BRITISH GEOLOGICAL SURVEY

TECHNICAL REPORT WA/89/23

Onshore Geology Series

SP28SE

Allesley

Part of 1:63,360 Sheets 169 (Coventry)

J G Rees

Geographical index

UK, Central England, Warwickshire

Subject index

Geology, Quaternary,
Upper Carboniferous, Cambrian

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Bibliographic reference

Rees, J G. 1989
Geological Notes and local details
for 1:10,000 sheets: SP28SE (Allesley).
British Geological Survey Technical
Report WA/89/23.

CONTENTS

SUMMARY

The geology of Sheet SP28SE (Allesley) is described with reference to information from rocks at outcrop and significant boreholes and shafts.

Cambrian rocks and the overlying coal bearing part of the Carboniferous sequence are known from several boreholes. Much of the dominantly red- bed Carboniferous sequence overlying these is known also from outcrop.

Glacial deposits cover much of the area, and details are given of their lithology and distribution. A diagram shows the elevation of the sub- drift (bedrock) topography.

Currently, coal mining is the only form of mineral extraction in the area.

A schedule of boreholes is appended.

INTRODUCTION

The following report describes the geology of 1:10,000 sheet SP28SE (Allesley) (Figure 1) and is designed to be used in conjunction with the 1:10 000 Geological sheet. Uncoloured dyeline copies of this map may be obtained from the British Geological Survey, Keyworth, Nottingham NG12 5GG.

Similar reports covering adjoining areas are:

SP27NE (Coventry West)	(Old 1988)
SP28NE (Fillongley)	(Rees 1989)
SP28SW (Meriden)	(Sumbler 1989)
SP38SW (Coventry North)	(Old 1989)

The map forms part of 1:50 000 Geological Sheet 169 (Coventry) for which a memoir was published (Eastwood and others 1923). The area was surveyed at 1:10 560 by C.H.Cunnington and T.Eastwood in 1913-1914. The whole of SP28SE was surveyed at the 1:10,000 scale by J.G.Rees in 1987-8 under the direction of Dr.A.J.Wadge as Regional Geologist. The survey and production of the map and this report were part- funded by the Department of the Environment. Palaeontological contributions were by Dr.A.W.A.Rushton and Dr.N.J.Riley.

TOPOGRAPHY AND LAND-USE

The area occurs north- east of Coventry on Upper Palaeozoic rocks of the Enville Group that form higher ground than the surrounding Mesozoic rocks. The rocks of the Enville Group form sandstone dip slopes and mudstone- rich scarps. In places these are overlain by drift sequences, composed mostly of tills, that form clay plateaux. Apart from Allesley village the area of SP28SE is largely given over to agriculture. The poorly drained soils on glacial clays and Upper Palaeozoic mudstones have given rise to dairying. The better- drained soils on Upper Palaeozoic sandstones, glacial sands and gravels, river terraces and alluvium are largely used for sheep rearing. The ground is dissected by the River Sherbourne and Pickford Brook and their tributaries.

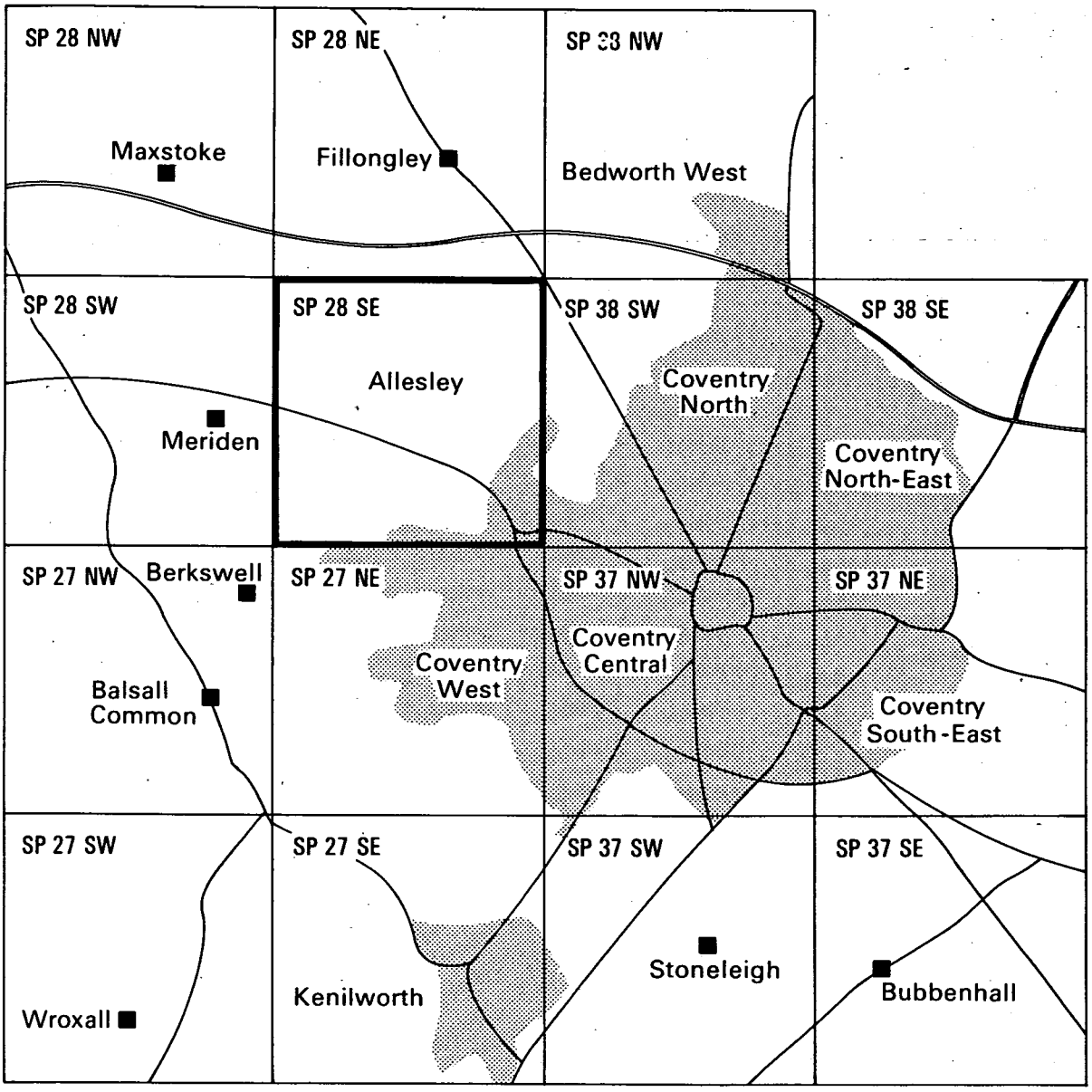

Figure 1. Area of this report relative to area of whole contract is shown with bold outline

GEOLOGICAL SEQUENCE

The solid formations and Quaternary and Recent deposits on sheet SP28SE are listed below; the relative and absolute thicknesses of the former are shown on the map.

Quaternary and Recent

Head
Alluvium
River Terrace deposits
Till
Fluvio- glacial sand and gravel
Glacio- lacustrine laminated clay and silt

Unconformity

Permo- Carboniferous

	Tile Hill Formation
Stephanian-	Coventry Sandstone Formation
Westphalian D	Keele Formation *
	Halesowen Formation *
Westphalian C	Etruria Marl Formation *
Westphalian A-C	Productive Coal Measures *

Unconformity

Cambrian
(including Tremadoc)

Tremadoc Series	Merevale Shales*
Merioneth Series	Monks Park Shales*

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* present at depth

Cambrian

Wherever proved, the pre- Carboniferous rocks are of Cambrian age (here taken to include the Tremadoc Series).

Monks Park Shales
The upper part of this formation has been proved at the base of the Long Lady Wood and Corley Moor boreholes (Figure 2). It consists of black- pale grey, slightly calcareous mudstones with a sparse brachiopod and trilobite fauna that includes:

Broeggeria salteri (Holl)
Ctenopyge fletcheri (Matthew)
Orusia lenticularis (Wahlenberg)
Sphaerophthalmus major (Lake)

Merevale shales Formation
The lower part of the formation which generally lacks distinctive biostratigraphically useful fossils has been proved at the base of Hawkes End, Meriden, and Greenways Farm boreholes. It is distinguished by bioturbated mudstones which contain thin sandstones and siltstones. The fauna within these includes:

Broeggeria salteri (Holl)
Linnarssonia belti (Davidson)
Tomaculum sp.
Dictyonema sp.
Lingulella sp.
Orusia sp.

Upper Carboniferous (Westphalian- Stephanian)

Upper Carboniferous (Westphalian- Stephanian) rocks overlie the Cambrian rocks unconformably. The succession comprises mudstones, siltstones, sandstones and seatearths, and is coal bearing in its lower part. The lithostratigraphy of the group is summarised in Table 1. The upwards passage from predominantly grey rocks of deltaic and alluvial facies, to red measures, suggests a progressive change to more arid conditions in late Westphalian and Stephanian times. The paucity of marine and non- marine fauna, particulaly in the upper part of the Westphalian and in the Stephanian, makes a precise chronostratigraphic subdivision of the sequence impractical, and the ages of the younger formations can only be estimated.

Productive Coal Measures (Westphalian A,B and C) (Figures 2 & 3)

The Productive Coal Measures include all of the Westphalian strata up to the base of the Etruria Marl. The Westphalian A/B boundary is taken at the Vanderbeckei (Seven Feet) Marine Band, or in its absence, immediately above the Seven Feet Coal. The Westphalian B/C boundary is placed at the base of the Aegiranum (Nuneaton) Marine Band.

