
Excursion 31 The Craighead Inlier

Key details

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| Author | J. Keith Ingham |
| Themes | To examine parts of the Lower Palaeozoic cover sequence and faunas of the Craighead Inlier, near Girvan, to contrast the shallow water facies of the upper Ardwell Group with the more distal facies examined in Excursion 30, and to examine some later Ordovician formations not known elsewhere together with some succeeding Silurian rocks. Craighead Limestone, Kiln Mudstone and Sericoidea Mudstone at Craighead Quarry; Shalloch Formation and formations of the Lower Drummuck Group on Quarrel Hill; formations of the Upper Drummuck Group in Lady Burn; the late Ordovician High Mains Sandstone Formation; the Early Silurian Mulloch Hill Conglomerate and Mulloch Hill Sandstone formations, the Glenwells Shale and the Newlands Formation; trilobites, brachiopods and other fossils; shallow water and succeeding unstable slope sedimentation of a continuing transgressive proximal fore-arc regime. |
| Features | |
| Maps | O.S. 1: 25 000 Sheet NS 20/30 Maybole (south) and Daily O.S. 1: 50 000 Sheet 76 Girvan B.G.S. 1: 50 000 Sheet 14 W Ayr |
| Terrain | Some rough moorland walking and scrambling, with short car journeys between. |
| Distance and Time | About 20 km (12.5 miles), largely driving, from the first to the last locality, taking perhaps 6–7 hours depending on the time spent at each locality. |
| Access | This excursion is really only practicable by car or similar small vehicle. With nothing larger than a minibus there is adequate parking throughout. Permission is needed for some localities, as indicated in the text. |

Introduction

The Craighead Inlier is an area of Ordovician and Silurian rocks isolated from the main expanse of the Girvan Lower Palaeozoic tract and is situated a few kilometres NE of Girvan on the northern side of the Girvan Valley. The inlier is about 12 km long but only reaches about 2 km wide at the most (see (Figure 25.1)). Structurally it consists of a simple anticline plunging towards the NE. The north-western limb has quite shallow dips and the Lower Palaeozoic rocks are overlain unconformably by Lower Old Red Sandstone with some volcanic and intrusive rocks but the south-eastern side, flanking the Girvan Valley, is more complex with steep dips and a marginal fault belt of post Carboniferous age—the Kerse Loch Fault, which brings down Old Red Sandstone and Carboniferous rocks in the Girvan Valley, including coal-bearing strata, once mined. Almost certainly this fault line approximates to the position of a putative basement fracture of much earlier, mid Ordovician date.

The oldest rocks, belonging to the Ballantrae Complex, are confined to the south-western portion of the Miler around Craighead Hill and these are overlain unconformably largely by a shallow water facies of the upper Ardwell Group (the Craighead Limestone Formation) on their south-eastern flanks, adjacent to the Kerse Loch Fault—a particularly striking

exposition of the profound overlap of the Girvan cover sequence in a north-westerly direction. An oblique, ENE–WSW fault, bounding Craighead Hill on its northern side, is responsible for the absence at outcrop of any representative of the Whitehouse Group in the Miler because, to the north and NE of this fault, the core of the Craighead anticline exposes only the upper part of the Shalloch Formation. Unlike the foreshore sequence south of Girvan where basal Silurian channel-fill conglomerates rest on a scoured Shalloch Formation foundation (Excursion 30, Locality 12), younger late Ordovician (Ashgill) formations are preserved in the Craighead Inlier and thus the stratigraphical break at the base of the Silurian sequence is far less pronounced. These higher Ordovician and Silurian formations successively arch around, with some faulting, the nose of the north-eastwards plunging anticline so that younger formations appear progressively in that direction. The topographically low, extreme north-eastern part of the inlier is very poorly exposed.

Locality 1. Craighead Quarry [NS 234 014]

Ballantrae Complex, Craighead Limestone Formation (various shallow water facies), Kiln Mudstone Member, Sericoidea Mudstone Member, Flan tinhead Formation, trilobites, brachiopods, other fossils, unconformity over complex topographical foundation (Figure 25.1).

Leave Girvan, driving northwards along the A77 for about 1 km, passing the roundabout at the junction with the B734, and take the next turning to the right just after crossing the Water of Girvan (B741). This road follows the northern side of the Girvan Valley. Continue for about 5 km noting that you will cross the Glasgow railway line three times. About 0.5 km after the third crossing, which will take you to the northern side of the line, you will see Craighead Quarry on your left with a minor road at Low Craighead Farm leading towards it. Take this road for a short distance. An old quarry access track leaves the road sharply to the left and leads up towards the old ruined quarry plant. This is the most convenient place to park. This is a Nature Conservancy Council Site of Special Scientific Interest (SSSI) but there are no access problems at the time of writing.

The geology of Craighead quarry is complicated by faulting, hardly surprising in view of its proximity to the Kerse Loch Fault. Nevertheless, the general upwards succession is towards the east with Ballantrae spilites and cherts to the west of the quarry. The mid Ordovician erosional surface on which the Craighead Limestone Formation rests is evidently highly irregular for there are striking facies changes, and not only in the basal beds, over very short distances. From the vantage point of the old quarry plant, the extreme western slopes of the main quarry expose the lowest beds, with the underlying Ballantrae rocks (spilites and cherts) largely beyond the quarry margin. The beds dip generally and irregularly towards the east and consist of spilitic conglomerates and green sandstones, variably calcareous, passing laterally and vertically into rubbly and sometimes pebbly limestones. Yet on the facing wall of the main quarry is a very evident and striking topographic high of Ballantrae rocks—a 'window' of spilites—truncated behind by a fault. Resting on this high are massive limestones which on close inspection are revealed to consist of slightly pinkish and greenish brecciated algal rocks consisting very largely of *Girvanella* (see Williams 1962). The algal masses were obviously brecciated by vigorous current action and in all probability formed in extremely shallow water above the wave base. In other parts of the quarry and through the narrow passage leading to the back quarry, other lithologies are seen including limestones which have evidently slumped down slopes and sometimes containing uprooted and rolled coral masses, relatively well-bedded limestones rich in crinoid debris and occasionally mudstone lenticles and beds yielding faunas reflecting even deeper depositional environments. The submarine topography at the time of the Craighead transgression here was evidently very irregular indeed. One of the deeper water mudstone lenses is a relatively thin unit between bedded limestones and is exposed above the now rather overgrown ramp leading down the eastern side of the main quarry. It is known as the Sericoidea Mudstone Member, named after a small strophomenoid brachiopod. It has yielded a moderately rich and important fauna of brachiopods (Williams 1962), trilobites (Tripp 1980b) and graptolites (Rickards in Tripp 1980b) indicating the basal part of the *Dicranograptus clingani* Biozone (mid Caradoc). The fauna allows a precise correlation with a level some distance above the middle part of the off shore, perhaps basinal facies, of the Ardwell Group south of Girvan.

