probably within a broad, shallow trough. Part of the near vertical Longmyndian succession forms the plateau west of Church Stretton known as the Long Mynd.

In the Comley area (text-fig. 1, G.R. SO 485 965) marine Cambrian rocks rest unconformably on folded and faulted Precambrian, while west of the Long Mynd Cambrian rocks are not exposed. Movement on the Church Stretton Fault Complex during Ordovician times may have influenced sedimentation. Only marine Tremadocian and Caradocian sediments were deposited east of the Long Mynd on the stable Midland block while to the west on the margin of the Welsh Geosyncline there is an almost complete Ordovician succession that has suffered post-Caradocian – pre-Middle Llandovery folding (text-figs. 1 and 2). The Church Stretton Fault Complex is a major N.E.–S.W. trending structural element that has been active intermittently from late Precambrian to early Mesozoic times.

Silurian sedimentation commenced in Middle Llandovery times with a marine transgression that deposited fossiliferous pebbly sands unconformably on earlier rocks. Isolated patches of these ancient beach deposits flank the slopes of the Long Mynd which was an emergent block during the Silurian. Succeeding fossiliferous, marine Wenlock and Ludlow shales and limestones crop out in the Church Stretton Valley and extensively south and east of the Long Mynd, forming scarp and vale topography.

Hope Bowdler

The first locality (G.R. SO 4743 9244), previously recommended as a Site of Special Scientific Interest, shows an unconformable contact between fossiliferous Caradocian shales, known locally as the Harnage Shales, and Eastern Uriconian Volcanics. Although no fossils were found by the party these thin, grey shales have yielded a shelly fauna of trinucleid trilobite fragments and brachiopods. This locality lies east of Church Stretton on the margin of the Midland Block (see introduction).

Church Stretton and Cardingmill Valley

The party moved into Church Stretton to examine the lower parts of the Eastern Longmyndian succession that crop out alongside the Burway Road. The Stretton Shale Group (c. 900 m) is the lowest division of the Eastern Longmyndian and at locality 2 (G.R. SO 4523 9388) the more thinly bedded of these grey shales show the development of kink bands and some less angular minor folds. Kink bands are only developed in this Group and are thought to represent an incompetent response to local and/or regional folding or movement on the adjacent Church Stretton Fault Complex.

Overlying the Stretton Shale Group at the base of the Burway Group (c. 600 m) is the Buxton Rock (7 m) which is a thickly bedded, silicified, rhyolitic dust tuff that has been used as a stratigraphic marker. At locality 3 (G.R. SO 4485 9412) bedding (45°/285°) and vertical jointing (main trends are 000°, 070° and 290°) in the Buxton Rock are well developed. The predominantly vertical joint pattern is in strong contrast to that observed later in the day near Bridges in the core zone of the inferred, isoclinal fold.

The excursion moved up part of Cardingmill Valley (locality 4, G.R. SO 4446 9449 to 4378 9501) which is one of the narrow, steep-sided valleys that cuts the Long Mynd plateau approximately at right angles to the strike of the highly inclined Eastern Longmyndian strata. Thickly bedded grey siltstones, near the top of the Burway Group, are exposed in the stream bed (G.R. SO 4434 9451) but the Cardingmill Grit, a massive greywacke that marks the top of this Group was not seen. The succeeding Synalds Group (500-850 m) was seen to consist predominantly of well-cleaved purple shales with thin tuffs near the top which are used as stratigraphic markers.