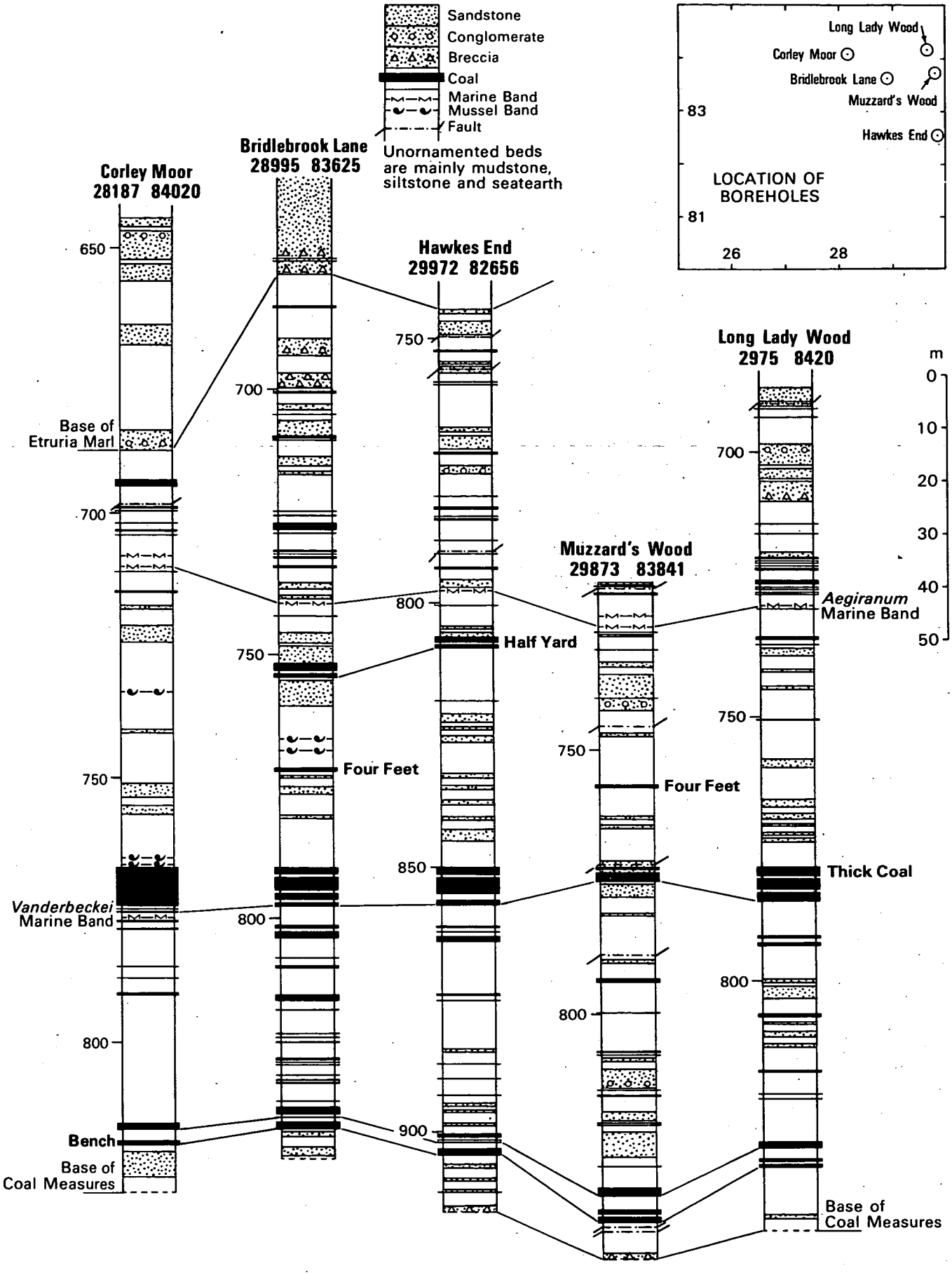


Figure 2. Comparative sections of the Productive Coal Measures (North eastern part of SP 28 SE)

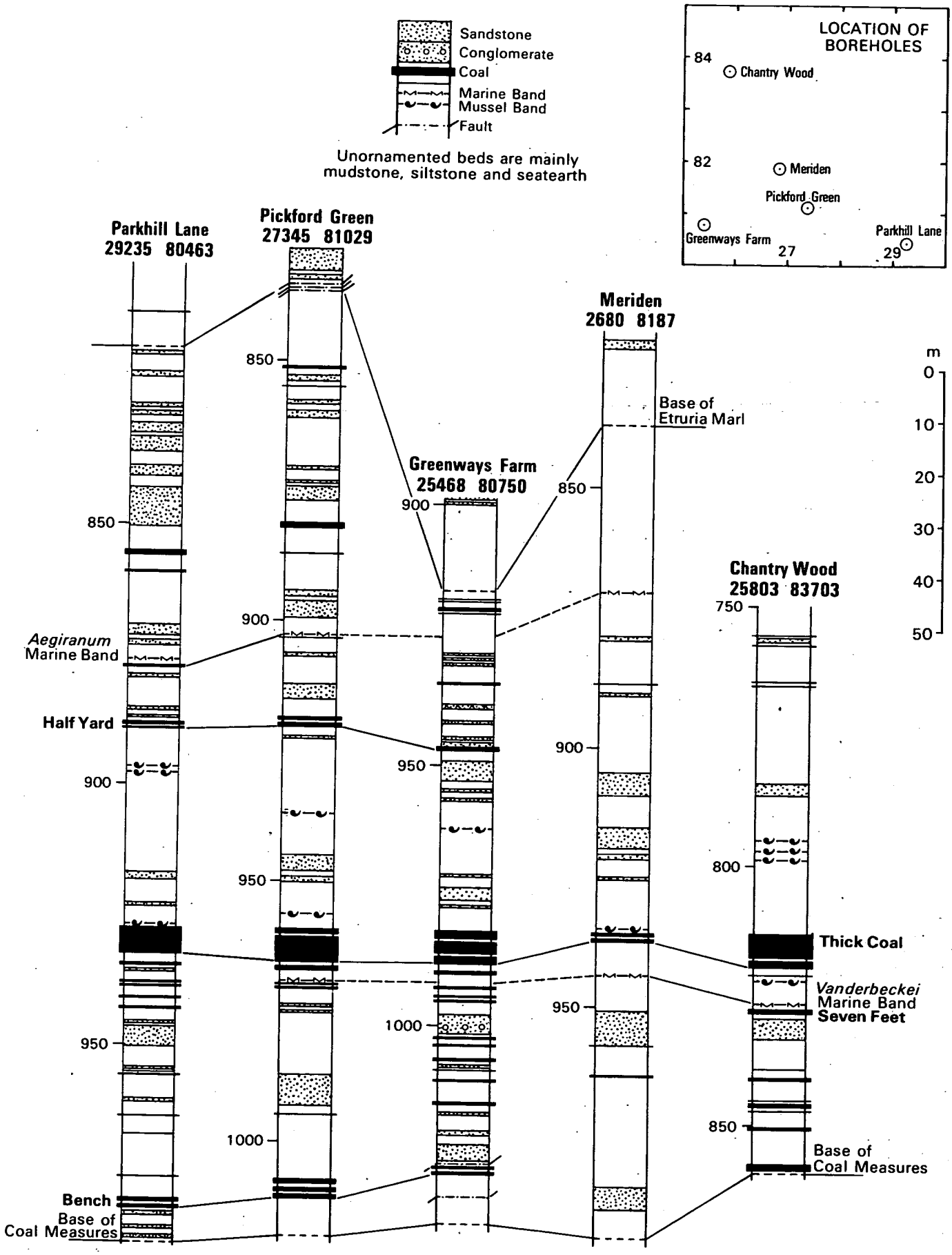


Figure 3. Comparative sections of the Productive Coal Measures (South western part of SP 28 SE)

Measures below the Thick Coal

These have been proved in a programme of drilling carried out by British Coal. The succession, estimated to be between 15 and 75 thick, consists of mudstone, siltstone and seatearth with subordinate thin sandstones. Ironstone in the form of thin bands is common. Coals occur at several levels but none has been worked. The principal named seams, in ascending order, are the **Bench, Seven Feet,** and **Smithy.** Of these, only the **Bench** is widely developed and of workable thickness.

	LITHOLOGY	FACIES
Tile Hill Mudstone Formation	Red mudstones with subordinate sandstones	Red- bed
Coventry Sandstone Formation	Red sandstones and conglomerates with subordinate mudstones	Red- bed
Keele Formation	Red mudstones with subordinate sandstones and thin limestones	Red- bed
Halesowen Formation	Grey sandstones and mudstones with thin coals and limestones	Delta top
Etruria Marl Formation	Variegated mudstones seatearths and sandstones	Alluvial
Productive Coal Measures	Grey mudstones, seatearths and sandstones with coals of workable thickness	Coal swamp

Table 1. Summary of Westphalian- Stephanian Lithostratigraphy

The **Bench**, which usually is split, is cumulatively over a metre thick in the east of the area but thins to less than 0.7m in the west. It is of good quality but tends to become inferior towards the roof and floor. The seam is overlain by c.25-40m of planty mudstones, seatearths and thin coals. A 3 to 8m thick, cross and parallel laminated sandstone containing stem fragments, occurs throughout the area in the middle part of this interval.

The **Seven Feet** varies considerably in compostion and thickness over the area. It is represented by several very thin seams in the Corley Moor, Park Hill Lane and Greenways Farm boreholes, but in other boreholes it occurs as a single seam, which in the Muzzards Wood borehole is over 0.8m thick.

The Vanderbeckei Marine Band, which generally is represented by an impoverished *Lingula* fauna dominated by *L.mytilloides* lying close to, or in contact with the **Seven Feet**, was not detected in several boreholes (Figures 2 and 3). The 5-8m interval between it and the **Thick Coal** is dominated by seatearths.

The Thick Coal

The Thick Coal a combination of several seams that are separated outside the area. In ascending order these are the **Nine Feet, Ell, Ryder, Bare, Two Yard** and **High Main** coals (Fulton and Williams 1988, p.204). Over most of the area the Thick Coal varies between 5 and 6.8m thick. However in places it is considerably thinner, for instance in the Muzzards Wood and Meriden boreholes it is c.1.65m thick, and in the latter it is split by a 0.3m thick mudstone.

Measures between the Thick Coal and the Etruria Marl

The thickness of this interval varies considerably from about 60 to 130m thick. Over much of the area, at the base of this interval, the mudstones immediately overlying the **Thick Coal** contain an impoverished bivalve fauna. Above this is a 15-20m thick sandstone rich interval, which in the north eastern part of the area is overlain by the **Four Feet** coal; a laterally impersistent seam which is less than 0.5m thick. This in turn is overlain in parts by a shelly band containing ostracods and fish debris which is separated from the **Half Yard** seam by c.7-17m of mudstone and seatearth and sporadic sandstones. The **Half Yard** which is commonly split and up to 1.4m thick is laterally persistent over all but the north eastern part of the area.