Another, more substantial mudstone member, known from measured section evidence in other small quarries to the SW, interdigitate in the massive bedded limestones of the higher part of the Craighead Formation, is best exposed near the narrow south western cutting into the main quarry by the old, ruined kiln. This, the Kiln Mudstone Member contains large

numbers of small, calcareous concretions, commonly decalcified, which have yielded a very large trilobite-brachiopod fauna (Tripp 1954, 1980a, Williams 1962). The exposure has been much collected and this has undercut a high brick retaining wall.

Further sampling should be done with the greatest care.

At this rind Caradoc level the Craighead Formation shelly faunas have a very strong Appalachian aspect and relatively rare fossils from the limestone of the quarries have permitted a correlation with the basal Shermanian Stage of eastern N. America.

To the east of the back quarry, in the stream section at the other side of the minor road, the highest Craighead limestones are overlain by fine graded greywackes—the basal Plantinhead Flags Formation much more typical of the Ardwell Group lithologies south of Girvan. Occasional graptolites confirm the correlation. This part of the succession suggests a rapid foundering of the area at this level, probably due to contemporaneous activity along one or more basement fractures somewhere to the north or NW of the Craighead Miler.

Locality 2. Quarrel Hill area [NS 250 022]

Shalloch Formation, Lower Drummuck Group, Auldthorns Formation, Quarrel Hill Formation, trilobites, brachiopods, gastropods, bivalves, other fossils, mud-flow stratigraphy (Figure 31.2).

Return to the B741 at Low Craighead Farm and turn left, driving to the NE for about 3 km. Shortly after crossing the railway line again, a minor road appears on the left. It is not easy to see as you approach it as the junction is very acute and you will have to turn very sharply into it and will probably have to make more than one attempt. Follow this rather twisting road for about 2 km, past Glenlochrie Farm and up the hill to Farden Farm [NS 250 027]. Park by the roadside.

Seek permission at Farden Farm to walk along the southern flank of Quarrel Hill, ENE of the farm, following closely above Glenmard Plantation and aiming for the old ruins of Auldthorns about 1 km away. Until 1977, in Glenmard Wood, 0.5 km ESE of Farden Farm a spectacular quarry section through much of the Ashgill Lower Drummuck Group yielded not only beautifully preserved fossil assemblages including trilobites, brachiopods, gastropods and bivalves, but showed conclusively that a great deal of the succession there (Quarrel Hill Formation) consists of a series of mass mud flows which had accumulated on an unstable slope, originating in a neritic environment and ending in a rather deeper water one. Many of the fossils showed evidence of having rolled, as a coating on fist-sized mud balls and there were also two very large, disrupted calcareous blocks in a slumped mudstone matrix. The quarry had been opened by the Forestry Commission some years earlier to provide bottomings for the tracks in the plantation. The great importance of this section became widely known and the regional Forestry Commission manager guaranteed to keep it open and available. Due to unfortunate circumstances and a new regional manager, the quarry was filled, graded and replanted without warning and hardly a trace of this vital section is now visible. Other published localities in the immediate vicinity were also lost (see Harper 1982).

Continue along above Glenmard Wood until an un-named burn is reached. Here, typical Shalloch Formation sandstones and shales will be seen dipping generally south-eastwards (see Excursion 30 Localities 10–12). A short distance further to the ENE the ruins of Auldthorns and Quarrel Hill House will be reached. This ground is rather faulted and lies on the axis of the Craighead anticline but a distinctive suite of lithologies makes a number of scarp features showing some fault repetition. To the NW of the ruins the geology is rather more simple and a clear scarp feature can be followed in a roughly E–W direction. This is formed by the sandy and sometimes conglomeratic Auld thorns Formation which forms the lowest division of the Lower Drummuck Group. It is divided into two members beginning with a lower Escarpment Member consisting of thickly-bedded medium to coarse-grained sandstones with some pebbly horizons. Fossils, largely broken brachiopods and trilobites are found in a few thin horizons and indicate a mid Ashgill, Cautleyan age. The upper, East Brow Member consists of a rapid alternation of fine to medium-grained sandstones and mudstones containing much the same fauna in thin seams in the sandstones but in a much more comminuted state (Harper 1982). In the mid 1970's a deep excavation was undertaken at the base of the main scarp to reveal the lower boundary of the Auldthorns Formation. It was seen to rest with a sharp base on a typical Shalloch Formation succession (see above).

A walk of not more than 0.5 km further to the ENE will bring you to a small stream draining the east flank of Quarrel Hill in which are a number of small, largely mudstone exposures fully documented by Harper (1982). They comprise the Quarrel Hill Formation, the upper unit of the Lower Drummuck Group. Large, late Cautleyan shelly faunas are known from this section dominated, amongst the trilobites by *Cryptolithus lotus lotus* and a species of *Tretaspis*. Many brachiopods, gastropods, bivalves and echinoderms are also known. The discontinuous section, now virtually the only one available, cannot match the one previously exposed in the now infilled Glenmard Quarry mentioned above and clear evidence of mass sediment movement cannot be documented in such relatively small exposures.

Locality 3. Lady Burn (Threave Glen) and South Threave [NS 243 037]

Upper Drummuck Group, Lady Burn Formation, South Threave Formation—including the famous Lady Burn Starfish Beds, Mulloch Hill Conglomerate, trilobites, brachiopods, gastropods, bivalves, starfish and other echinoderms, other fossils, mudflow stratigraphy, transported assemblages (Figure 31.3), (Figure 31.4).

Return to Farden Farm and drive north-westwards for about 1.5 km to Drummuck Farm. The road then swings to the right into Threave Glen, crosses Lady Burn and then climbs back out of the valley to the left. A short distance further along, an access drive leading to South Threave Farm leaves to the right. Take it and drive for about 1 km to the farm where you should park [NS 244 036]. Seek permission at the farm for access to the upper part of Threave Glen which will usually be given readily (this is a much visited and internationally famous locality and the farmer knows all about it).