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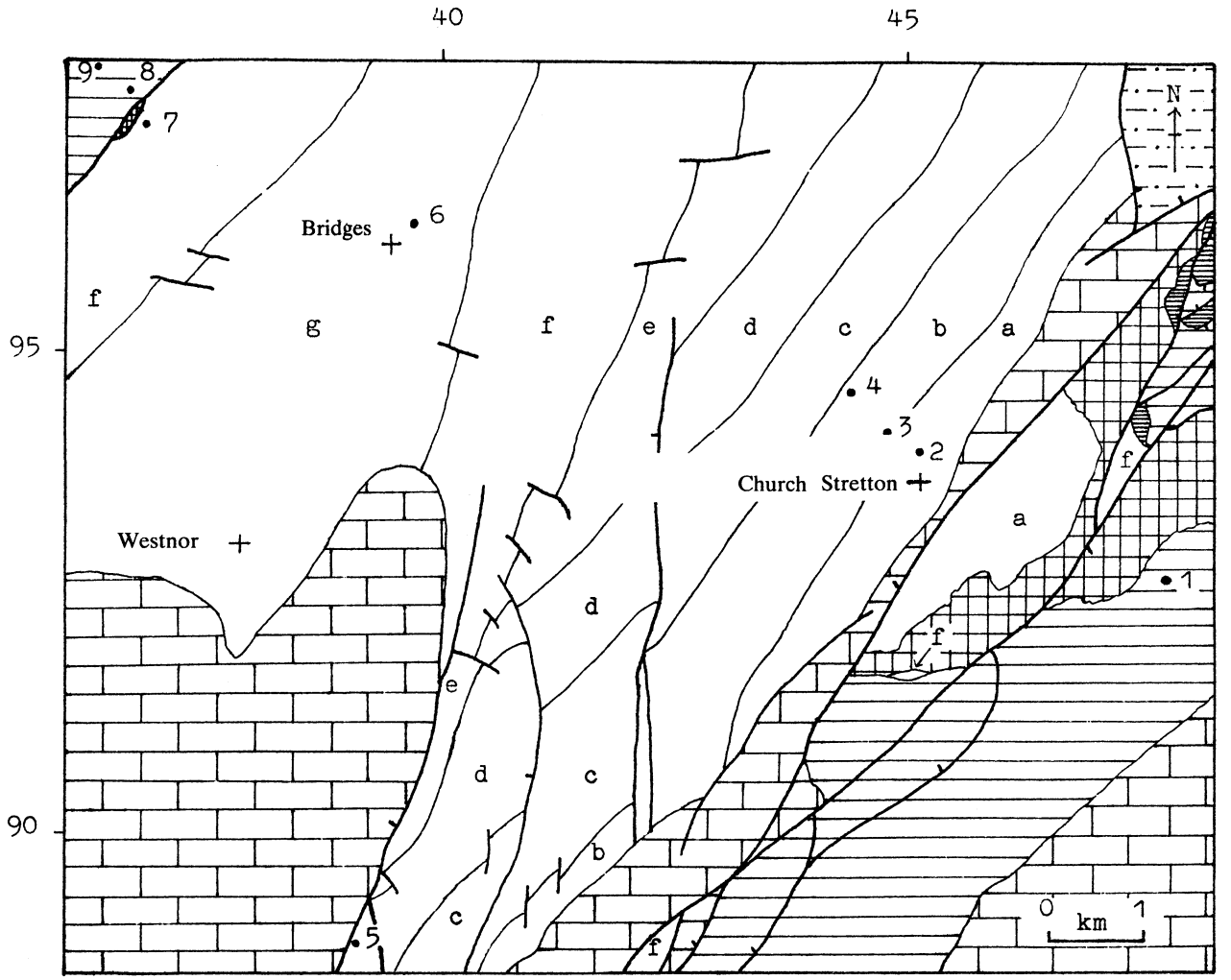
pp. 49-54, 3 text-figs.