The Aegiranum (Nuneaton) Marine Band, is separated from the **Half Yard** by 10-15m of mudstone and sandstones. It contains faunas dominated by brachiopods including *Chonetes, Orbiculoidea, Rugosochonetes* cf. *skipseyi, Lingula,* particularly *L.mytilloides,* and productoids and by ostracods, goniatites inculding *Anthracoceras,* and fish fragments including *Megalichthys.*

The sequence between the Aegiranum Marine Band and the base of the Etruria Marl is very variable, and consists dominantly of mudstones seatearths, sandstones and coal seams, several of which are between 0.5 and 1m thick.

Etruria Marl Formation (Westphalian C)

A sequence of mudstones, sandstones, and breccio- conglomerates, mainly grey in colour but also variegated red, brown and yellow, occurs between the Productive Coal Measures and the overlying Halesowen Formation. The boundaries of the formation are rather indefinite but the base is taken at the lowest occurrence of red beds or breccio- conglomerates of "espley" facies, and the top at the incoming of grey sandstones of the Halesowen Formation. As thus defined, the thickness of the formation varies between 26 and 86m. Parts of the formation were cored in several boreholes (Figures 2 and 3).

Halesowen Formation Westphalian D

The Halesowen Formation is dominated by grey sandstones, greenish grey mudstones, seatearths and rare coals and limestones. The thickness of the formation recorded in boreholes in the area mostly ranges between 60 and 153m, though interpretation of geophysical data in the Hawkes End borehole suggests that in places the formation is less than 30m thick. In the absence of better evidence, the base of Westphalian D is arbitrarily taken at the base of the formation. The formation was cored only in the Meriden borehole.

Sandstones predominate in the lower part of the formation, where they are associated with impersistent coals, including the **Milton** which is widely developed in the area to the south. The **Index Limestone** (Eastwood and others 1923) forms a useful marker horizon at about 30m below the top of the formation. The beds above the **Index Limestone** are dominantly mudstones which are mostly grey but locally are chocolate- brown, yellow or red. The junction with the overlying Keele Formation is transitional but is taken at the change to a predominantly red- bed facies.

In 1943 G.H.Mitchell collected a flora from the Halesowen Formation of the Meriden borehole which contained *Neuropteris scheuchzeri, N.flexuosa, N.ovata, N.tenuifolia, N.heterophylla* and *Alethopteris lonchitica.* Floral and faunal evidence of the age of the Halesowen Formation give a Westphalian D age (Cleal 1984).

Keele Formation (Westphalian D- Stephanian?)

The Halesowen Formation is overlain by a red- bed sequence consisting mainly of mudstone, but including subordinate sandstones and rare thin beds of porcellaneous limestone. The formation is estimated to be between 170 and 300m thick. The top of the formation is defined by a thick sandstone at the base of the overlying Coventry Sandstone Formation. The Keele Formation was only cored in the Meriden borehole in which reddish brown mudstones with grey and yellow streaks are interbedded with impersistent sandstones. In the absence of reliable palaeontological data the formation is tentatively ascribed a Westphalian D to Stephanian age (Besly 1988).

Enville Group

Coventry Sandstone Formation (Westphalian D- Stephanian)

The Coventry Sandstone Formation consists of an alternating sequence of sandstones, mudstones and thin conglomerates of red-bed facies. Sandstones, although not everywhere dominant over mudstones, make up most of the sequence, being predominant in the lower 50m, and from the base of the Corley Member to the top of the formation. Many of the sandstones and mudstones are laterally very impersistent; this well illustrated by the logs of the Meriden Waterworks boreholes, SP28SE 6 and 7 (Figure 4), which were drilled less than 7m apart. The predominance of sandstones in the formation serves to distinguish it from the underlying Keele Formation. The age of the formation was tentatively placed by Besly (1988) as Stephanian though definitive biostratigraphical evidence is lacking.

The sandstones are mostly moderately to well sorted, fine to coarse grained. They often fine upwards, from bases, which are commonly erosional or have an often imbricated pebbly lag. Many coarser sandstones are massive in texture except for "floating" extraclasts, or mudstone "rip up" clasts that they contain. Trough cross- lamination is common in many of the coarser sandstones as can be seen in Figures 5 and 6. The variation in the azimuths of dipping laminae of these suggest considerable variation in palaeocurrent direction. Most finer sandstones are parallel laminated, and flaggy in appearance, e.g. those exposed at Farrow Oak [2599 8425]. The mudstones in the sequence are mostly poorly laminated. Most mudstones,and several sandstones in the formation contain green- blue reduced areas or discrete spots. Some breccias and conglomerates in the formation, such as those exposed in the Meriden Hill cutting, are very poorly sorted, and have random clast geometries and irregular tops.

Most coarser sandstones, particularly those which are erosional or have pebbly bases are interpreted as channel sandstones. The cross bedding formed in longditudinal or point bars (e.g. Figure 6) of a channel, whilst some of the poorly sorted conglomerates and breccias are interpeted as debris flows. The fine grained sandstones are interpreted as overbank sandstones, and mudstones as lagoonal mud deposits. Further information on the environment of depostion of the formation is given by Besly (1987, 1988).

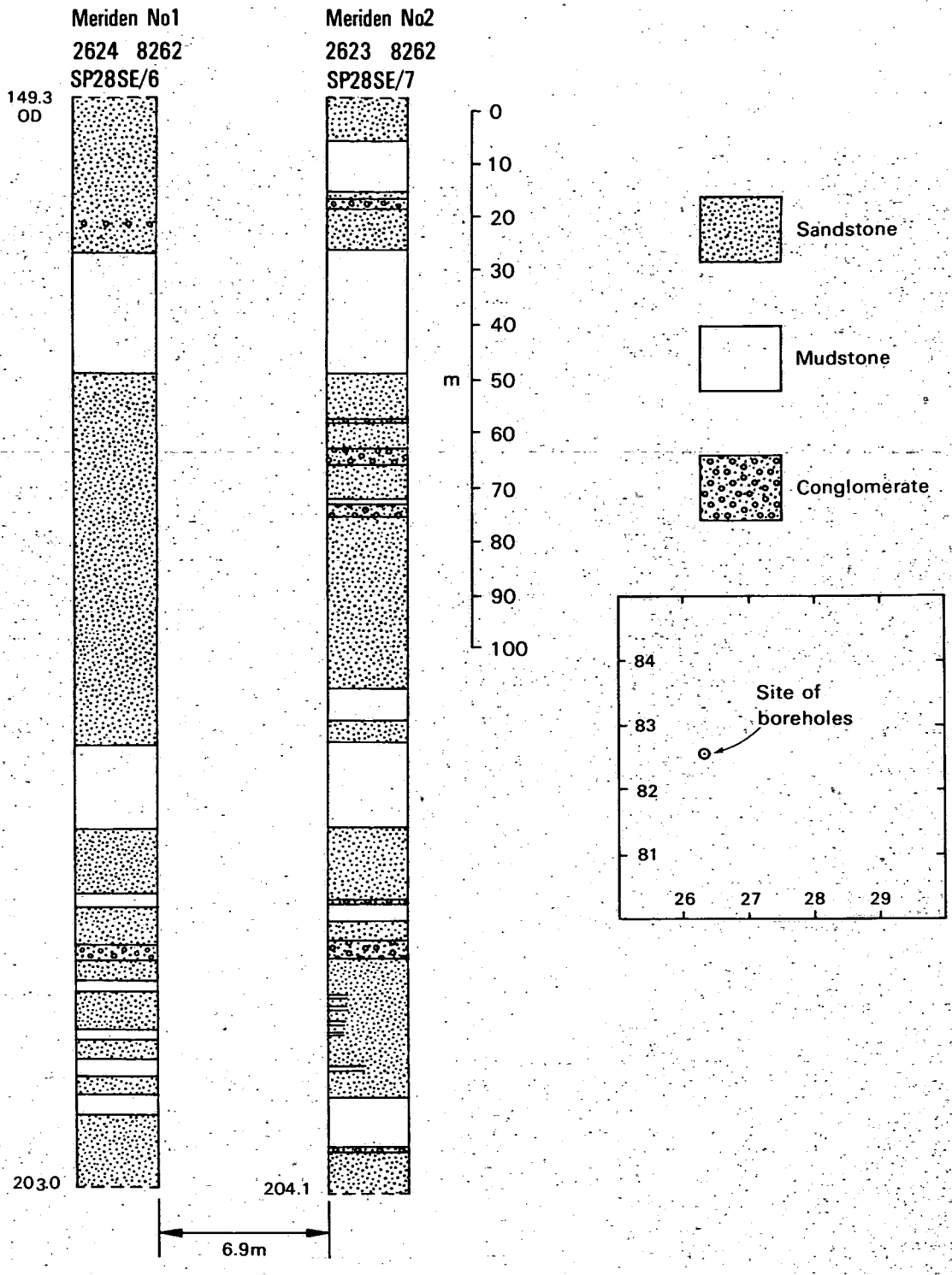


Figure 4. Sections of the Coventry Sandstone Formation in the Meriden Waterworks Boreholes

