"STRATIGRAPHY, SEDIMENTOLOGY AND PALAEONTOLOGY OF THE LOWER CARBONIFEROUS OF ANGLESEY"

VOLUME II

by

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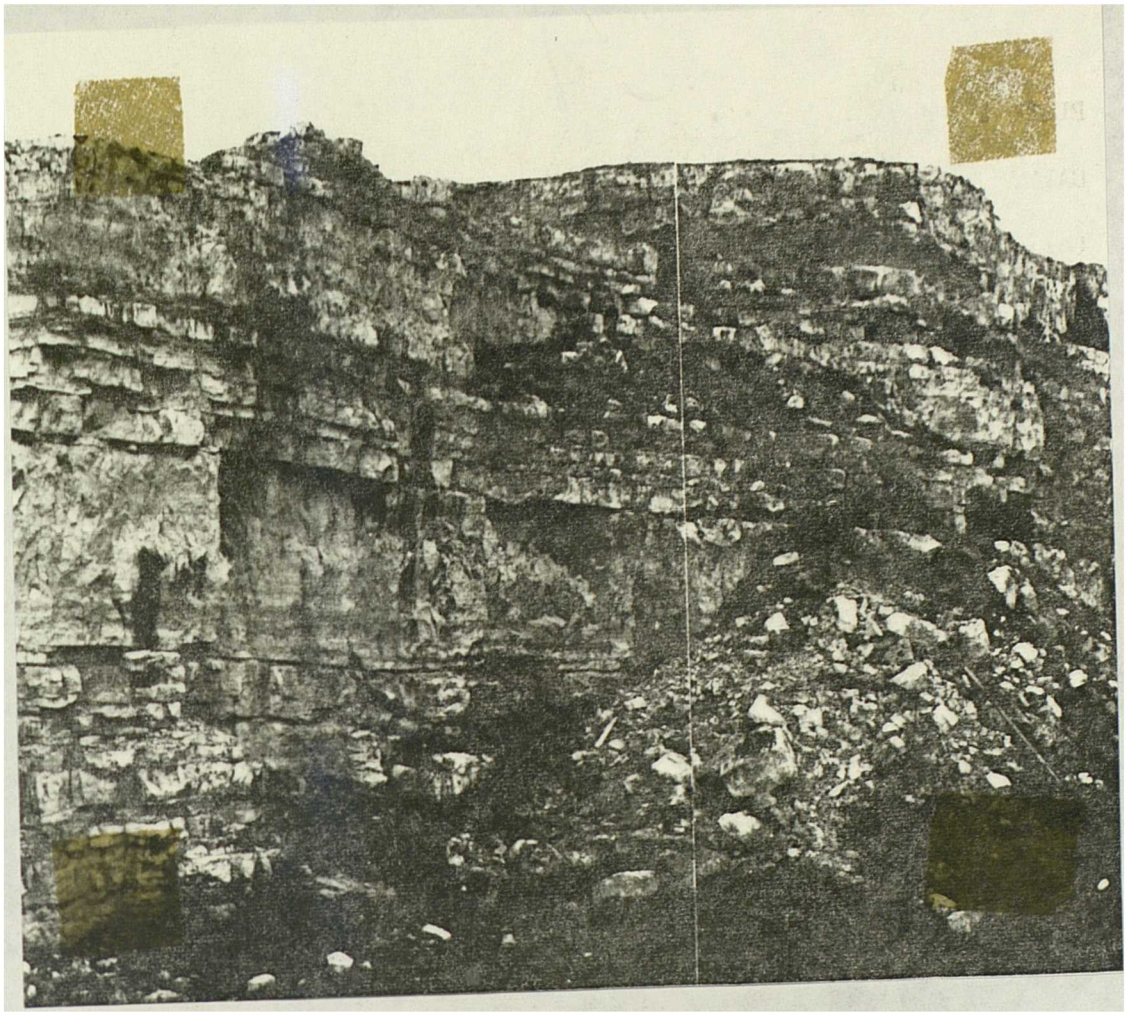
PLATES 1-79

PLATE 1

CAREG-ONEN, FLAGSTAFF AND MOELFRE LIMESTONE FORMATIONS

(a) Contact between the Careg-onen Limestone Formation and the Flagstaff Limestone Formation in Flagstaff Quarry. Calcite mudstones comprise the lower third of the quarry face and are overlain by a thick skeletal grainstone unit. Note the thick mudstone bed in cycle F4 towards the top of the quarry. Quarry face approximately 35 m.

(b) Thickly bedded units in the Moelfre Limestone Formation exposed in the cliff to the east of Fedw-fawr [615 816], Penmon Area. Note the palaeokarstic surface at the base of the section. Height of cliffs approximately 30 m.



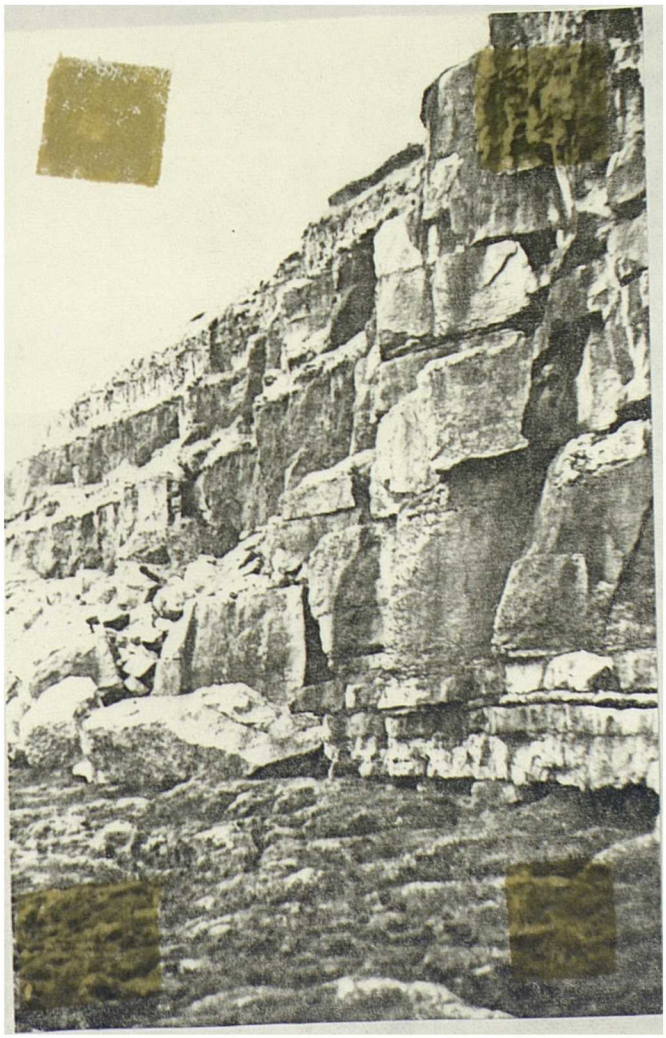


PLATE 2

TRAETH BYCHAN LIMESTONE FORMATION

(a) Minor cycles in the Traeth Bychan Limestone Formation at Trwyn Dinmor, Penmon Area.