The section in Lady Burn adjacent to and upstream of South Threave Farm reveals most of the divisions of the Upper Drummuck Group, of late mid Ashgill (Rawtheyan) age, followed by an unconformable basal Silurian sequence. The section is largely a near-strike section with the beds dipping northwards (Figure 31.3) and is hardly affected by faulting. One small fault crosses the valley about 300 m east of the farm with a downthrow to the west. This brings the base of the Lower Silurian Mulloch Hill Conglomerate close to Lady Burn just E of the farm and a small largely overgrown quarry helps to fix its position.

In and adjacent to Lady Burn behind the Farm are exposures high in the Lady Burn Mudstone Formation, which, particularly near the confluence of the small stream draining from the ESE have yielded rich trilobite faunas, beautifully preserved as internal and external moulds. A relatively common form is *Calymene* (sensu lato) *drummuckensis* as is *Cybeloides* (*Paracybeloides*) *loveni girvanensis* (see (Figure 30.7) and Ingham 1968, 1974; Kielan–Jaworowska et al. 1991). The Lady Burn Formation is seen sporadically for a further 400 m or so of the Lady Burn section the highest beds being seen in the next small stream flowing into Lady Burn from the ESE. Fossils are not common at every exposure but some yield small dalmanellid and other brachiopods, small gastropods, ctenodontid bivalves and hyolithids. Lithologically the poorly bedded Lady Burn Mudstone Formation resembles parts of the underlying Quarrel Hill Formation (Lower Drummuck Group) and it may be that similar mass sediment transport may be involved at some levels.

Above the Lady Burn Formation is the South Threave Formation which is divided into three members. The lithologies present suggest a return to conditions more typical of the Lower Drummuck Quarrel Hill Formation. The basal Farden Member consists of well-bedded silty mudstones with many sandstone lenses throughout. Towards the top of the member lie the world-famous Lady Burn Starfish Beds which have yielded enormous fossil assemblages to many collectors for more than a century. The largest collections, made by the Gray family, and now housed in the Natural History Museum in South Kensington, were made through extensive quarrying operations and much partly overgrown debris can still be seen on the steep east bank of Lady Burn a few metres south of where a wall crosses the stream. Other substantial collections (Begg, Lamont) are housed in the Hunterian Museum at Glasgow University. More recent deep excavations on top of the bank have produced a great deal more spectacular material. A wide range of phyla is represented in the fauna. Trilobites, commonly complete, brachiopods, gastropods, bivalves, hyolithids, starfish, echinoids, cystoids and other echinoderms and allied forms together with calcareous algae (receptaculitids) and a host of other forms are all equally abundant in the probably discontinuous horizons in the hard sandstone beds. Without further major excavation, material is only readily available from the abundant debris littering the site. Although some revision of small parts of the fauna have been undertaken (e.g. Owens 1973, Lane 1971, Harper 1984, 1989, Hughes et al. 1975, Ingham & Tripp—in prep.), the primary reference is still the monograph series produced by Reed (1903–6, 1914, 1917,

1931, 1935), and in many short papers. The faunal diversity is staggering and seems to represent more than one palaeoenvironment. It is now widely believed that the accumulation is at least partly due to mass transport down an unstable slope and rapid burial of live organisms from a number of ecosystems.

The second member of the South Threave Formation is the Cliff Member, best exposed in the small cliff, stream bed and banks of Lady Burn, north of the wall. The bluish nodular muds tones yield relatively few brachiopods, but enrolled trilobites are not uncommon, particularly *Paraproetus girvanensis* and *Tretaspis sortita*. Commonly the fossils are arranged concentrically in what were probably originally mud balls, suggesting a similar transport and burial regime to that characteristic of parts of the Lower Drummuck Group Quarrel Hill Mudstone Formation (see Locality 2).

About 100 m east of the sharp bend in Lady Burn, north of the wall, the third, Waterfall Member of the South Threave Formation is seen in part. It consists of a few metres of poorly fossiliferous, well-bedded, greenish silty mudstones exposed for a short distance below the small waterfall. Above this member in this section lies the basal Silurian Mulloch Hill Conglomerate Formation (see Locality 4). Its base is unconformable and it rapidly oversteps the members of the South Threave Formation in a westerly direction so that near South Threave Farm it rests on the Lady Burn Formation (see above).

Locality 4. The Kirk Hill road [NS 260 042]

Mulloch Hill Conglomerate and Mu Hoch Hill Sandstone formations, brachiopods, trilobites (Figure 25.1), (Figure 31.4).

Return to the minor road via the South Threave access drive and turn right. Continue for less than 0.5 km to a minor cross-roads and turn right again. This minor road, sometimes known as the Craigens or Kirk Hill road serves North Threave and East Threave Farms and you should follow it for about 1.5 km at which point it turns sharply to the right just after East Threave Farm. It then follows closely beneath Craigens Hill and Kirk Hill which lie to the north. After less than 1 km, two or three very small, old building stone excavations will be met with on the left. This stretch of road is a convenient place to stop in order to take in something of the local geology.

The small 'quarries' mentioned above expose part of the pink-stained and slightly ochreous-weathering Mulloch Hill Sandstone Formation, of Early Silurian, Early Llandovery (Rhuddanian) age. Trilobites and brachiopods are relatively common, the former including *Calymene*, *Encrinurus* and *Acernaspis* (Figure 31.6). The exposures are fully documented in Howells (1982). To the south of the road, the rugged, hilly ground comprises the much-faulted, basal Silurian formation, the Mulloch Hill Conglomerate, which underlies the Mulloch Hill Sandstone. This badly faulted ground occurs where the conglomerate is folded around the nose of the Craighead anticline (Figure 31.4). Cocks & Toghill (1973) renamed the conglomerate the Lady Burn Formation to avoid confusion with the overlying sandstone unit but without realising that a Lady Burn Formation already existed in the Upper Drummuck Group. A short walk across to any of the exposures of the conglomerate will show that its characters are very similar to those of the Craigs Kelly Conglomerate, of similar stratigraphical position in the Girvan foreshore sector to the SW (Excursion 30, Locality 12). It also probably represents a channel fill and may be part of an Early Silurian fan-delta cycle not unlike those documented for the mid Ordovician in the Stinchar Valley (Excursion 29).