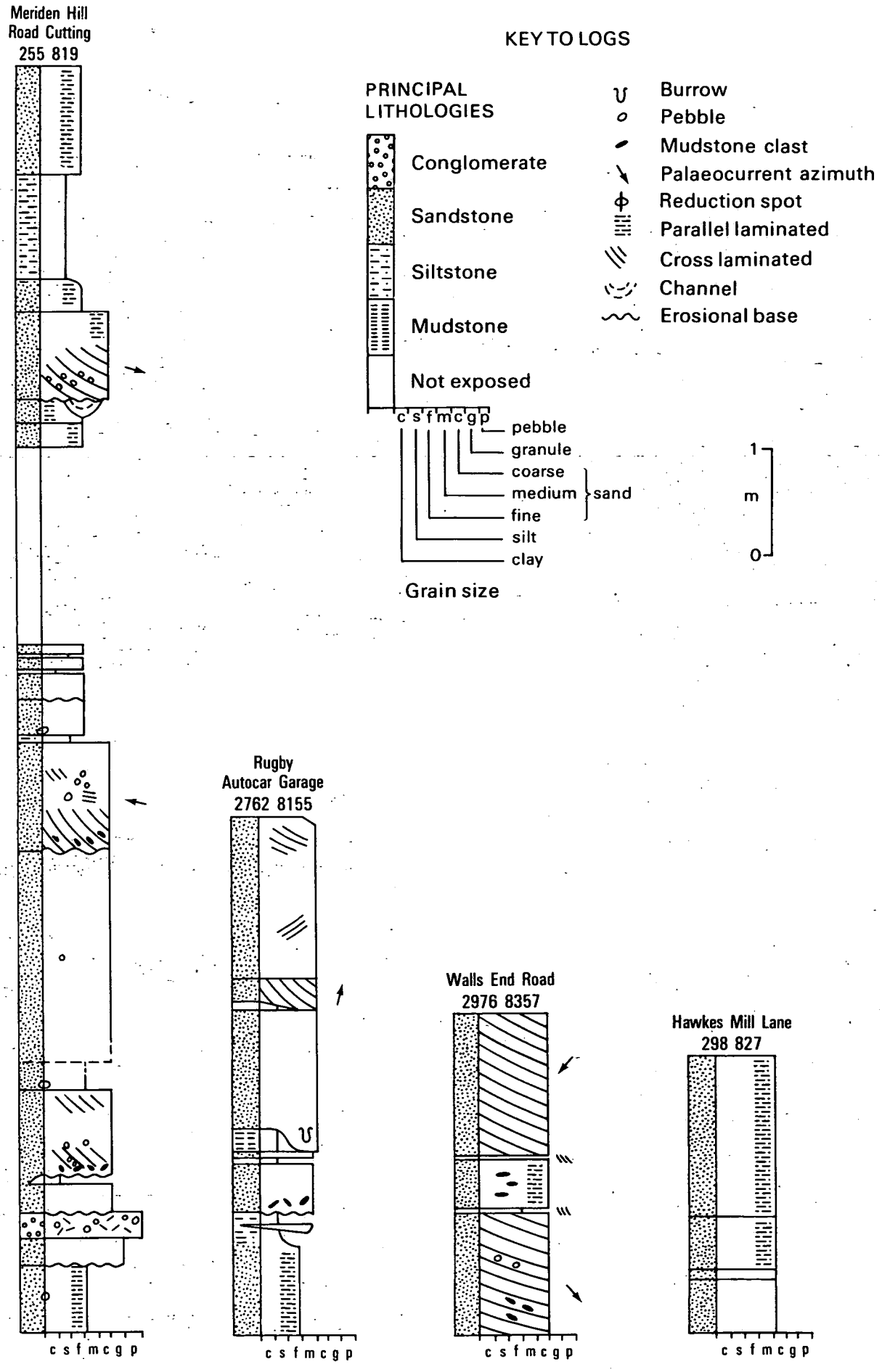


Figure 5. Logs of principal sections of the Coventry Sandstone Formation exposed on sheet SP 28 SE

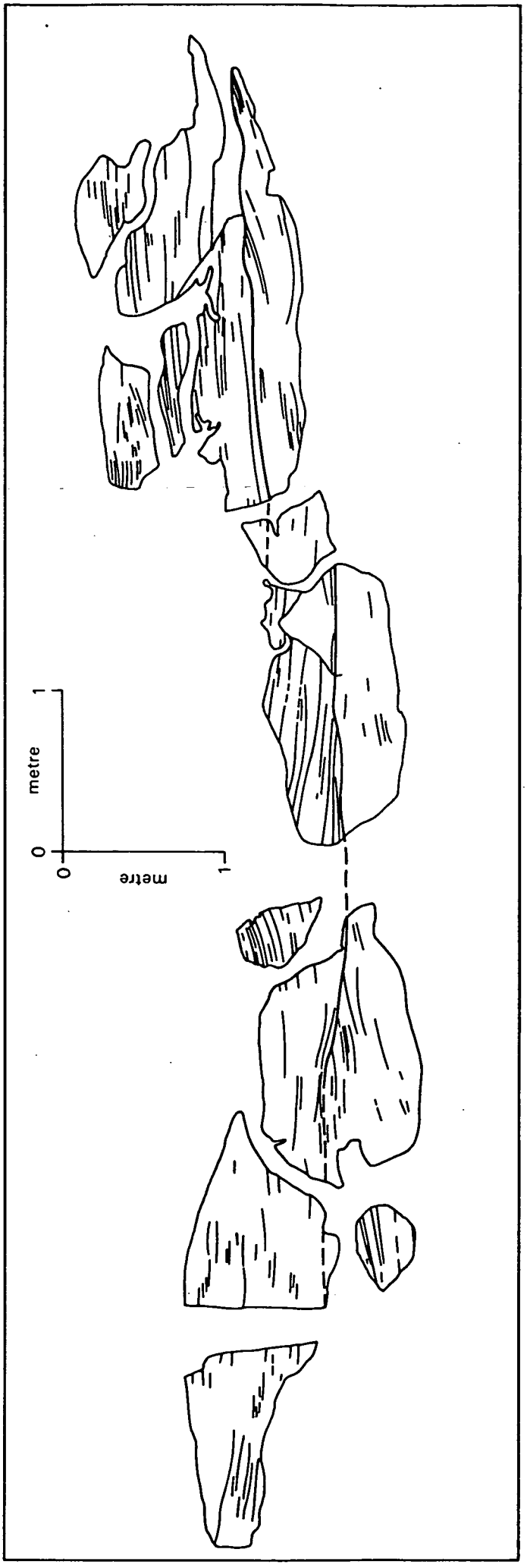


Figure 6. Field sketch of Coventry Sandstone Formation at a quarry SW of Meriden Shafts [2667 8288]
The cross-stratification was probably formed by lateral accretion of channel sands.
Bases of sandstone sets are shown by heavy lines.

From the interpretation of geophysical logs of un- cored boreholes, the cored sequence of the Meriden borehole and trigonometric calculation the Coventry Sandstone Formation is c.420-550m thick.

The Corley Member

The Corley Member encompasses a sequence of pebbly sandstones and conglomerates in the middle part of the Coventry Sandstone Formation. As pebbly sandstones and conglomerates occur in the Coventry Sandstone Formation below and above the Corley Member, the boundaries, particulary the upper boundary of the member are rather indefinite. The base and top of the member are diachronous.

The conglomerates and pebbly sandstones of the formation are best developed in the area around Marsland Farm [295 850], Hollyberry End [2675 8364], west of Couchman's Farm [2708 8300 to 2760 8330] and at Muzzard's Wood [2977 8419]. Pebbles and cobbles in pebbly sandstones at a temporary exposure at the latter site consisted predominantly of quartz veined doleritic suites, micro-greywackes and quartzites, which are interpreted to have been derived from Lower Palaezoic or Pre- Cambrian rocks. These are mostly angular to sub- rounded with a low sphericity.
Most smaller clasts consist predominantly of angular cherty fragments. The sandstone in which the clasts occur is composed of medium, well rounded grains. At other localities, such as west of Couchman's Farm [2728 8242] algal and oolitic limestones of probable Dinantian age occur in a suite of clasts similar to that described above. The regional pattern of clast types is described in detail by Shotton (1927).

The Tile Hill Mudstone Formation (Stephanian?)

The Tile Hill Mudstone Formation consists of mudstones and sandstones of red- bed facies. The thickness of the formation exposed on the sheet is estimated to be c.60m. As the lower part of the formation is sandstone rich and the upper part of the underlying Coventry Sandstone Formation is mudstone rich, the junction is transitional. The base of the Tile Hill Mudstone Formation has been placed at the base of the lowest laterally extensive mudstone.

STRUCTURE

Pre- Carboniferous structures

Viewed in their regional setting (Old and others 1987, fig.2) the Cambrian rocks lie on the NW limb of a broad, presumably Caledonian, NE-SW trending syncline, which has been identified by plotting the faunal zones proved in boreholes. The varied dips proved in the boreholes in the appendix are not necessarily in accord with this structure and the folding of these beds is evidently more complicated in detail.

Intra Carboniferous movements

From the borehole evidence on the 1:10,00 map it is evident that there are large lateral thickness variations of the Carboniferous formations in the area. These may be attributed to different sedimentation patterns on either side of syn- sedimentary faults. The unconformity at the base of the Halesowen Formation (Old and others 1987) may have been created by the movement of similar faults in adjoining destricts (Mitchell 1948), and possibly also beneath the Enville Group (Besly 1987). Non- sequences at these levels are not easily demonstrated in the present area.

Post- Carboniferous structures

Following the deposition of the Enville Group the Carboniferous rocks were gently folded during the Hercynian earth movements. The area occurs towards the centre of an open, southerly plunging syncline that contains several smaller, very shallow folds which trend between NNW-SSE and NE-SW. Several SW-NE or SE-NW faults probably are related to this folding as they rarely throw consistently in any direction yet are mostly oriented perpendicular to the direction of dip. Most faults in the area have small (less than 5m) throws.

QUATERNARY

Glacial deposits, consisting mainly of till, but also including waterlain sands, silts and clays cover much of the area. Conventionally, these deposits have been attributed to the Wolstonian Glaciation (Shotton and West 1969), but the stratigraphic basis of this glaciation is now considered questionable, and the deposits are regarded by many workers as Anglain in age (Sumbler 1983; Bowen and others 1986).

The glacial drift was deposited on a surface with considerable topographical variation (Figure 7). As boreholes have rarely penetrated the base of the drift, true drift thickness may be considerably greater than are shown (Figure 8).

Although a formal nomenclature has been applied to the stratified glacial deposits to the south east of the area (Shotton 1953), the classification is more difficult to apply in the present area, and a more generalised terminology has been adopted.

Glacio- lacustrine silts and clays

Silts and clays, which are generally stoneless, occur sporadically at the base of the main till sheet and appear to have been laid down in glacial lakes formed near the ice- margin. They are dominated by laminated silts and clays which range in colour between whitish- yellow and dark choclate brown. The clay-rich lithologies tend to be finely laminated as can be clearly seen in samples augered at Hill Fields Farm [280 830]. The silts tend to be more massive, and slightly more red- brown in colour. Several laminated clay and silt beds occur within the main till sheet (e.g. Figure 7) but have not been mapped.