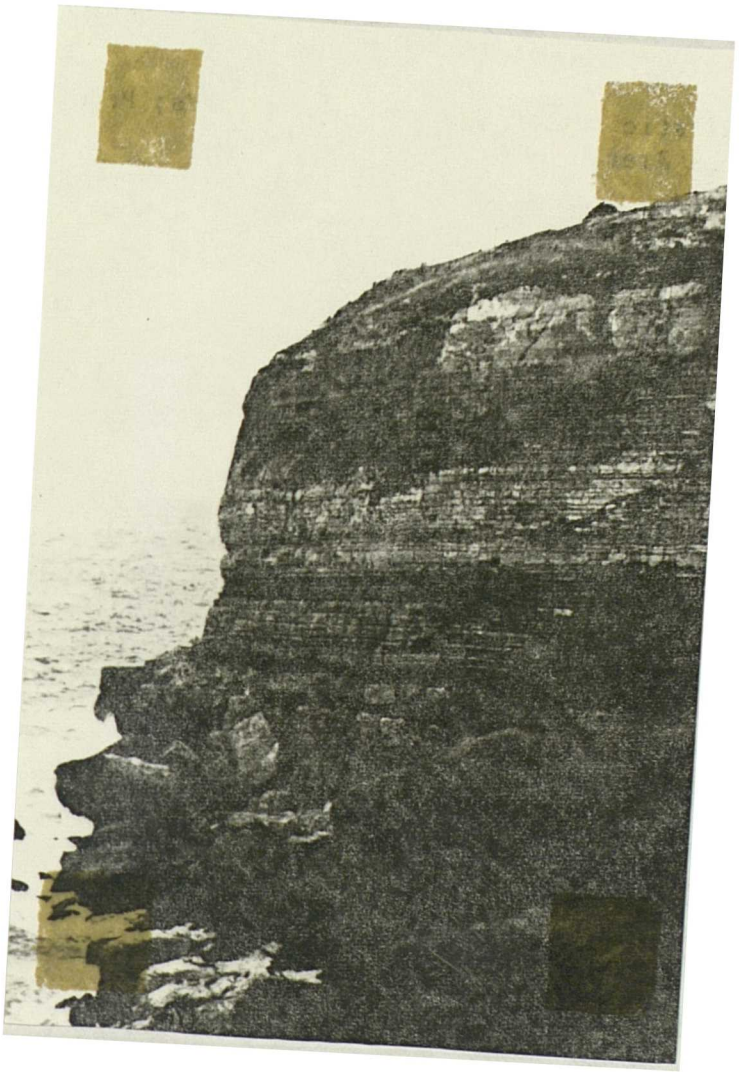


PLATE 3

PALAEOKARSTIC SURFACES

(a) Palaeokarstic surface, top of Moelfre Limestone Formation exposed to the south of Moelfre harbour [5128 8615], Principal Area.

(b) Palaeokarstic surface, top of minor cycle F5; cliffs east of Fedw-fawr, Penmon Area.

(c) Palaeokarstic surface, top of Moryn Beds; Pedolau, Principal Area. Rucksack for scale.

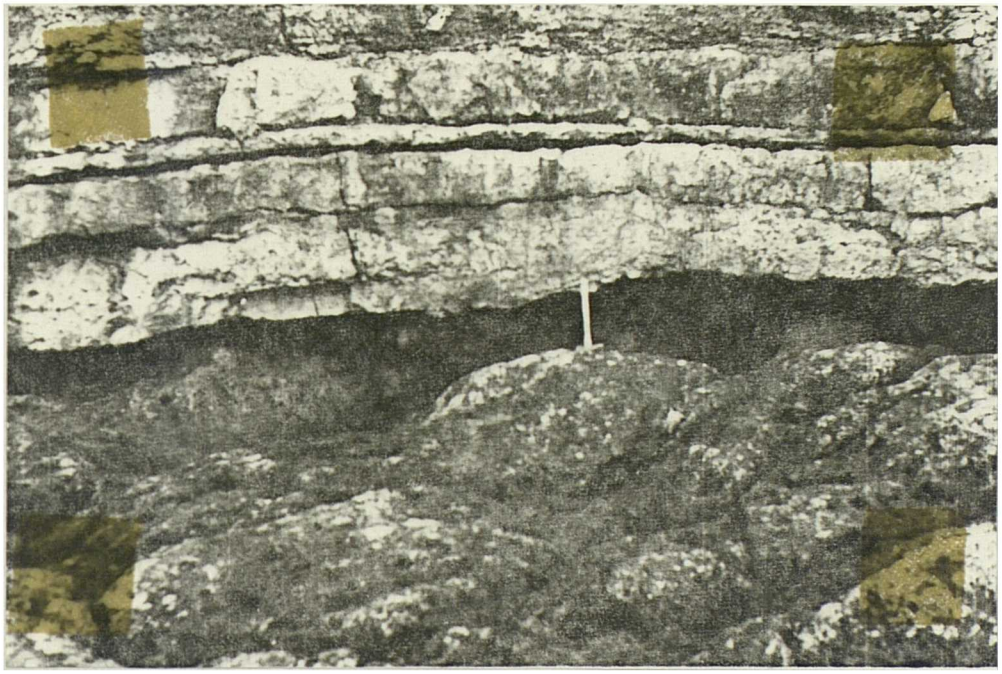


PLATE 4

PALAEOKARSTIC SURFACES

(a) Conical pit, palaeokarstic surface at the top of minor cycle F3; fallen block, Flagstaff Quarry, Penmon Area.

(b) Plan view of water filled pits, palaeokarstic surface at the top of the Moryn Beds; Pedolau, Principal Area. Field of view approximately 10 m.