Locality 5. High Mains [NS 267 039]

High Mains Sandstone Formation, brachiopods, trilobites, other fossils (Figure 31.4), (Figure 31.5).

Continue a very short distance along the road and take the access track to the right leading to High Mains Farm. Seek permission to visit the excavation, made in the mid 1970's, c. 90 m west of the farm buildings (Harper 1981).

The High Mains Sandstone Formation is the youngest Ordovician Formation in the entire Girvan district. It rests on the Waterfall Member of the South Threave Formation (Locality 3) and is preserved only in the faulted nose of the Craighead anticline, being rapidly overstepped in a westerly and south-westerly direction on both limbs of the fold. Exposures are limited but the excavation west of High Mains farmhouse, mentioned above (Locs H1 & H2 of Harper 1981, Owen 1986), should provide blocks of typical, fossiliferous material. Brachiopods are the most abundant fossils in this

brown-weathering sandstone and are dominated by *Hirnantia sagittifera*, *Eostropheodonta* aff. *hirnantensis* and *Hindella crassa incipiens*.

Trilobites are less common but comprise a relict American assemblage of *Achatella*, *Flexicalymene*, *Isotelus* and others (Harper 1981, Owen 1986). Crinoid columnals are locally very common on certain bedding-planes. It is a particularly interesting assemblage as the brachiopods are typical of the widely-known end Ordovician *Hirnantia* fauna, largely of late Ashgill, Hirnantian age, known also from the AngloWelsh area and from locations as far apart as China and maritime eastern N. America. The fauna is believed to represent one of a number of closely-related, colder water ecosystems which became almost globally distributed with the onset of the well-documented late Ordovician south polar glaciation centred on Saharan Africa. The concomitant eustatic sea level lowering may well explain the undoubted shallow water facies represented by the High Mains fauna.

Locality 6. Glenwells Burn [NS 271 043]

Mulloch Hill Sandstone Formation, Glenwells Shale Formation, Glenwells Conglomerate) (Figure 31.4).

Return via the access track to the Craigens or Kirkhill road and turn right. After less than 0.5 km, the road crosses the upper reaches of Glenwells Burn. Park by the side of the road [NS 271 045].

The fine, sandy and silty beds exposed by the side of Glenwells Burn, upstream of the road, represent the top of the Mulloch Hill Sandstone, near its transition to the overlying Glenwells Shale Formation. This occupies the slack ground to the north, but fossiliferous exposures can only be found some distance further down the burn where they have yielded graptolites typical of the *Coronograptus cyphus* Biozone (Early Llandovery, i.e. Rhuddanian, age). A deepening regime is evident here, strongly reminiscent of the Mid Ordovician Kirkland Conglomerate-Superstes Mudstone sequence in the Stinchar Valley. In fact, the brachiopod association from the highest beds assigned to the Mulloch Hill Sandstone here is indicative of a rather deeper water environment of deposition than that from the main mass of the formation (see Locality 7, below). As in the case of the Middle Ordovician sequence in the Stinchar Valley, the graptolitic shale unit is capped by a conglomerate—the Glenwells Conglomerate—seen on Kirk Hill, to the north of the road. It forms a basal unit to the cycle continuing with the Mid Llandovery (i.e. Aeronian) Newlands Formation (Locality 8).

Locality 7. Rough Neuk Quarry [NS 271 040]

Mulloch Hill Sandstone Formation, brachiopods, trilobites, other fossils, shallow water Early Silurian assemblage (Figure 31.4).

Continue for a very short distance and take the minor road leading off sharply to the right. Follow this road for 0.5 km obliquely down the hill, again crossing Glenwells Burn until a right-angled bend is reached. An old, ruined cottage on the corner is now represented only by the remains of the foundations. Park off the road in the angle opposite the cottage remains. Rough Neuk Quarry will be seen a short distance into the woods to the west. New forest growth following replanting may make it rather less evident but nevertheless follow the old, very rough and sometimes muddy track into the wood for about 50 m and bear off to the right up into the quarry.

The rock here is a well-bedded calcareous sandstone packed with fossil remains on some bedding planes. At exposure, the rock is usually decalcified and brownish weathering and the fossil shell material is leached out leaving both external and internal moulds of the various fossil organisms. If collections are being made, remember that both moulds should be kept in such circumstances, i.e. even the 'hole' that the fossil came out of as this is the only mould that retains the impression of the true external surface of the organism. Fresher rock, commonly seen in the core of a block, is grey and retains the original whitish fossil shell material. It is difficult to extract fossils from such rock.

Brachiopods are by far the most abundant fossils, the most significant being *Dalmanella* sp., *Mendacella mullockiensis* and *Hyattidina* ? [*Cryptothyrella*] *angustifrons*: these are taken as indicative of the shallow water *Cryptothyrella* brachiopod community (see Cocks & Toghil 1973). Strophomenoid and pentamerid brachiopods also occur. Trilobites are rarer but application will usually be rewarded by remains assignable to *Calymene ubiquitousa*, the phacopid

Acernaspis cf. elliptifrons and perhaps the illaenid *Bumastus*. Streptelasmatic rugose corals are quite common as is the calcareous alga *Mastopora fava* again indicating a shallow water environment well within the photic zone. Gastropods and bivalves are also known. An horizon low in the quarry succession has recently yielded abundant remains of asteroids and crinoids. The whole association is regarded as representing a quite shallow water inshore ecosystem in which the shelly remains have been winnowed into local shell bank accumulations by bottom currents. The shoreline at the time of deposition of this formation cannot have been very far away to the north or NW (Figure 31.6).

Locality 8. Newlands Farm [NS 276 044]

Newlands Formation, trilobites, brachiopods, other fossils, deeper water Early Silurian platformal assemblage (Figure 31.4).

Return to the road and drive down the hill for less than 0.5 km until the next farm access track to Newlands Farm will be seen on the left. This track is rather rough, twists a little where it crosses Glenwells Burn and will need to be taken carefully. Continue to the farm and park. Seek permission for access to the famous Newlands exposures. This will usually be given readily and directions indicated. Negotiate the gate immediately to the left of and down the side of the farm house and cross the field towards the NE almost following the contour of the slope, if anything climbing very slightly. At the far side of the field negotiate the fence by one of the trees there and you will find a small burn, sometimes dry, set in a small but steep-sided valley with a number of exposures on the far bank [NS 278 046].