Carboniferous

Silurian

Ordovician

Cambrian

1–9 Localities visited

g Bridges Group
f Bayston-Oakswood Group

Western Longmyndian

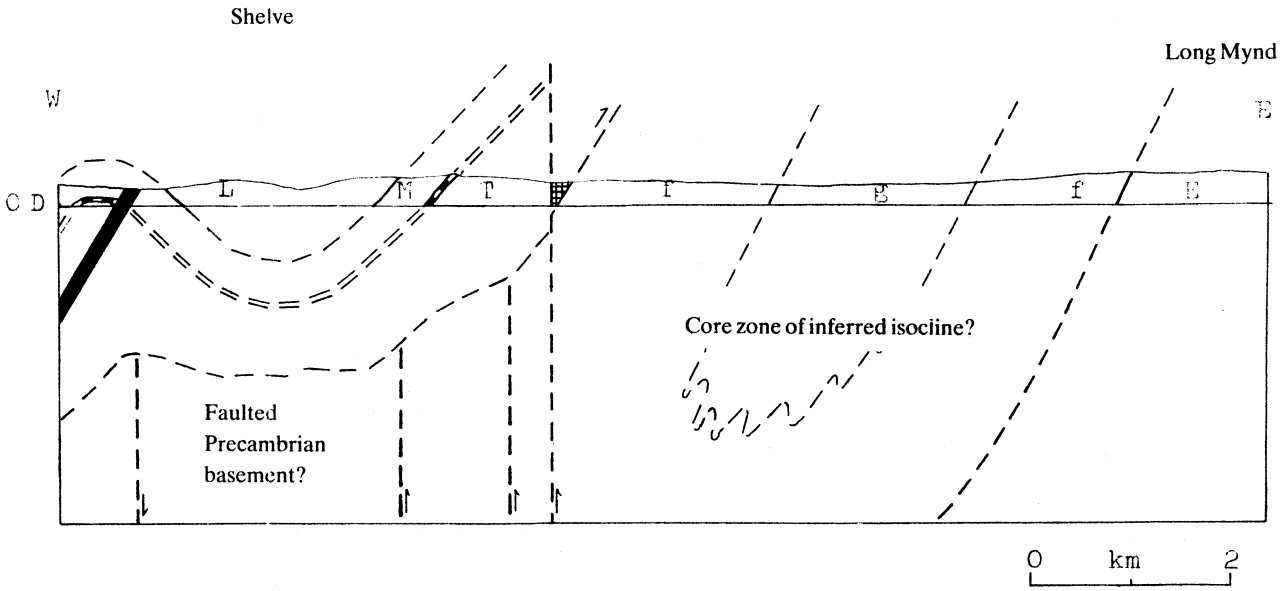
e Portway Group
d Lightspout Group
c Synalds Group
b Burway Group
a Stretton Shale Group

Eastern Longmyndian

Western Uriconian

Eastern Uriconian

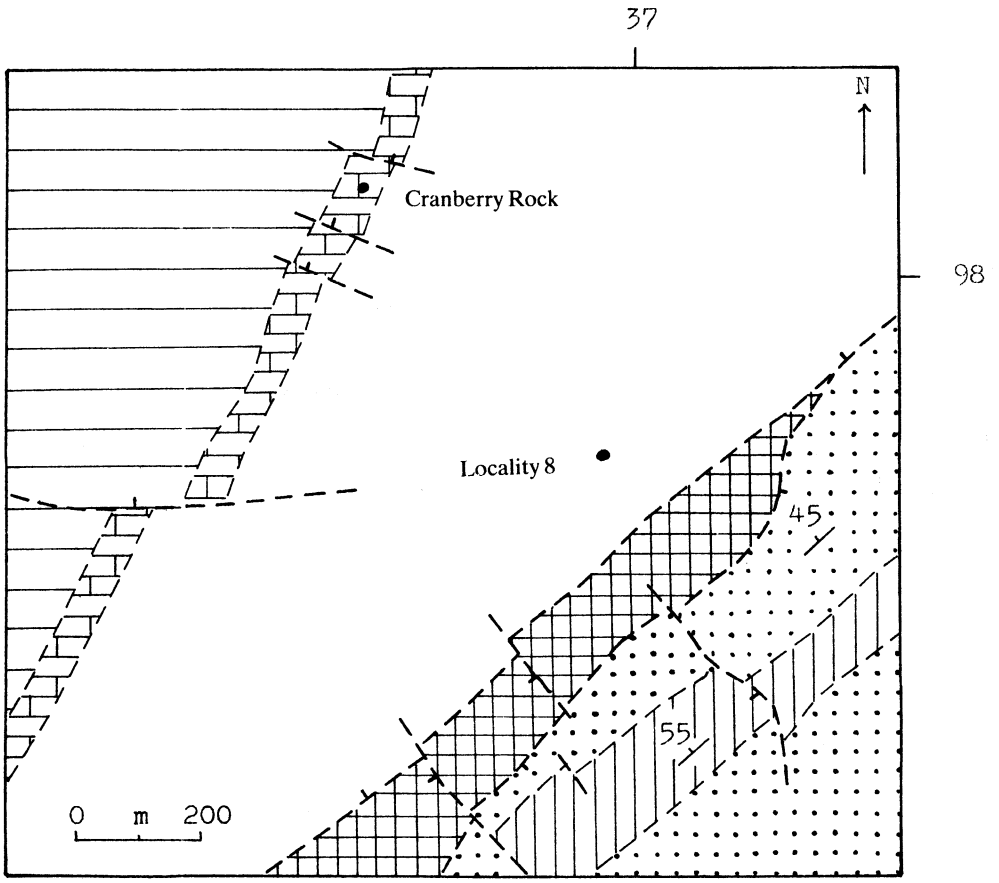
Text-fig. 1: The Geology of the Bridges and Church Stretton area