(c) Basal units at the Eglwys Siglen Beds enveloping upstanding hummocks in the underlying palaeokarstic surface; south of Moelfre harbour [5128 8615], Principal Area. Scale on hammer is in centimetres.

PLATE 5

CHANNEL MARGIN

Southern margin of the Benllech Sandstone Channel exposed at Pen-y-coed, showing beds of limestone conglomerate pinching out against the gently sloping channel side. Note hammer for scale, south to the left.

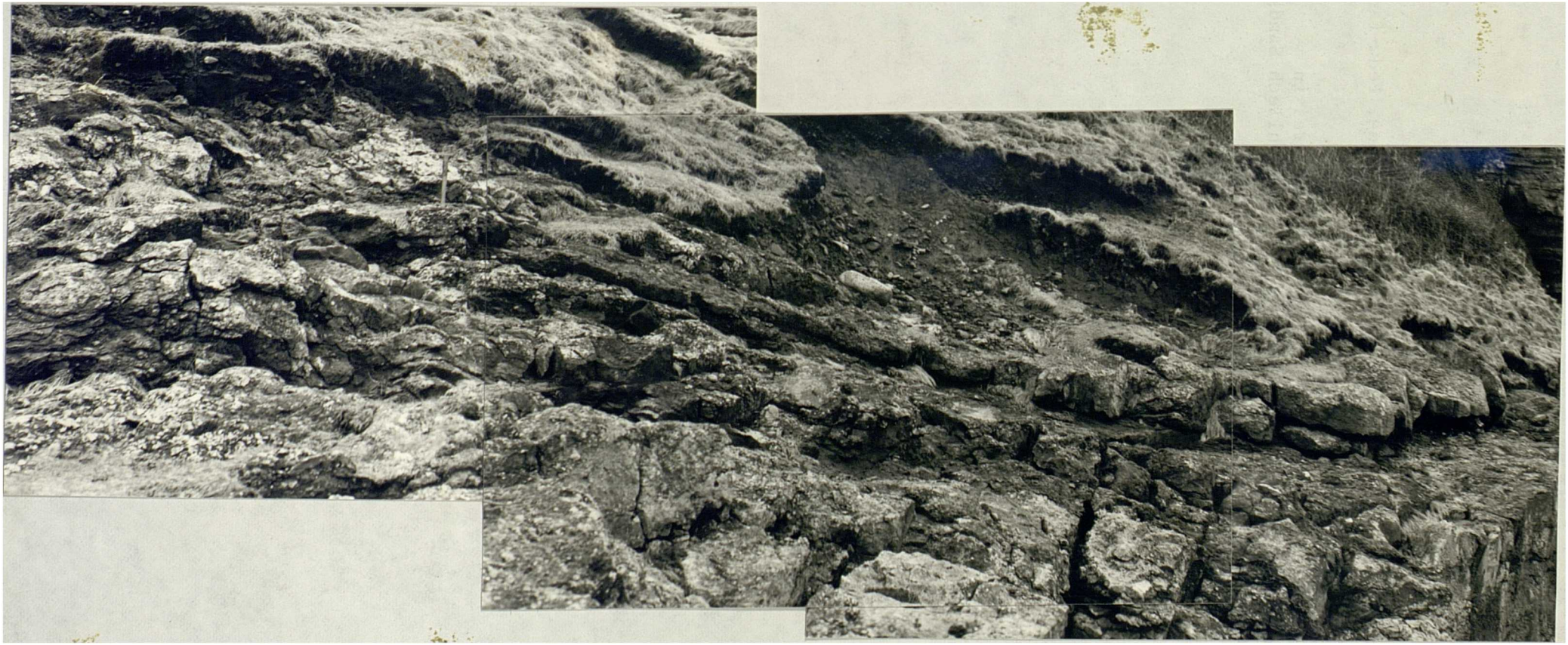


PLATE 6

LIMESTONE CONGLOMERATES

(a) Limestone conglomerate, base of Fedw Sandstone, Fedw-fawr, Penmon.

(b) Quartz conglomerate filling cracks and fissures in essentially in situ limestones, margin of Benllech Sandstone channel, Breeze Hill, Benllech [5152 8224].

PLATE 7

CHANNEL MARGIN

Margin of Benllech Sandstone channel at Borth Wen showing apparent slumping of the channel sides. Height of adjacent cliffs approximately 15 m.

PLATE 8

SANDSTONE PIPES

(a) Palaeokarstic surface at top of Pedolau Beds with conglomerate veneer; Pedolau, Principal Area.

(b) and (c) Conglomerate filled pits in above.

PLATE 9

SANDSTONE PIPES

(a) and (b) Shallow, conglomerate-filled, dish-shaped hollows developed in the top of the Royal Charter Beds and overlain by the Helaeth Sandstone; west side of Porth Helaeth, Principal Area.

(c) Conical depression within overlying Helaeth Sandstone.

PLATE 10

Sandstone pipes developed in the top of the Upper Helaeth Beds. Note doming of the basal units of the Lower Lookout Beds over the left-hand pipe. East side of Porth Helaeth, Principal Area.

PLATE 11

SANDSTONE PIPES

(a) General view of sandstone-filled piped palaeokarstic surface, top of Moelfre Formation, Eglwys Siglen, Principal Area. Foreground approximately 7 m.

(b) 'Chain' of coalesced sandstone pipes in above.

PLATE 12

SANDSTONE PIPES

(a) General view of sandstone-filled piped surfaces both at the top of Porth yr Aber Beds and above within the Aber Sandstone; Porth yr Aber, Principal Area.

(b) Upper pipe in (a) displaying well developed 'meniscus structure'.

(c) Sharp, bowl shaped base to one of the lower sandstone pipes at Porth yr Aber.

PLATE 13

SANDSTONE PIPES

(a) Conglomerate lined channel incised through the piped horizon at Trwyn Dwlban, Principal Area.

(b) General view of piped surface at Trwyn Dwlban.

(c) 'Meniscus-type' lamination with sandstone fill.