This is the classical and well-known 'Newlands' locality and the Newlands Formation is of Lower Silurian, Middle Llandovery (Aeronian) age. The rock in the exposures, when unweathered, is a hard, massive, blue-grey calcareous siltstone from which fossils are difficult to see, let alone extract, but fortunately much of it is deeply weathered here and it has been converted largely into a softer, ochreous brown rock in which the beautifully preserved fossil moulds are very obvious as they are coated with a bright yellow residue. Again, both internal and external moulds should be kept if collections are being made (see Locality 7). Trilobites are rather more common than brachiopods here and a number of species can usually be collected in a fairly short time. *Acernaspis superciliexcelsis*, *Encrinurus squarrosus*, *Calymene ubiquitousus*, *Kosovopeltis cunctata* and *Hadromeros elongates* are usually the forms found with greatest regularity. The entire trilobite fauna has recently been thoroughly documented by Howells (1982). Of the brachiopods, the pentamerids *Clarinda undata* and *Stricklandia lens intermedia* are probably the most frequently found forms but several other species occur. The association indicates a deeper water, more offshore environment than the Lower Llandovery Mulloch Hill Sandstone (Locality 7) (see Cocks and Toghil 1973) but still within the photic zone as indicated by the occasional occurrence of the calcareous alga *Mastopora fava*. Corals are rarer than in the Mulloch Hill Sandstone but the strange-looking star-shaped crinoid columnal *Floricolumnus girvanensis* is quite common (see Donovan & Clark 1992) (Figure 31.6).

Return to the farm and drive back to the minor road. Turn left and follow the road down the hill for less than 1 km to the road junction at the old coal mining settlement of Wallacetown. Turn right and follow this road which, although unclassified around Wallacetown, soon becomes confluent with the B741 and leads back to the A77 trunk road just north of Girvan, a distance of about 9 or 10 km.

References

[References for excursion 25–31](#)