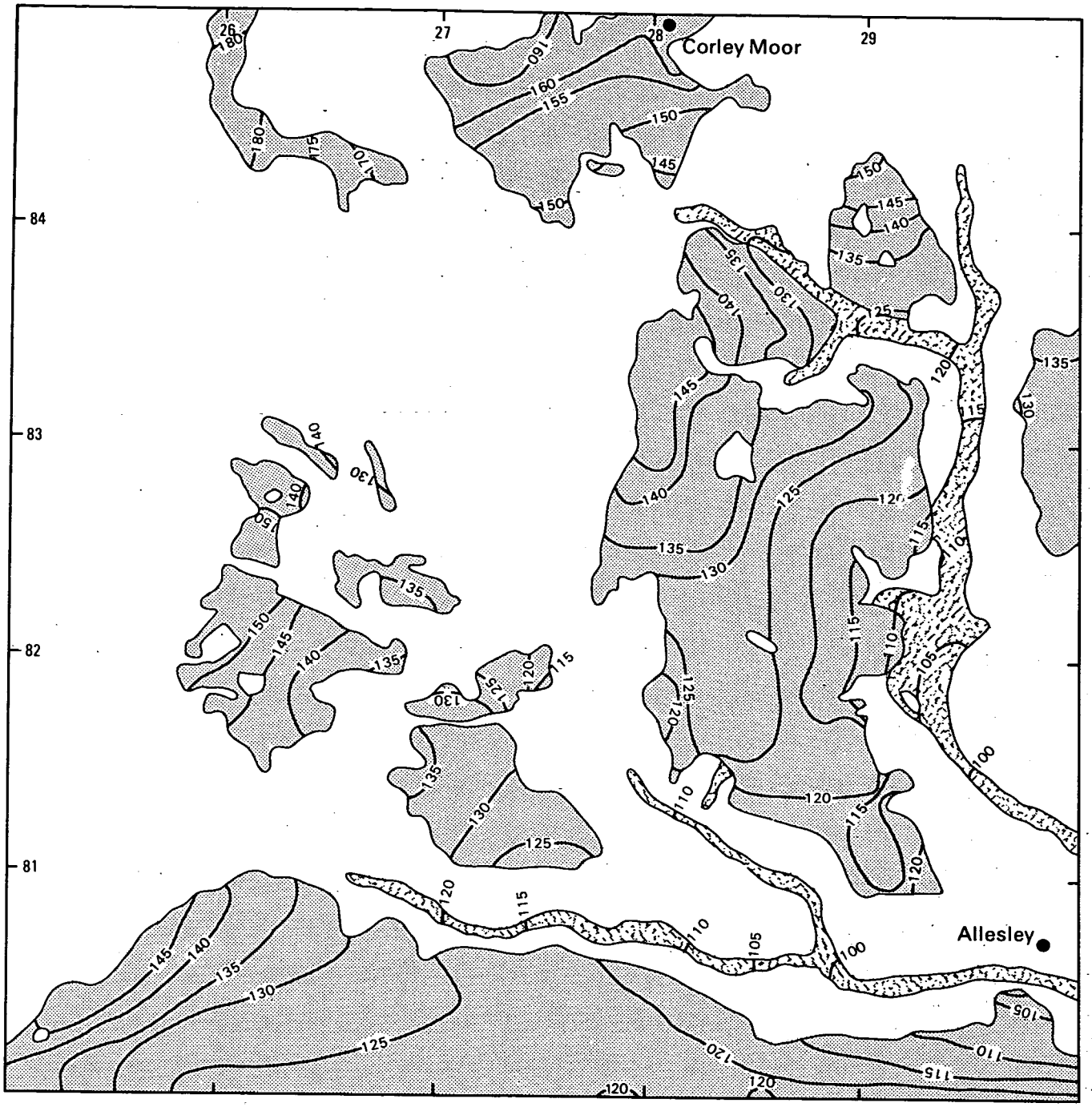
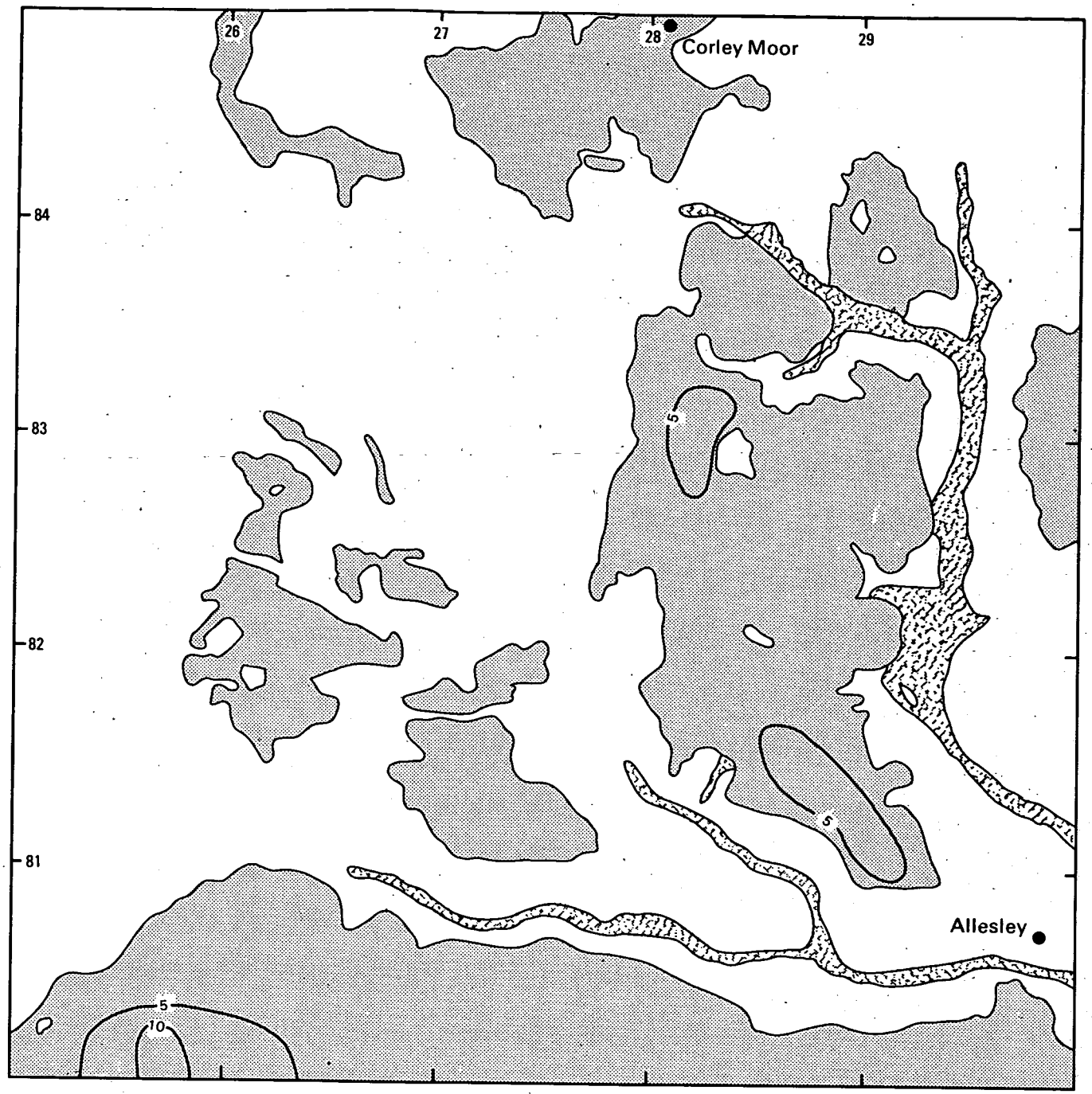


Figure 7. Sub-drift rockhead elevation



Outcrop of post-glacial drift

Outcrop of glacial drift

0 1 2
kilometres

5 Drift thickness contours in metres

Figure 8. Thickness of drift

Fluvioglacial sand and gravel

Sands and gravels in the area are commonest at the base of the till sheet, and normally overlie any glacio- lacustrine silts and clays. They are mostly composed of well washed, poorly to well sorted pale yellow, or yellow- orange sands, such as occur north of Marlbrook Hall [265 843] and near Showell Lane [2615 8250]. However variations in colour are common; for instance very dark brown sands occur at the Trusthouse Forte Hotel [2910 8100], and most of the sands and gravels along Bridle Brook Lane [292 832 are red. Where colour changes occurs within an area of outcrop, it does not appear to be sharp. It is possible that the red sands and gravels are composed of locally derived sediments of the Enville Group. The sands and gravels usually contain a large proportion of well rounded to angular pebbles and cobbles. These are compositionally similar to the erratics in the till sheets (see below). "Pods" of sands and gravels also occur within the main till sheet. One of these was drilled by boreholes SP28SE/ 101-102 (Appendix 2). Several sand and gravel beds occur within the main till sheet though have not been mapped out (e.g. Figure 9).

Till (Undivided)

The main areas of till occur north west of Allesley, and on the southern margin of the area. Where the main till sheet does not lie directly on rocks of the Enville Group, it is usually underlain by glacio- lacustrine silts and clays or fluvio-glacial sands and gravels. The main till was intercepted by shallow boreholes (SP28SE/ 100 (A-D), 101- 102 (Appendix 2), though was mostly mapped using a hand auger. The till consists of a stiff, brown or reddish brown, sandy clay with a variety of exotic and locally derived erratics. Pebbles of "Bunter" quartzite and Enville Group lithologies (sandstones and siltstones) are ubiquitous. In most areas the till contains a high proportion of brown- weathering quartzite blocks of the Cambrian Hartshill Quartzite. Other common clast varieties are shales, probably from the Cambrian north of the coalfield, and skerry sandstone and siltstone fragments from the Triassic Mercia Mudstone Group west of the coalfield. The abundance of these, particularly towards the top of the till sheet (Appendix 2), would suggest that the ice sheet depositing the tills had come from the north west. The base of the till sheet is generally sharp where it overlies the Enville Group, though where it overlies glacio- lacustrine clays the junction is often made indefinite by local interdigitation or near- surface shearing of the till by surface creep. Fluvio- glacial sand and gravel and glacio- lacustrine clay occur within the main till sheet, for instance near Windmill Farm [286 816, 289 817] and north of Oaklands Farm [285 836]. Several other stringers of sand and gravel and laminated clay and silt were not separately mappable, and have been included within the till. Boreholes SP28SE/ 100 (A-D) and 101-106 demonstrate the complexity of parts of the main till sheet in the Allesley area.

River Terrace deposits

River terrace deposits of the River Sherbourne occur in the vicinity of Stone House Farm, Allesley [294 821]. The terrace is between 0.5 and 2m above the river alluvium, and consists mainly of sand and fine to coarse gravel in a dark brown silty clay matrix.

Alluvium

Thin spreads of alluvium occur along the valleys of the River Sherbourne, Pickford Brook and their tributaries. The deposits, which are rarely more than 2m thick, consist principally of sandy, silty, pale reddish- brown loam, above a basal gravel. Where the alluvium overlies rocks of the Enville Group it usually contains a high proportion of red- brown sand.