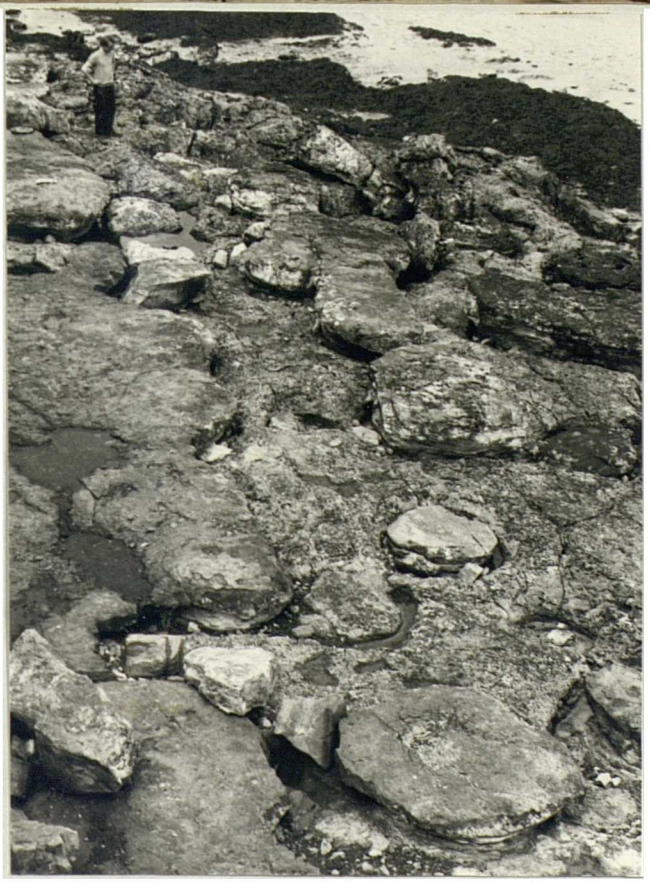


PLATE 14

Two generations of pipes at Trwyn Dwlban. Early conglomerate fill cut by subsequent, larger, buff sandstone filled pipe.

PLATE 15

SANDSTONE PIPES

(a) and (b) Large sandstone pipes descending from the base of the St. David's Sandstone, Dwlban Quarry, Principal Area. Note hammers for scale.

PLATE 16

SANDSTONE PIPES : MODERN ANALOGES

(a) and (b) Solution pits in calcareous siltstones developed in terrace-like surfaces adjacent to dry river valleys, north-east Spain. The pits are filled by insoluble residues and support vegetation. Photographs supplied by C.F. Klappa.

PLATE 17

PALAEOSOLS

(a) Blocky palaeosol with rootlets, overlying palaeokarstic surface at the top of the Pedolau Beds; Pedolau, Principal Area.

(b) Pocket of red mudstone beneath grey-green palaeosol; Moelfre Formation, east of Shore House [6210 8145], Penmon Area.

PLATE 18

PALAEOSOLS

(a) Typical ochreous appearance of weathered palaeosols; Moelfre Formation, Porth Helaeth, Principal Area.

(b) Thick rubbly zone beneath palaeokarstic surface, host limestones are invaded by irregular pods and stringers of red and grey mudstone palaeosol. Note hardpan-like sheets of cemented rubble. Moelfre Formation, east of Shore House [6210 8145], Penmon Area.

PLATE 19

LAMINATED CRUSTS

(a) Crust of laminar micritic limestone, veneering the palaeokarstic surface at the top of the Pedolau Beds, Pedolau, Principal Area.

(b) Fine light/dark banding with laminated crust, top Upper Helaeth Beds, Porth Helaeth, Principal Area.

(c) Well developed crinckly lamination with surface crust at the top of cycle F3; Flagstaff Quarry, Penmon Area.

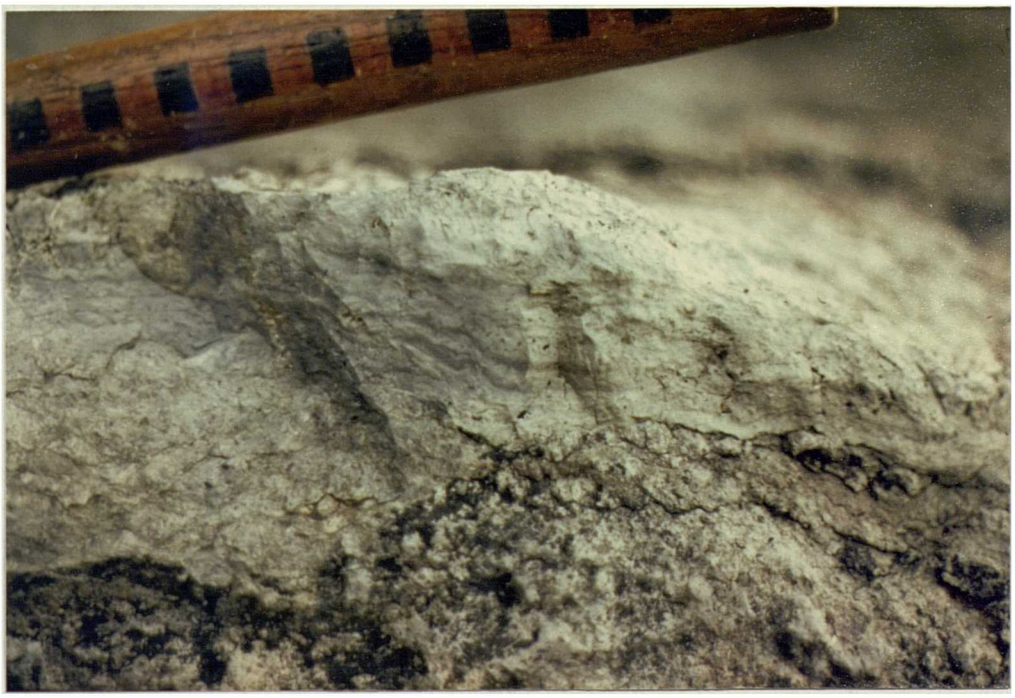


PLATE 20

LAMINATED CRUSTS

(a) Textural and colour banding and finer lamination within surface crust, top Careg-onen Formation, Flagstaff Quarry, Penmon Area. Note bands rich in rhyzoliths (middle) and pelloids (top). Host limestone at base.