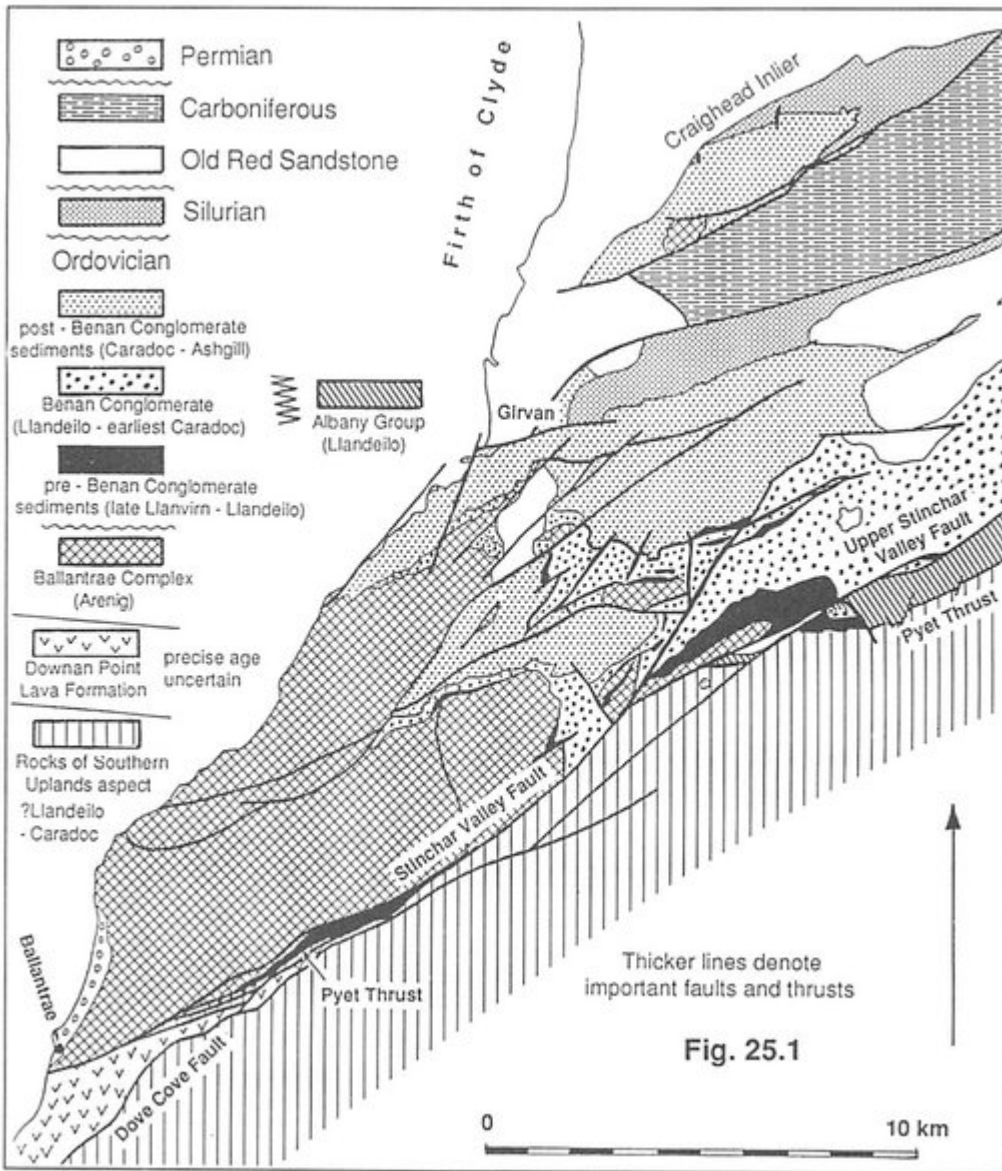
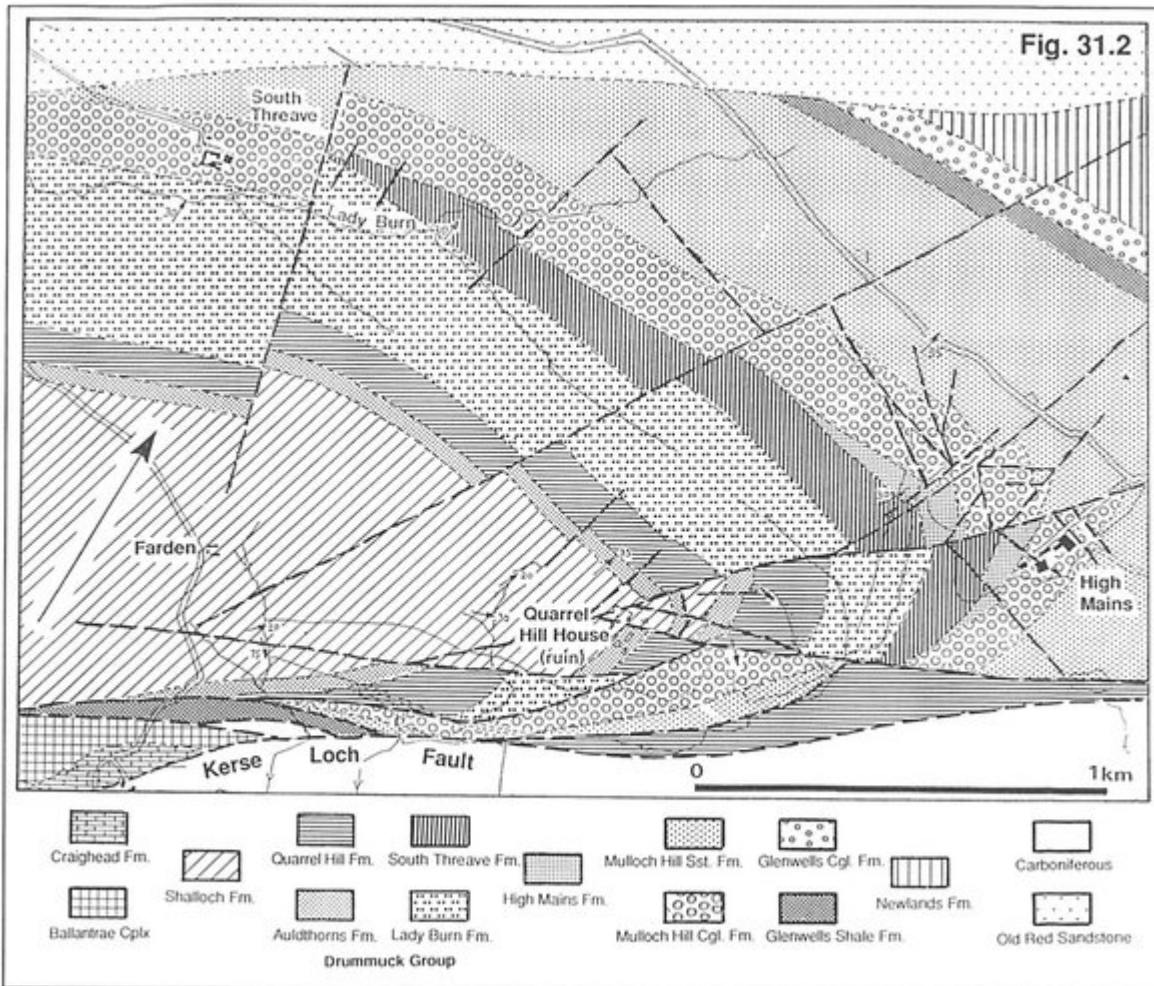
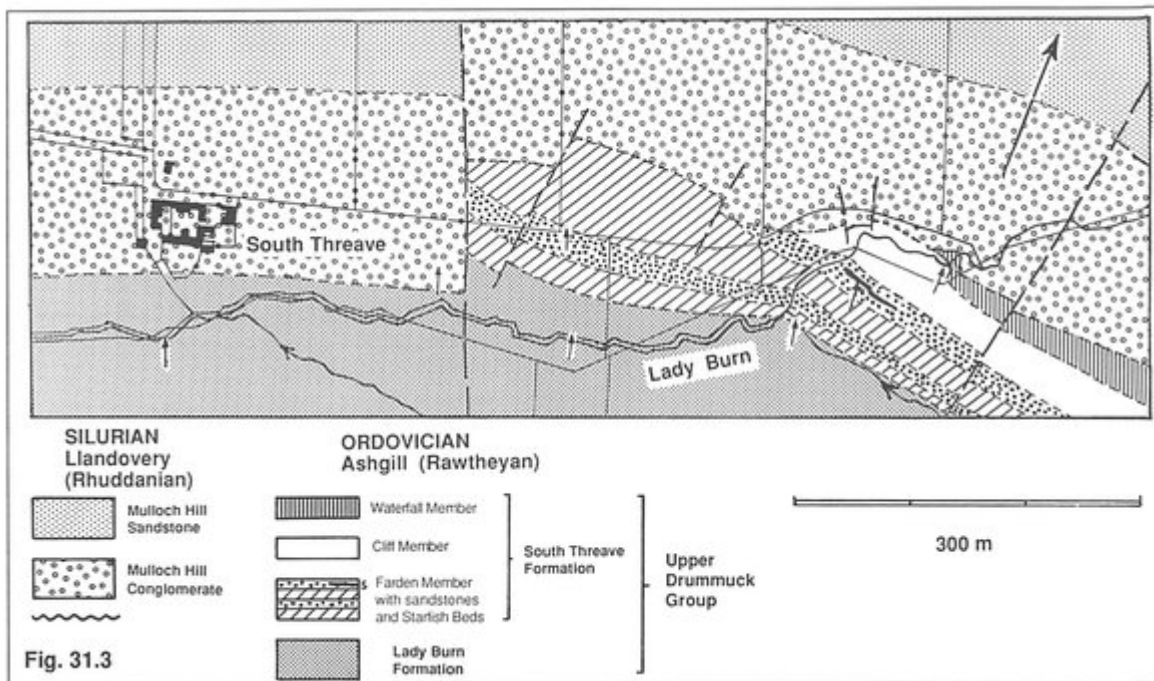