Head

The head deposits occur towards the bottom of valleys and are usually a mixture of till and sandy wash from the Enville Group. The clays and silt within the head often have a vague lamination, possibly caused by shearing during down-hill creep.

Made Ground

There are several sites of made ground in the area. Most of these were created to level the ground surface, either by infilling of existing depressions, or building a ramp on a slope. The three main sites of made ground:

The Reservoirs on Meriden Hill [260 820]; these have been constructed largely of local materials including tills.

The embankments and car parks at the Jaguar factory, Allesley [298 815], which are up to 4m thick.

The site of the Triumph motor cycle factory. A new housing estate [267 827] has been built on the rubble of the factory which had been covered by a thin skin of boulder clay.

ECONOMIC GEOLOGY

Coal

Although a small amount of ground near Corley has been undermined from Coventry Colliery, the western part of the district occurs at the northern end of the South Warwickshire Prospect (National Coal Board 1985, British Coal 1987). This is a coalfield completely concealed by younger rocks. Details of the coal-bearing strata are given in the Westphalian section of this report. All of the recoverable reserves are in the Thick Coal.

Sand and gravel

Although there are large outcrops of fluvio- glacial sands and gravels, most production of sand and gravel in the past was very localised, and was derived from the de- cemented regolith of the Coventry Sandstone.

Stone

There are no good building stones in the area, and no quarrying of stone is currently being undertaken. In the past however, the Coventry Sandstone, particularly the Corley Member, has furnished stone for local use.

Water Supply

Although numerous water- wells have been drilled in the Coventry Sandstone Formation in the past (Butler 1946), today water is only pumped from the wells at the Meriden Water Works SP28SE/6,7 [2624 8262, 2623 8262] and at Brailles Farm SP28SE/99 [2516 8285].

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APPENDIX 1 BOREHOLE SCHEDULE FOR SP28SE

BOREHOLE REF.NO.		BOREHOLE NAME	GRID REF.		DEPTH (m)	DATE
1		MERIDEN BH	2680	8187	1028.85	1944
2	c	CORLEY MOOR B.BH	28187	84020	868.68	1976
3	c	CHANTRY WOOD BH	25803	83703	876.71	1976
4	c	PARK HILL LANE BH	29235	80463	992.49	1978
5	c	BRIDLE BROOK LANE BH	28995	83625	855.50	1978
6		MERIDEN WATER WORKS NO.1	2624	8262	203.0	1939
7		MERIDEN WATER WORKS NO.2	2623	8262	204.00	1939
8		NEAR BEECH HOUSE OAKLANE	2908	8283	123.61	1919
9		WASHBROOK LANE HAWKES END	2917	8279	4.95	1919
10		ADJ.COTT WASHBROOK LANE HAWKES END	2918	8270	4.27	1919
11		SHERBOURNE HOUSE FARM ALLESLEY	2903	8224	6.02	1919
12		WHITEHOUSE FARM NR.PICKFORD	2829	8223	12.04	1919
13		HARVEST HILL FARM HAWKES END	2801	8242	18.29	1919
14		MARSLAND FARM CORLEY NUNEATON	2941	8461	6.30	1919
15		PIKERS LANE FARM CORLEY	2961	8346	7.31	1919
16		WELL IN FIELD-HILL FARM CORLEY	2886	8417	18.97	1919
17		TIDBURY CASTLE CORLEY	2863	8424	19.51	1919
18		N OF SLASH PITS FARM CORLEY	2824	8470	2.82	1914
19		COTTAGES AT CLAY LANE CORLEY	2828	8359	8.71	1912
20		NR. MISSION CHURCH CORLEY MOOR	2793	8461	13.41	1916
21		HARVEST HILL LANE HOLLYBERRY HALL	2741	8349	7.92	1913
22		COUCHMANS FARM HOLLYBERRY	2765	8329	19.81	1917
23		NIGELLEYN FILLONGLEY LANE MERIDEN	2600	8420	53.34	1957
24	c	N.C.B.GREENWAYS FARM	2546	8075	1047.83	1987
25	c	PICKFORD GREEN N.C.B.	4273	2810	813.00	1977
26	c	MUZZARDS WOOD N.C.B.	2988	8387	852.27	1987
27	c	LONG LADY WOOD (BRITISH COAL)	2975	8420	862.09	1987
28		NEWFIELD SCHOOL COVENTRY 1	2927	8184	6.10	1967
29		NEWFIELD SCHOOL COVENTRY 2	2926	8177	4.57	1967
30		NEWFIELD SCHOOL COVENTRY 3	2922	8172	6.10	1967
31		NEWFIELD SCHOOL COVENTRY 4	2913	8179	4.88	1967
32		NEWFIELD SCHOOL COVENTRY 5	2909	8187	4.42	1967
33		NEWFIELD SCHOOL COVENTRY 6	2904	8187	4.88	1967
34		NEWFIELD SCHOOL COVENTRY 7	2905	8191	4.57	1967
35		NEWFIELD SCHOOL COVENTRY 8	2916	8188	1.83	1967
36		NEWFIELD SCHOOL COVENTRY 9	2920	8181	4.88	1967
37		NEWFIELD SCHOOL COVENTRY 10	2915	8183	5.79	1966
38		OAK LANE FLYOVER 1	2727	8184	4.57	1966
39		OAK LANE FLYOVER 2	2728	8184	5.18	1966
40		OAK LANE FLYOVER 3	2729	8185	8.38	1966
41		OAK LANE FLYOVER 4	2733	8191	4.57	1966
42		OAK LANE FLYOVER 1	273	818	3.66	1966
43		OAK LANE FLYOVER 2	273	818	4.27	1966
44		OAK LANE FLYOVER 3	273	818	5.49	1966
45		OAK LANE FLYOVER 4	273	818	5.49	1966
46		OAK LANE FLYOVER 5	273	818	3.96	1966
47		OAK LANE FLYOVER 6	273	818	4.27	1966
48		OAK LANE FLYOVER 7	273	818	8.84	1966
49		OAK LANE FLYOVER 8	273	818	7.31	1966
50		OAK LANE FLYOVER 9	273	818	7.77	1964
51		OAK LANE FLYOVER 10	273	818	10.06	1967
52		OAK LANE FLYOVER 11	273	818	2.74	1964
53		OAK LANE FLYOVER 12	273	818	2.74	1964
54		OAK LANE FLYOVER 13	273	818	4.57	1964

BOREHOLE REG.NO.		BOREHOLE NAME	GRID REF. EAST	NORTH	DEPTH (m)	DATE
55		JAGUAR BODY SHOP (NCB)	2998	8164	19.80	1984
56		JAGUAR WORKSHOP 3	2997	8148	6.10	1974
57		JAGUAR WORKSHOP 4	2998	8150	5.10	1974
58		ALLESLEY BY-PASS XA	2929	8062	8.38	1964
59		ALLESLEY BY-PASS L	2929	8047	5.94	1964
60		ALLESLEY BY-PASS R	2937	8049	5.33	1967
61		ALLESLEY BY-PASS A	2927	8060	6.70	1967
62		ALLESLEY BY-PASS F	2933	8064	5.63	1967
63		ALLESLEY BY-PASS X	2929	8063	2.44	1967
64		ALLESLEY BY-PASS K	2932	8053	12.04	1967
65		MERIDEN SEWERAGE SCHEME 2	2506	8163	3.00	1977
66		MERIDEN SEWERAGE SCHEME 3	2522	8161	3.00	1977
67		MERIDEN SEWERAGE SCHEME 4	2535	8174	3.00	1977
68		MERIDEN SEWERAGE SCHEME 5	2521	8219	4.50	1977
69		MERIDEN SEWERAGE SCHEME 6	2522	8252	3.00	1977
70		MERIDEN SEWERAGE SCHEME 7	2535	8239	2.30	1977
71		MERIDEN SEWERAGE SCHEME 8	2545	8240	2.00	1977
72		MERIDEN SEWERAGE SCHEME 9	2555	8248	2.60	1977
73		MERIDEN SEWERAGE SCHEME 10	2558	8257	2.42	1977
74		MERIDEN SEWERAGE SCHEME 11	2566	8259	3.00	1977
75		MERIDEN SEWERAGE SCHEME 12	2575	8261	3.00	1977
76		MERIDEN SEWERAGE SCHEME 13	2590	8267	3.00	1977
77		MERIDEN SEWERAGE SCHEME 14	2606	8270	2.80	1979
78		MERIDEN SEWERAGE SCHEME 15	2617	8265	2.90	1979
79		MERIDEN SEWERAGE SCHEME 16	2559	8290	3.00	1979
80		MERIDEN SEWERAGE SCHEME 18	2506	8202	3.00	1979
81	c	HAWKES END BOREHOLE	2997	8255	932.56	1989
82		WINDMILL HOTEL ALLESLEY 1	291	810	3.15	1969
83		WINDMILL HOTEL ALLESLEY 2	291	810	3.07	1969
84		WINDMILL HOTEL ALLESLEY 3	291	810	8.84	1968
85		WINDMILL HOTEL ALLESLEY 4	291	810	9.14	1968
86		WINDMILL HOTEL ALLESLEY 5	291	810	3.71	1968
87		WINDMILL HOTEL ALLESLEY 6	291	810	4.88	1968
88		WINDMILL HOTEL ALLESLEY 7	291	810	9.30	1968
89		MERIDEN RESERVOIR BH 1	2589	8213	5.00	1988
90		MERIDEN RESERVOIR BH 2	2589	8213	10.05	1988
91		MERIDEN RESERVOIR BH 3A	2593	8213	4.10	1988
92		MERIDEN RESERVOIR BH 3B	2593	8213	6.20	1988
93		MERIDEN RESERVOIR BH 4	2593	8213	5.05	1988
94		MERIDEN RESERVOIR BH A	2589	8208	1.20	1988
95		MERIDEN RESERVOIR BH B	2589	8208	1.50	1988
96		MERIDEN RESERVOIR TP 1	2580	8213	3.80	1988
97		MERIDEN RESERVOIR TP 2	2580	8213	2.40	1988
98		MERIDEN RESERVOIR TP 3	2580	8213	4.50	1988
99		BRAILES FARM BOREHOLE	2516	8285	120.00	----
100		WINDMILL HOUSE FARM A-D	2898	8113	6.90	1988
101		WINDMILL HOUSE FARM HILL 1	2862	8147	7.00	1988
102		WINDMILL HOUSE FARM HILL 2	2861	8147	3.75	1988
103		LEY'S FARM 1	2825	8294	4.45	1988
104		LEY'S FARM 2	2822	8309	2.20	1988
105		LEY'S FARM 3	2932	8309	5.40	1988
106		LEY'S FARM 4	2824	8308	7.00	1988

Detailed logs of non-confidential boreholes may be examined at the BGS National Geosciences Data Centre, Keyworth, by prior appointment and payment of the current fees.

c. Denotes confidential records, details of which may only be released to a third party by permission of the original client.