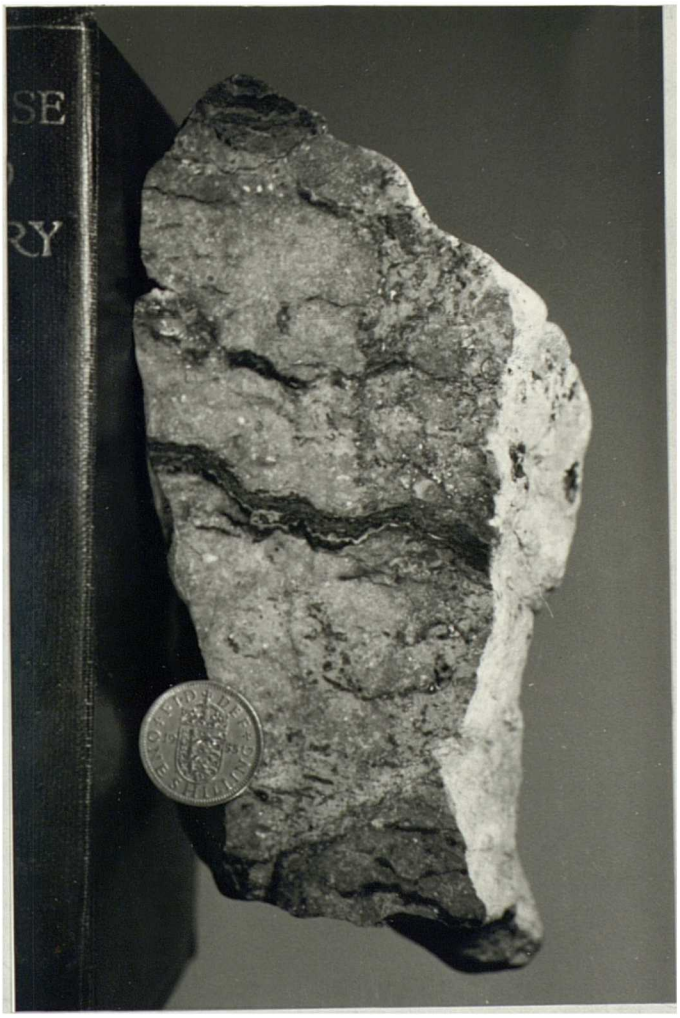
(b) Textural banding in surface crust, top of cycle F3,

PLATE 21

LAMINATED CRUSTS

(a) Subsurface stringers of laminated crust material within rhizolith infested host rock, note remnant of surface crust at top; Moelfre Formation, Penmon Area.

(b) Close up of above, note abundant, horizontally orientated spar filled rhizoliths.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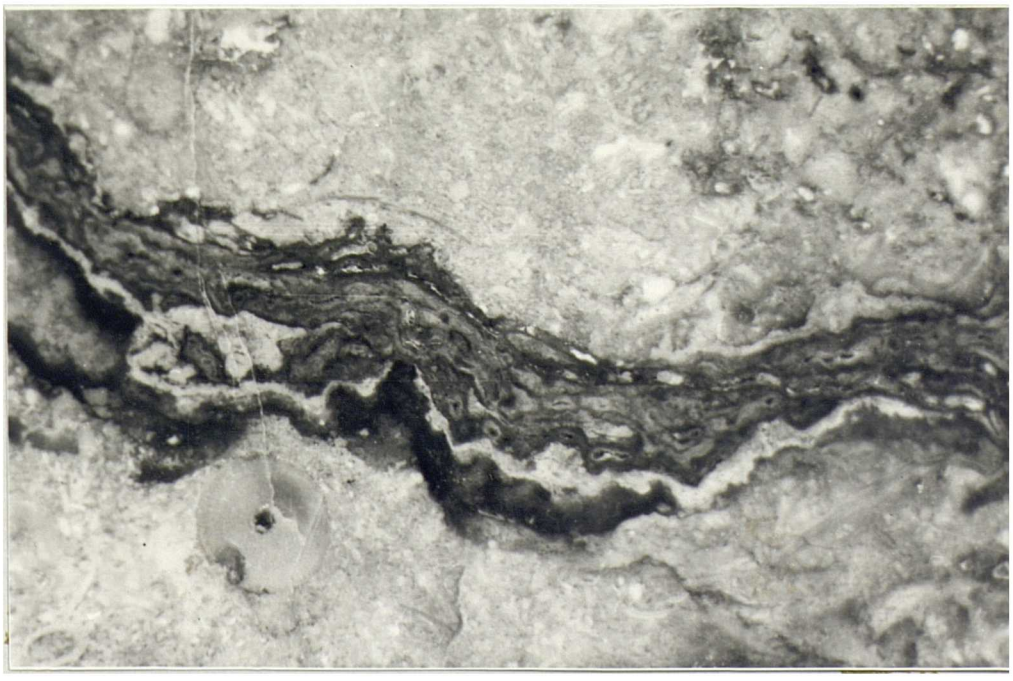

PLATE 22

Thick laminated crust developed at top of Upper Morcyn Beds, note internal erosional discontinuity; Penrhyn Point, Principal Area