Fig. 25.1

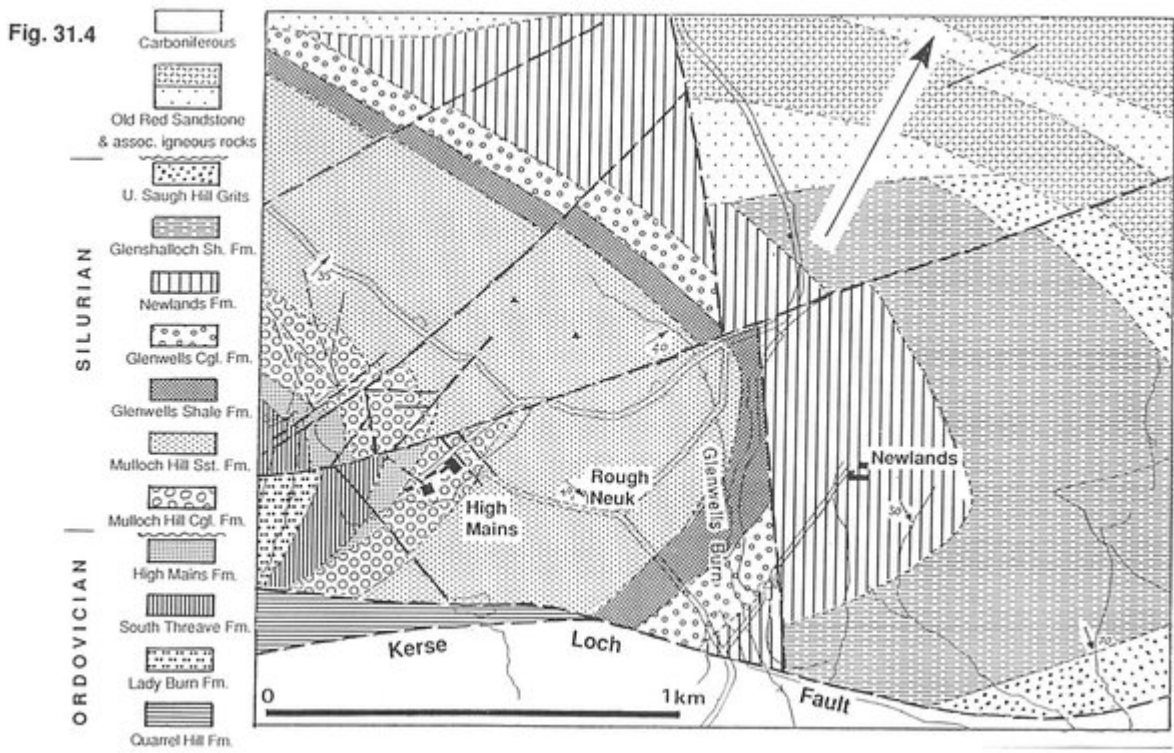
(Figure 25.1) Simplified geological map of the Girvan district showing the relationships between the major rock units.



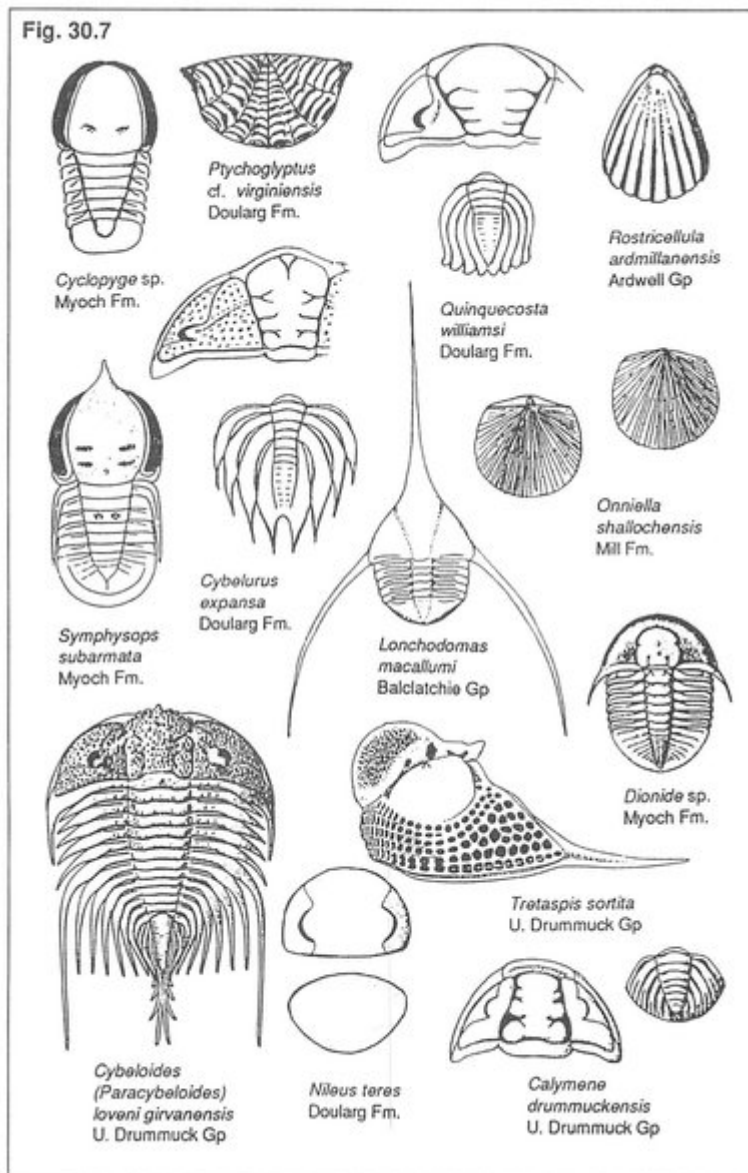
(Figure 31.2) Geological map of the central sector of the Craighead Inlier