L	Llanvirn Series	Arenig	ORDOVICIAN
M	Mytton Flags		
▬	Stiperstones Quartzite		
T	Tremadocian		
g	Bridges Group		PRECAMBRIAN
f	Bayston–Oakswood Group		
E	Eastern Longmyndian		
	Western Uriconian		

▬ Dolerite (Post–Caradocian – pre–Middle Llandovery)

Text-fig. 2: Diagrammatic section from Shelve to the Long Mynd



Mytton Flags
Stiperstones Quartzite
Shineton Shales
Arenig
Tremadocian
Ordovician

Greywackes
Conglomerates
Western
Longmyndian

Acid and intermediate
crystal lithic tuffs
Western
Uriconian

Text-fig. 3: The Knolls and Cranberry Rock

The Western Scarp of the Long Mynd

Departing from the Church Stretton area the party travelled southwestwards and then around the southern tip of the Long Mynd. The steep western slope of the Long Mynd is a fault scarp and at locality 5 (G.R. SO 3891 8879) an angular unconformity between near horizontal, fossiliferous, conglomeratic, Middle Llandovery sandstones and purple shales of the Portway Group (up to 1100 m) that dip at 72°/310° was observed. The Silurian sandstone represents an ancient beach deposit, laid down on an irregular Precambrian surface by the Middle Llandovery marine incursion that was widespread over the Welsh Borderlands. The Middle Llandovery sandstone contains pebbles derived from Longmyndian conglomerates and there is some malachite staining of the Longmyndian shales.

Bridges

The party travelled via Wentnor village to Bridges (G.R. SO 3937 9644) where purple siltstones of the Bridges Group (Western Longmyndian) crop out in the core zone of the inferred isoclinal syncline (text-fig. 2, James, 1956, Greig, *et al.*, 1968). At locality 6 (G.R. SO 3967 9635) these siltstones dip at 75°/282° and are cut by joints dipping at 25°–35° N and 30°–65° S which is in contrast to the mainly vertical jointing developed in the Eastern Longmyndian. The joint patterns are difficult to interpret but it is an interesting coincidence that inclined joints are predominant over vertical ones only in the inferred fold core, this having been established on age-sequence reversals (Greig, *et al.*, 1968). The Western Longmyndian strata is not well exposed and in the light of existing evidence the possibility of a major synclinal structure may be questionable.

The Knolls and Stiperstones

From Bridges the excusion moved west to the Knolls (locality 7, G.R. SO 373 977) where silicified acid and intermediate crystal lithic tuffs (Western Uriconian) are faulted against Western Longmyndian greywackes and conglomerates of the Bayston-Oakswood Group. There is some brecciation (G.R. SO 3732 9769) of these rocks with malachite barytes mineralization (G.R. SO 3702 9736). The faulting is part of the Pontesford-Linley Disturbance that forms the western boundary of the Longmyndian block and brings Precambrian against Ordovician (text-figs. 1, 2 and 3). A small outcrop of the Shineton Shales (Tremadocian, G.R. SO 3691 9769, locality 8) was examined before the party walked to Cranberry Rock (locality 9, G.R. SO 3656 9811) on the Stiperstones.

Very resistant Arenig arenites (90 m) known locally as the Stiperstones Quartzite form the distinctive Stiperstones ridge with its jagged crags. The white-weathering arenites overlie with slight unconformity the Shineton Shales (at least 900 m) and are succeeded by the Mytton Flags (1100 m). They exhibit conglomeratic horizons, cross-bedding and oscillation ripples and have been used locally as a building stone. From the Stiperstones ridge there is an excellent view westwards over the Shelve area which is scarred by derelict lead-zinc mines. In this area, unlike that east of the Long Mynd (text-fig. 1, introduction and locality 1), there is an almost complete Ordovician succession consisting of graptolitic shales, greywackes, tuffs and the Stiperstones Quartzite. This strata is folded into the N.E.–S.W. trending Ritton Castle Syncline and Shelve Anticline and these post-Caradocian folds are cut by pre-Middle Llandovery dolerite intrusions (text-fig. 2).

The party rejoined the coach and began the return journey, passing through Shelve and Shrewsbury.

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