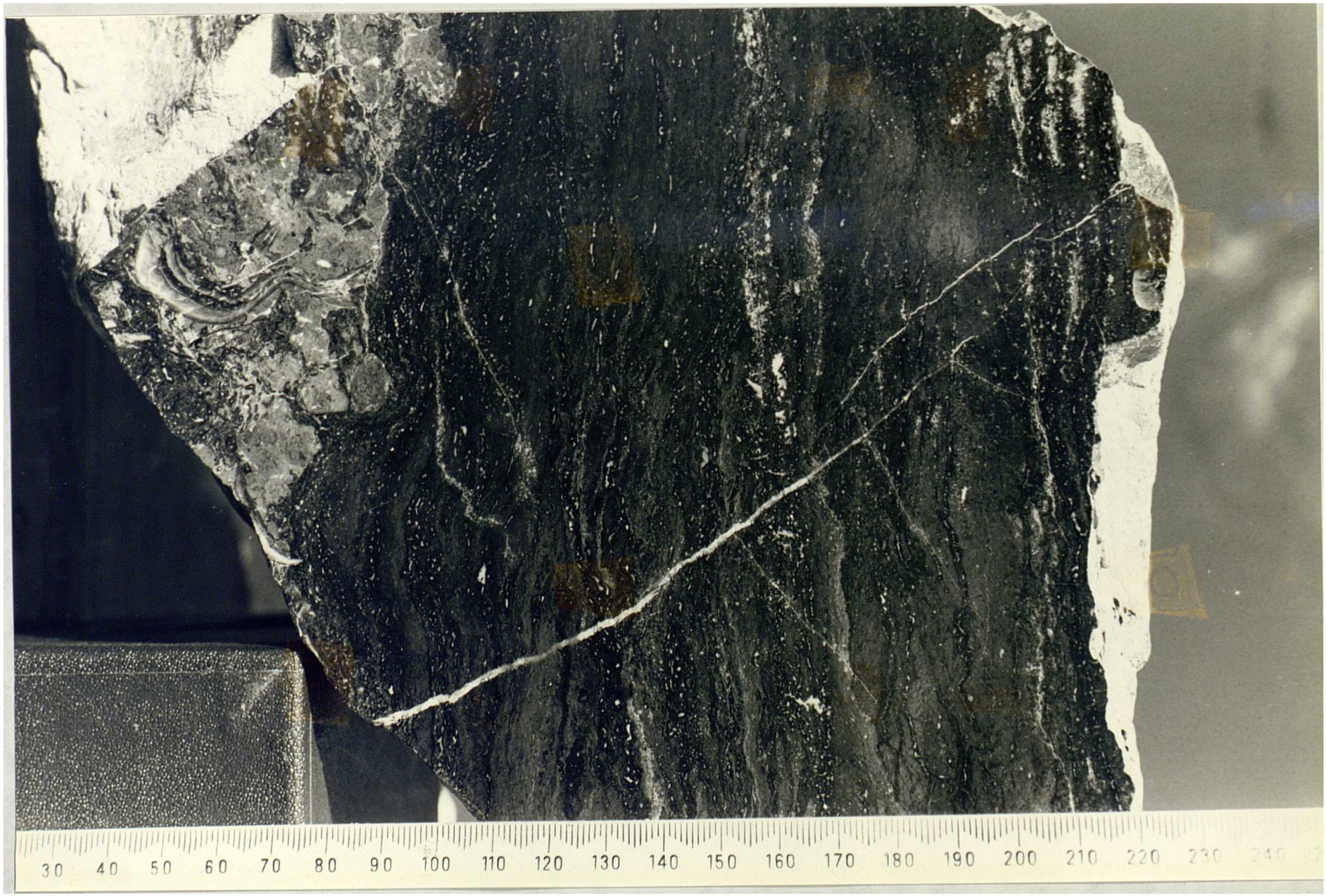
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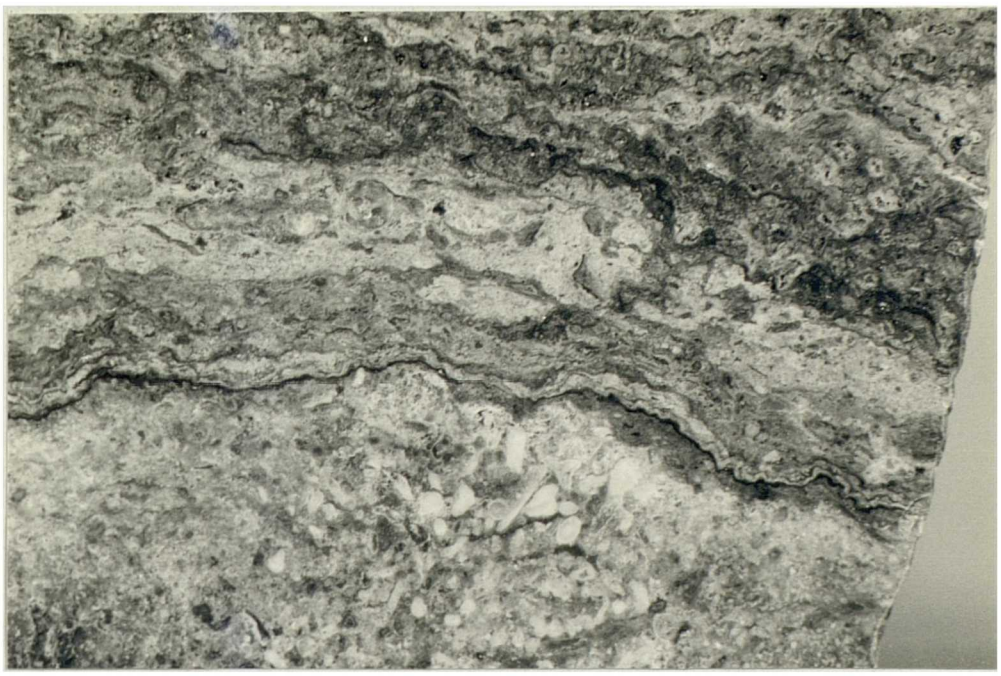
PLATE 23

LAMINATED CRUSTS

(a) Contact between laminated crust and host limestone, note darker rind-like laminae at base of crust; top Careg-onen Formation, Penmon Area.

(b) Rind-like lining to calcrete ooid filled fissure, host limestone bottom left, spar filled structures are rhizoliths; thin section (x 15) Moelfre Formation, Principal Area.



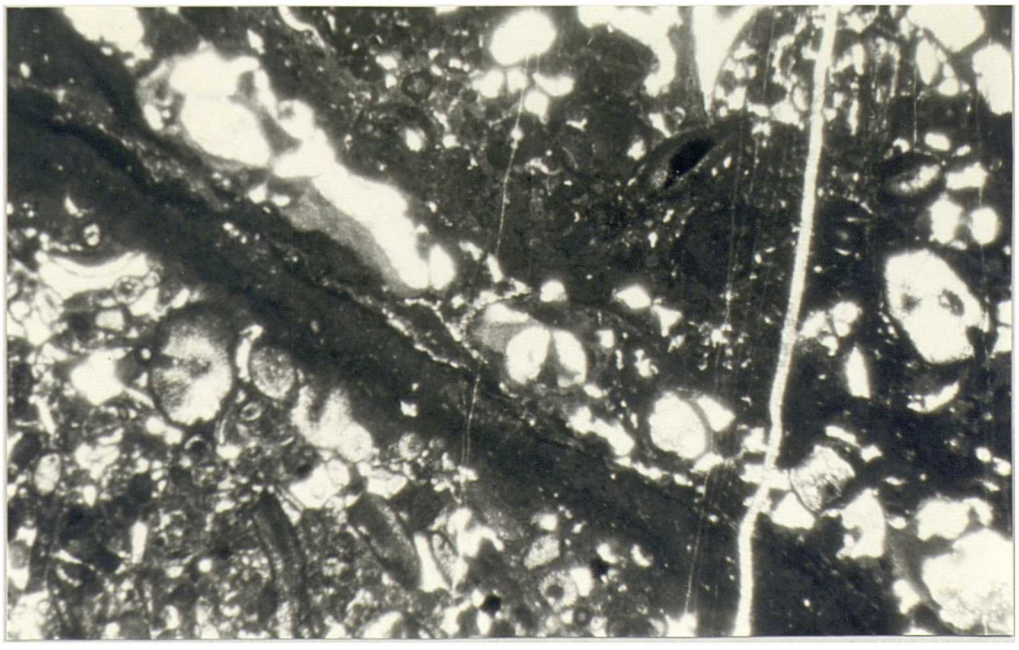


PLATE 24

LAMINATED CRUSTS

(a) Tightly packed, crinkly laminae overlain by rhizolith rich band; thin section (x 15), Moelfre Formation, Principal Area.