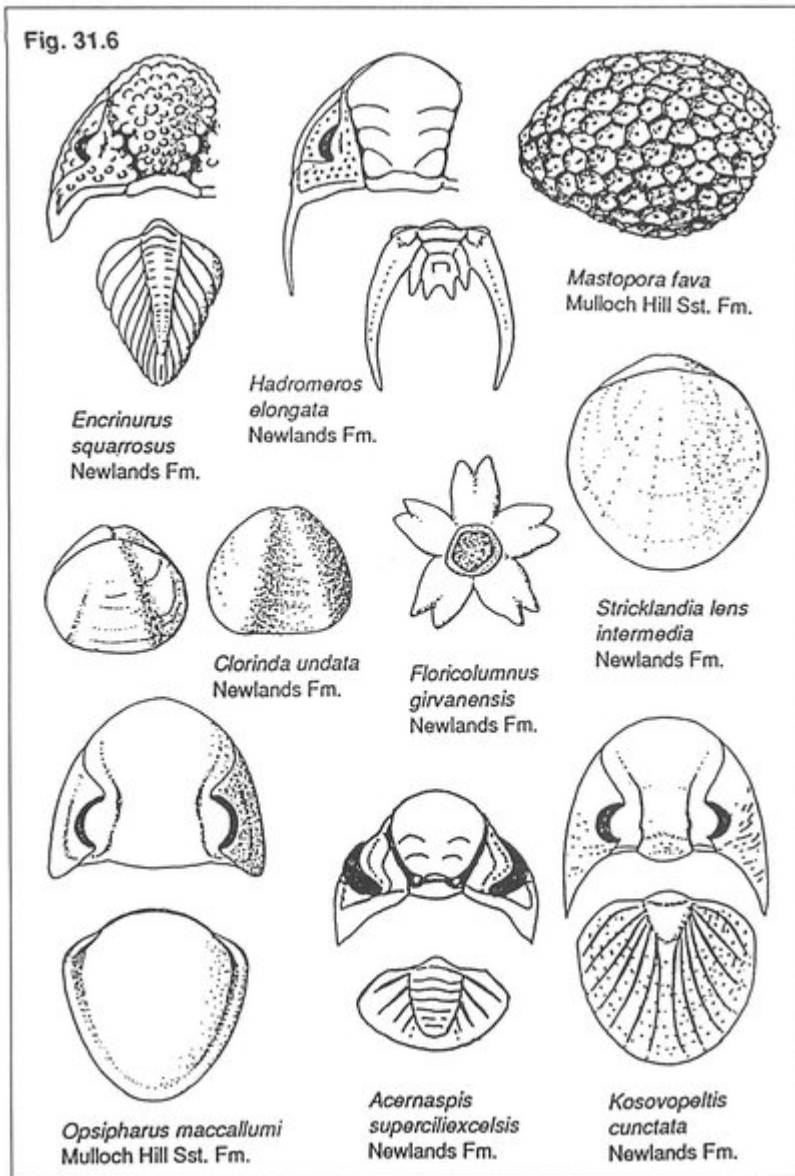
(Figure 31.3) Detailed geological map of the area adjacent to Lady Burn (Threave Glen) (after Harper 1982).



(Figure 31.4) Geological map of part of the north-eastern sector of the Craighead Anticline.

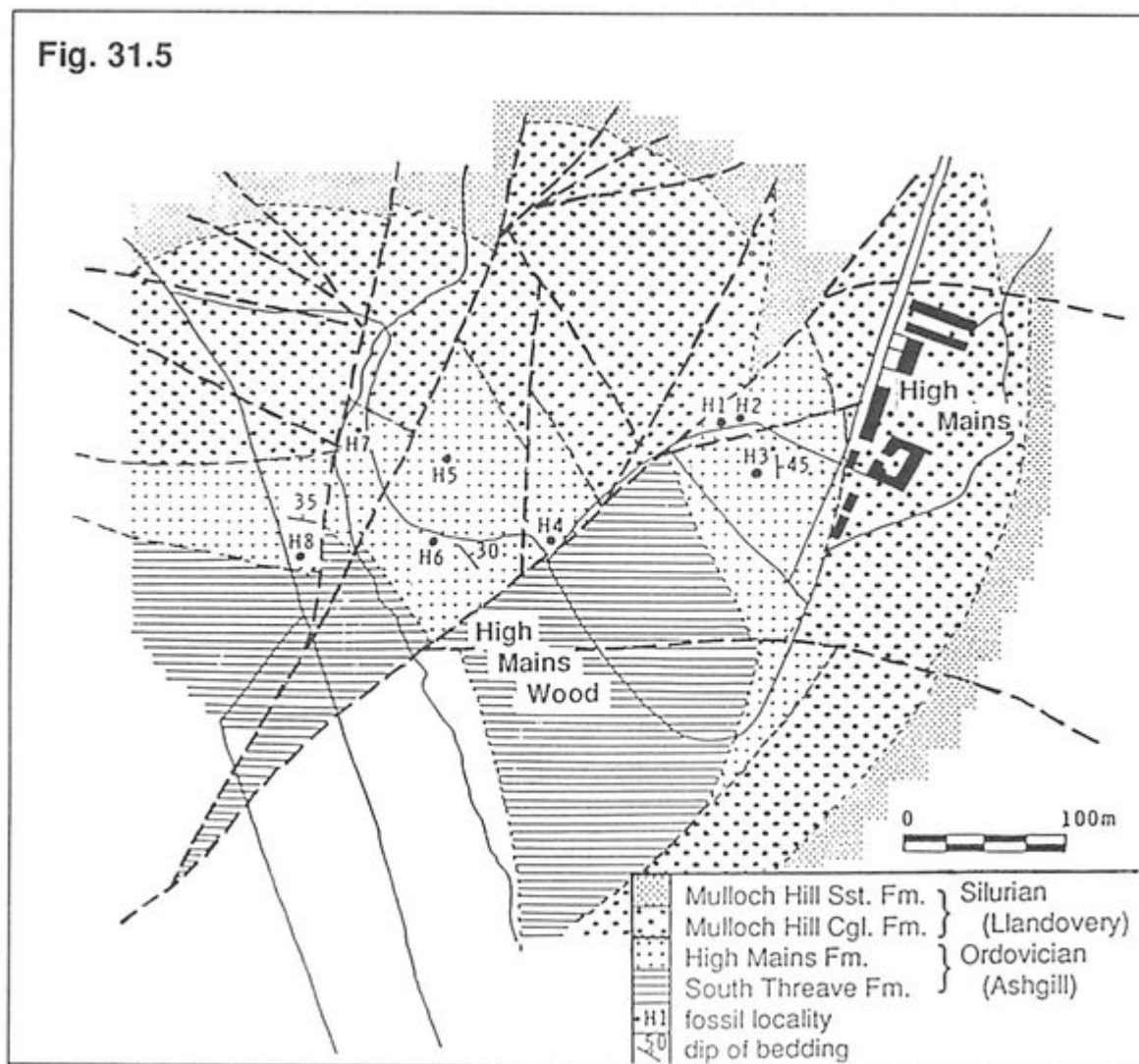


(Figure 30.7) A selection of trilobites and brachiopods from various horizons in the Ordovician strata of the Girvan district.



(Figure 31.6) A selection of trilobites and other fossils from various horizons in the Silurian strata of the Girvan district.

Fig. 31.5



(Figure 31.5) Detailed geological map around High Mains Farm (after Harper 1981).