APPENDIX 2

BGS DRIFT BOREHOLES DRILLED NEAR ALLESLEY, COVENTRY 1988.

These boreholes were drilled by a "Minuteman" rig with screw flights and barrel using a wireline. The cores were retained in removable plastic lining tubes within the barrel. These tubes were sealed, and re- opened for examination at a later date.

Boreholes SP28SE/100 A-D

These boreholes, sited at Windmill House Farm, were drilled to determine the nature of the junction between the main till sheet and underlaying fluvio- glacial sand and gravel. Geological mapping proved that this junction passes under the main Coventry-Birmingham Road at this point; tills occur at Windmill House Farm to the north of the road, and sands and gravels occur at a lower level to the south of the road in the vicinity of the Windmill Farm Hotel (see Figure 10).

Drilling problems necessitated the drilling of four boreholes, A-D. Core recoveries were as follows:

A	%
0.6-1.3m	100
1.3-1.8m	90

B	%
0.6-3.2	100

C	%
0.6-1.2m	100
1.2-2.2m	90
2.2-3.0m	50
3.0-5.0m	100

D	%
0.6-1.3m	90
1.3-2.1m	70
2.1-2.9m	0
2.9-4.5m	90
4.5-5.3m	60
5.3-6.9m	80

Logs of the cored sections are shown in Figure 10. The cores represent a cumulative sequence of c.12.5m. which is dominated by silty and sandy calcareous tills interbedded with sandy, generally non- pebbly, calcareous silts and sands and gravels. The junction between most beds is gradational. Clasts within the tills consist of Enville Group sandstone and siltstone and mudstone fragments, "Bunter" pebbles, greywacke fragments, quartz, and shale and quartzite fragments that were probably derived from the Cambrian outcrops to the north east, near

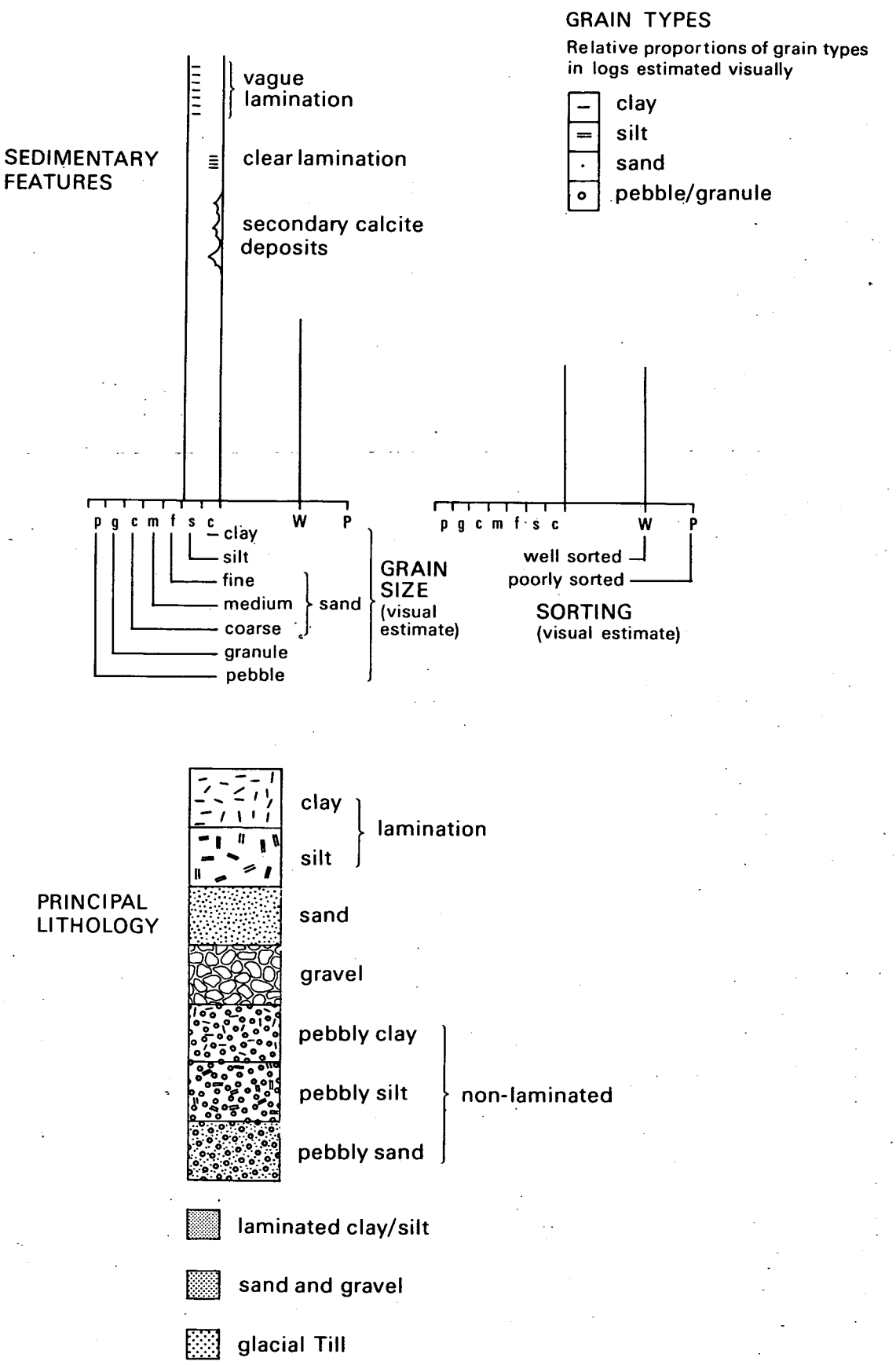

Figure 9. Key to Logs of Boreholes SP 28 SE/100 A-D (Figure 10)
SP 28 SE/101-106 (Figures 11,12)

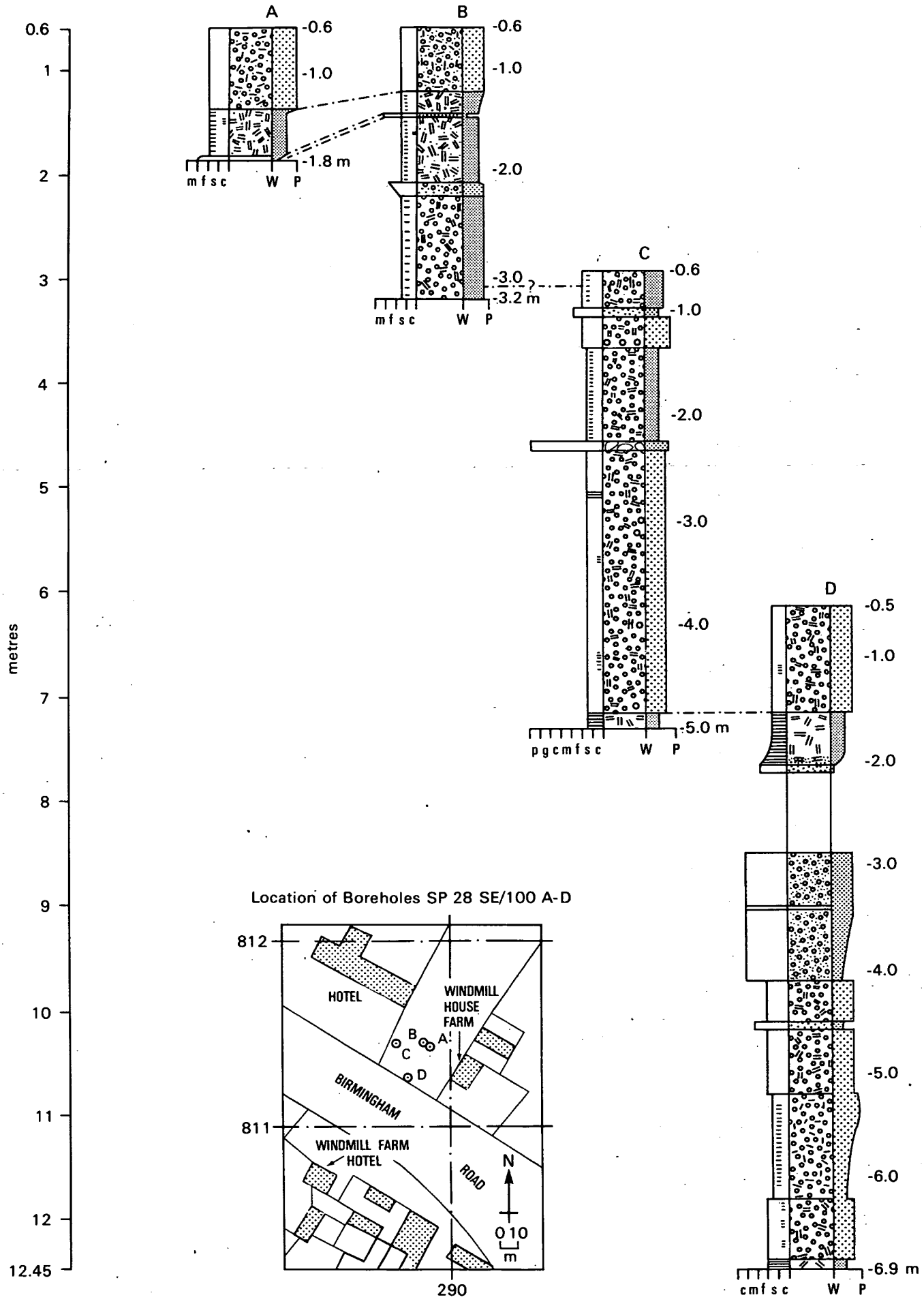

Figure 10. Windmill House Farm Boreholes SP 28 SE/100 A-D (For Key see Figure 9)

Nuneaton, and greenish sandstones and siltstones which probably represent skerry fragments from the Triassic Mercia Mudstone Group. Most of the greywacke, quartz and "Bunter" pebbles are moderately well rounded, whilst other varieties of clast are more angular to sub- angular. These tills are characterised by an abundance of clasts of Enville Group lithologies which in combination with their silty and sandy texture, and red colour, suggest that they were largely derived from local Enville Group rocks.