(b) Spar filled fenestrae within laminated crust; thin section (x 15) Moelfre Formation, Principal Area.

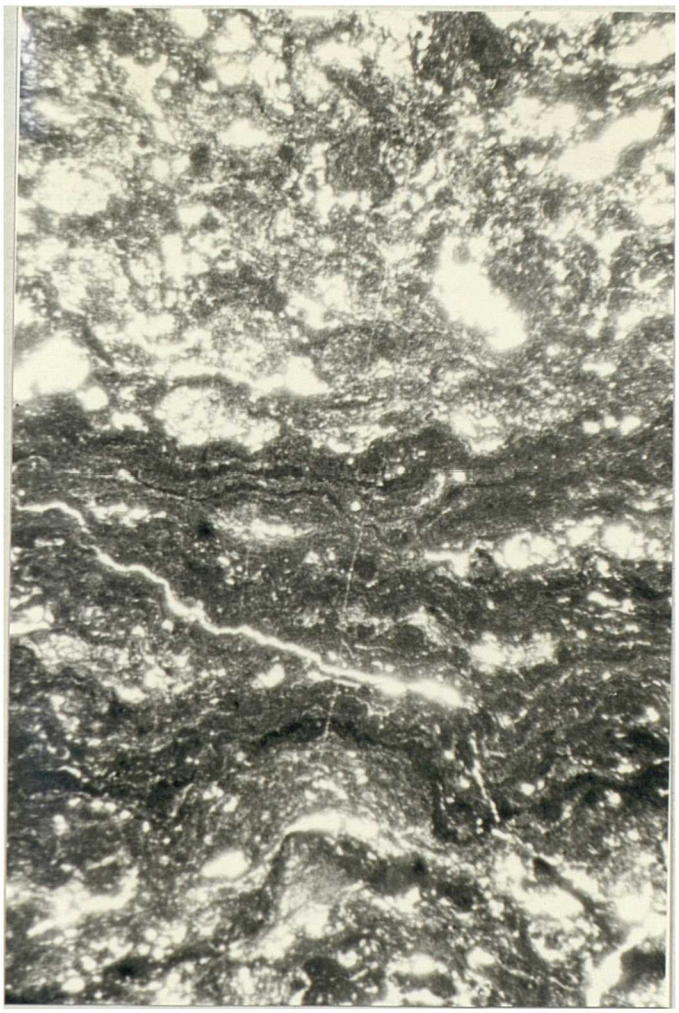


PLATE 25

RHIZOLITHS

(a) Rhizolith infested host limestone beneath laminated crust, top left; Moelfre Formation, Principal Area.

(b) Close up of above, note peripheral halo fading into host limestone.

PLATE 26

RHIZOLITHS

(a) Laminar micrite defining large 'tap-root' rhizo cretion, note tubular spar filled centre; Aber Sandstone, Principal Area.

(b) 'Spongiostrome' rhizolith infested bands within surface crust; see Plate 20a.

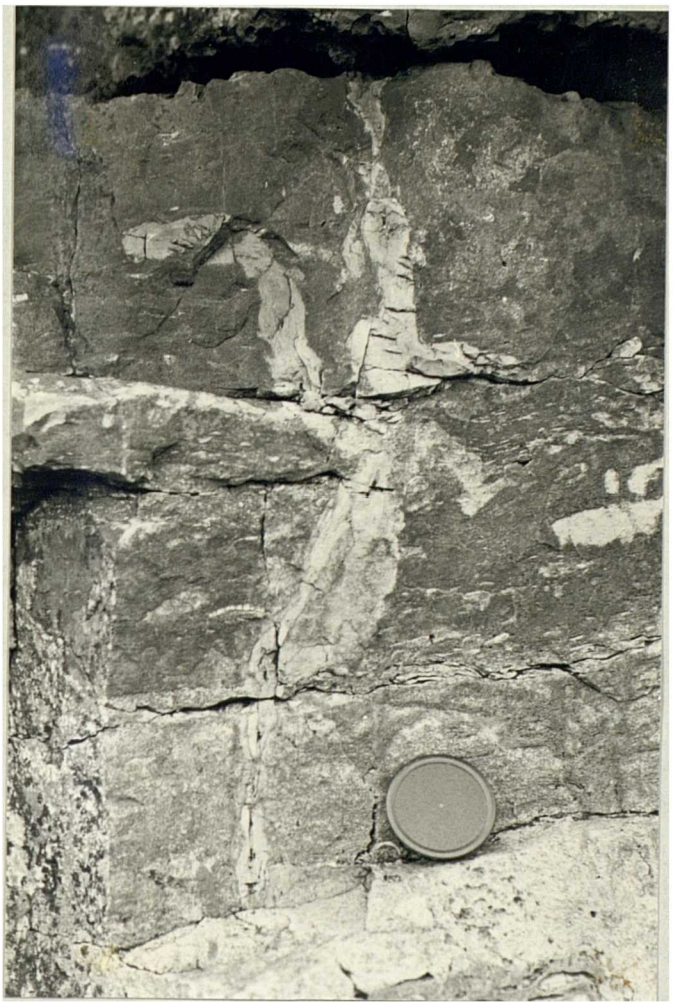
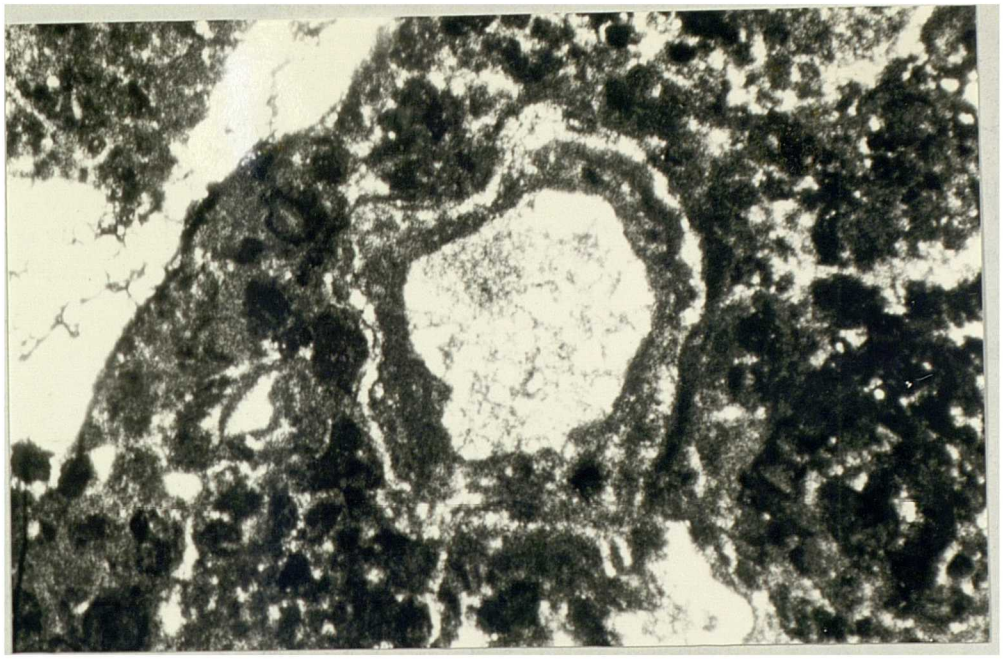