The generally pebble- free silts, which are also characterised by a laminated fabric, fine upwards from sand or pebble beds. The lamination and absence of pebbles within these suggest that they were water- lain.

The sand beds are variably pebbly and consist almost exclusively of well sorted and rounded grains. These beds may be the result of removal of fines from the till by water, deposition by water below an ice sheet, or alluvial or aeolian depostion on the margins of an ice sheet. The lack of pebbles within some sands suggests that they were not formed by removal of fines from the till by water. The top of borehole D occurs at about the same level as the uppermost fluvio- glacial sands and gravels on the south side of the Birmingham Road next to the Windmill Farm Hotel. Consequently it is probable that the sequences in the borehole and exposed next to the hotel are laterally equivalent.

Boreholes SP28SE/ 101 and 102

These boreholes, sited on the hill behind the tractor factory at Windmill House Farm, were drilled to determine the nature of fluvio- glacial sand and gravel "pods" mapped within the main till sheet.

Drilling problems necessitated the drilling of two boreholes, SP28SE/101 and SP28SE/102 (see Figure 11). Core recoveries were as follows:

SP28SE/101	%
0.9-1.4m	100
1.4-2.2m	50
2.2-3.0m	60
3.0-3.75m	50

SP28SE/102	%
0.65-1.5m	40
1.5-3.0m	50
3.0-3.8m	70
3.8-4.6m	80
4.6-5.4m	30
5.4-6.2m	40
6.2-7.0m	60

The sequence in these boreholes is dominated by sands with variable clay, silt, granule and pebble contents and silty, very pebbly tills. The sands are generally very well rounded and well

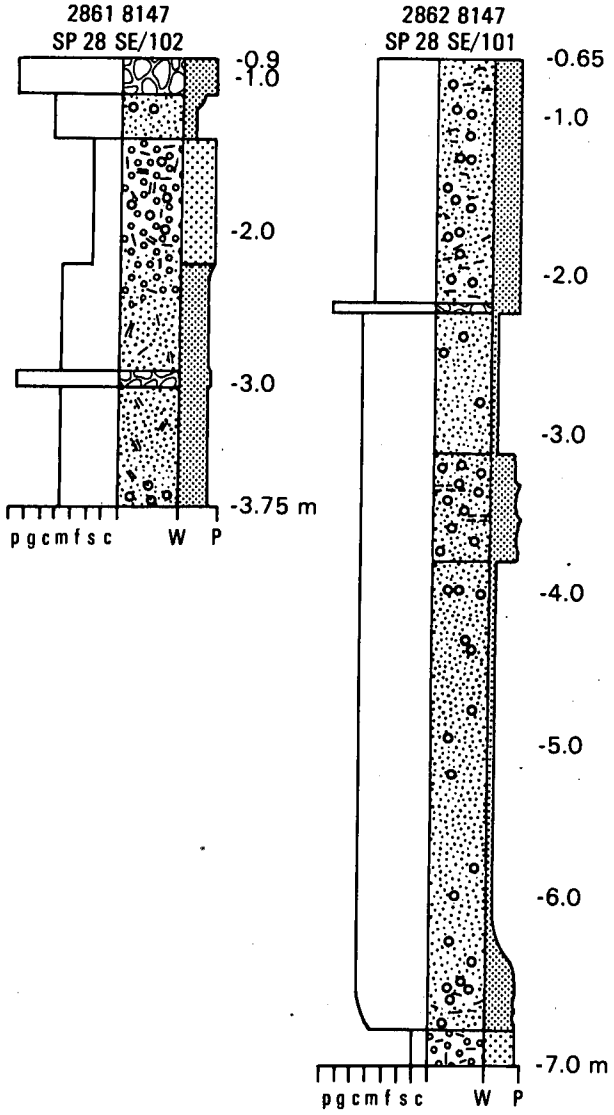

Figure 11. Windmill House Farm Hill (For Key see Figure 9)

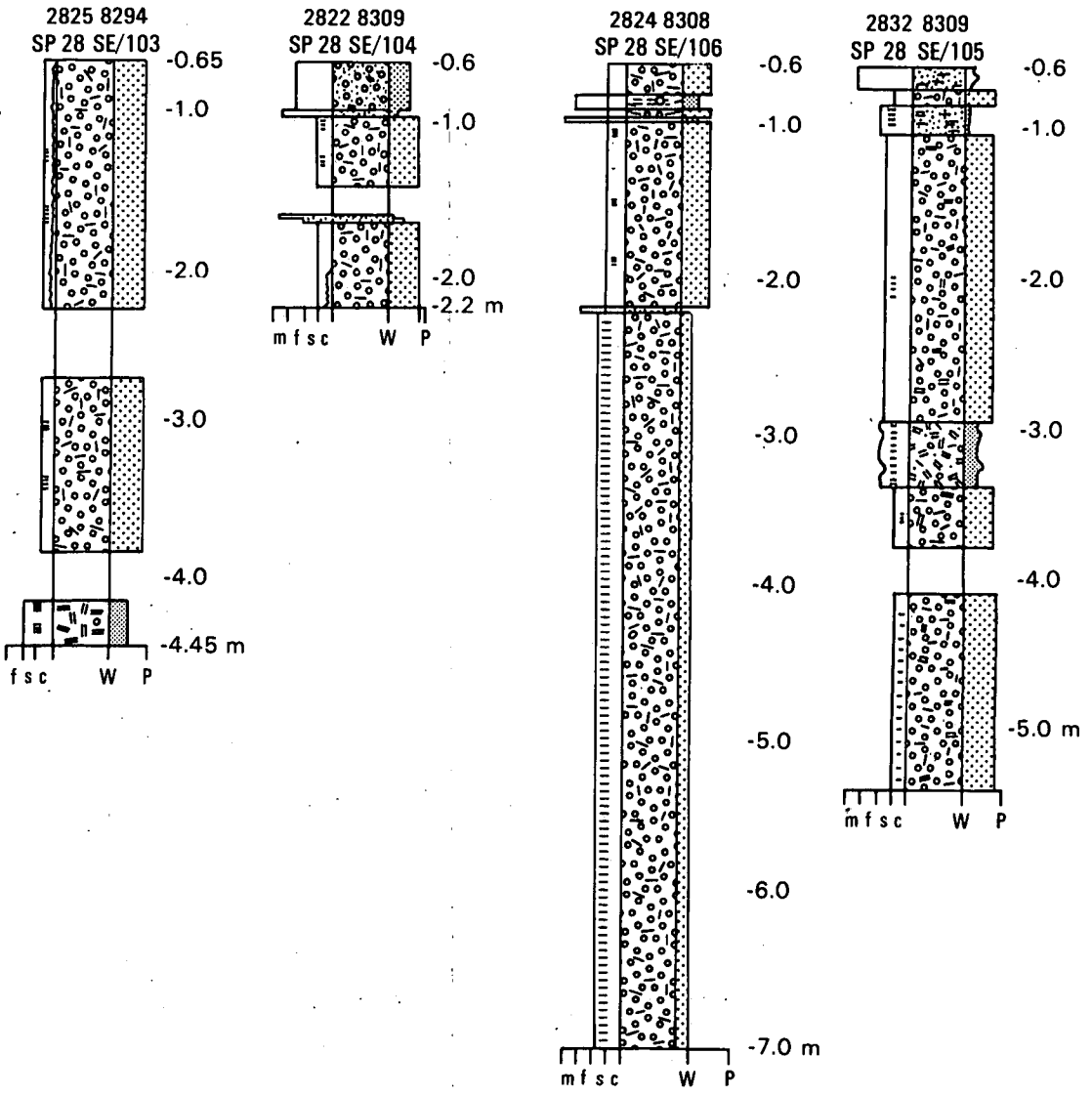

Figure 12. Ley's Farm Boreholes (For Key see Figure 9)

sorted, probably reflecting a local Enville Group source, rather than aeolian deposition. The clasts that they contain are generally distributed thoughout the beds. Angular to sub- angular clasts include fragments of Enville Group sandstone and siltstones as well as mudstones and quartzites of probable Cambrian age. Better rounded clasts include quartz, greywacke and "Bunter" pebbles. The mode of deposition of the sands is unclear, though it is probable that at least those which are almost pebble free were not formed by removal of fines from the till sheet.

The junction between the sands and gravels are mostly gradational. For instance, the very poorly sorted, pebbly bed between 2.2-1.4m in SP28SE/102 which is interpreted as a very silty sandy till, grades up from the underlying generally granule and pebble free sands. Also the clay rich till below 6.8m in borehole SP28SE/101 grades up into relatively well sorted sands over c.0.6m.

Boreholes SP28SE/ 103, 104, 105 and 106.
These boreholes, sited north of Ley's Farm, c.300m east of Hill Fields Farm on Harvest Hill Lane. They were drilled to determine the character of some of the higher tills in the Allesley area.

Core recoveries were as follows:

SP28SE/103	%
0.65-1.4m	80
1.4-2.3m	100
2.3-2.7m	0
2.7-3.85m	100
3.85-4.1m	0
4.1-4.45m	70

SP28SE/104	%
0.6-1.5m	90
1.5-1.65m	0
1.65-2.2m	100

SP28SE/105	%
0.6-3.0m	100
3.0-3.8m	90
3.8-4.1m	0
4.1-5.4m	100

SP28SE/106	%
0.6-1.4m	80
1.4-2.2m	100
2.2-3.0m	90
3.0-7.0	100

The sequence in these boreholes consists of tills interbedded with laminated, generally stone- free silts and sands. All the lithologies in these boreholes are notably calcareous, particularly the clay rich tills which contain large amounts of secondary calcite in places (see Figure 12). Both silty and clayey tills occur. The silty varieties mostly have a vague

lamination, occasionally accentuated by clay laminae, within them. The clasts in the sandy and silty tills, which make them very distinctive, are angular to sub- angular skerry fragments from the Mercia Mudstone Group of Triassic age. Other angular and sub- angular clasts include mudstones and quartzites, probably from the Cambrian sequence, sandstones and mudstones from the Enville Group, and coal as well as moderately to well rounded greywacke, quartz and "Bunter" pebbles.

The sand and silt beds within the tills contain few granules or pebbles, and the silts they contain are laminated. Probably these beds were water- lain.

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