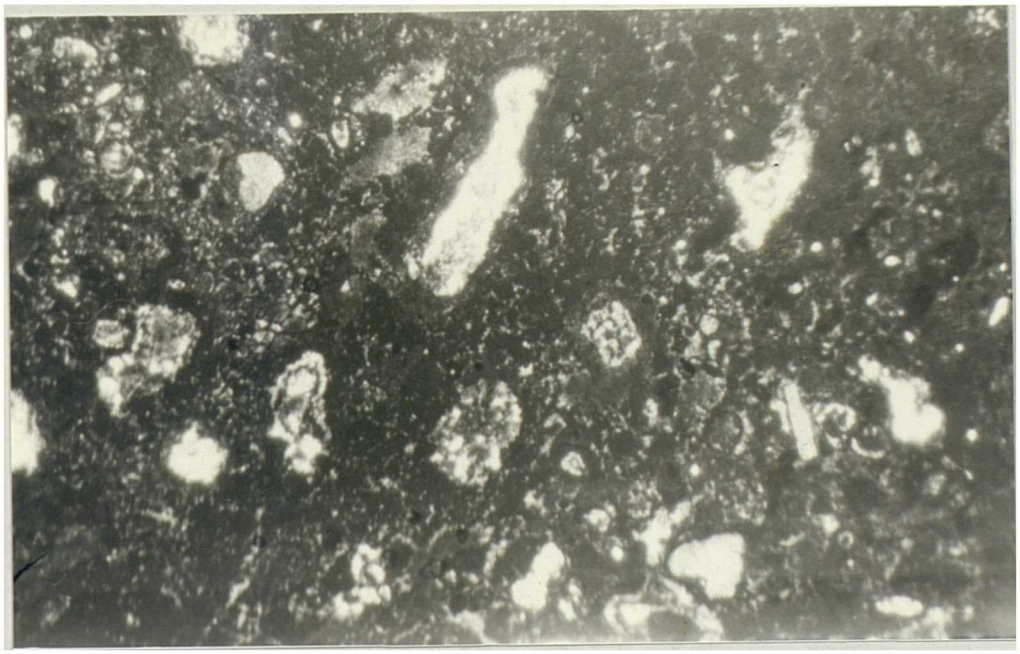
PLATE 27

RHIZOLITHS

(a) Well defined rhizolith with spar filled centre surrounded by vaguely laminated micrite and microspar with pelloid inclusions; thin section (x 45), Moelfre Formation, Principal Area.

(b) and (c) Rhizolith rich bands with laminated crusts, note concentric laminae and irregular septa of micrite; thin section (x 15), negative print.





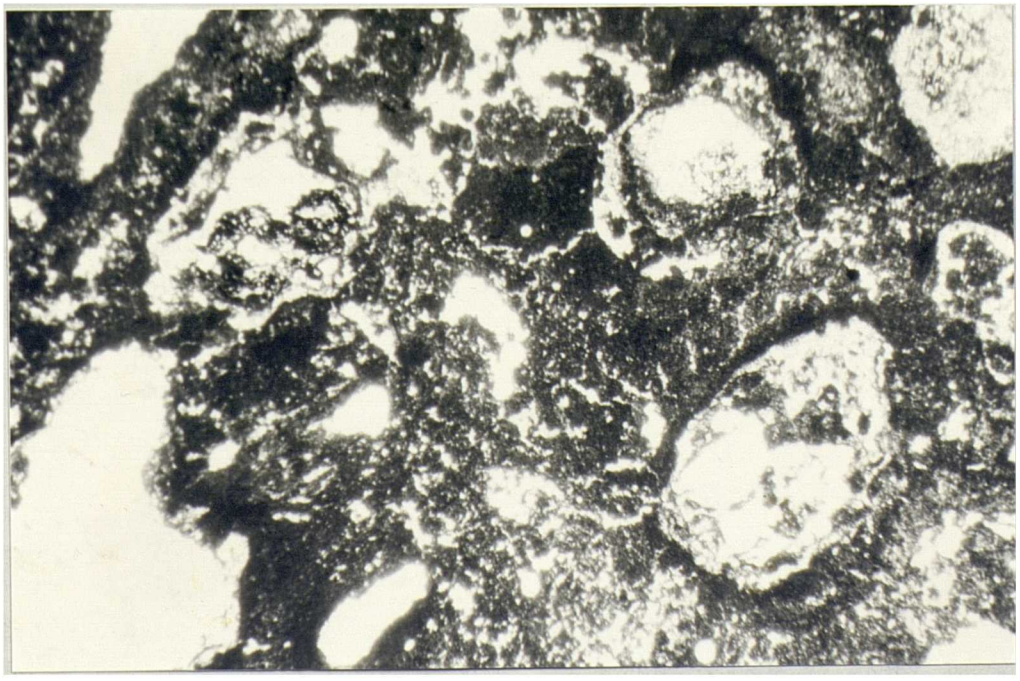


PLATE 28

RHIZOLITHS

(a) Rhizoliths with micrite-walled chambers, note ladder-like structure of longitudial section; thin section (x 15).

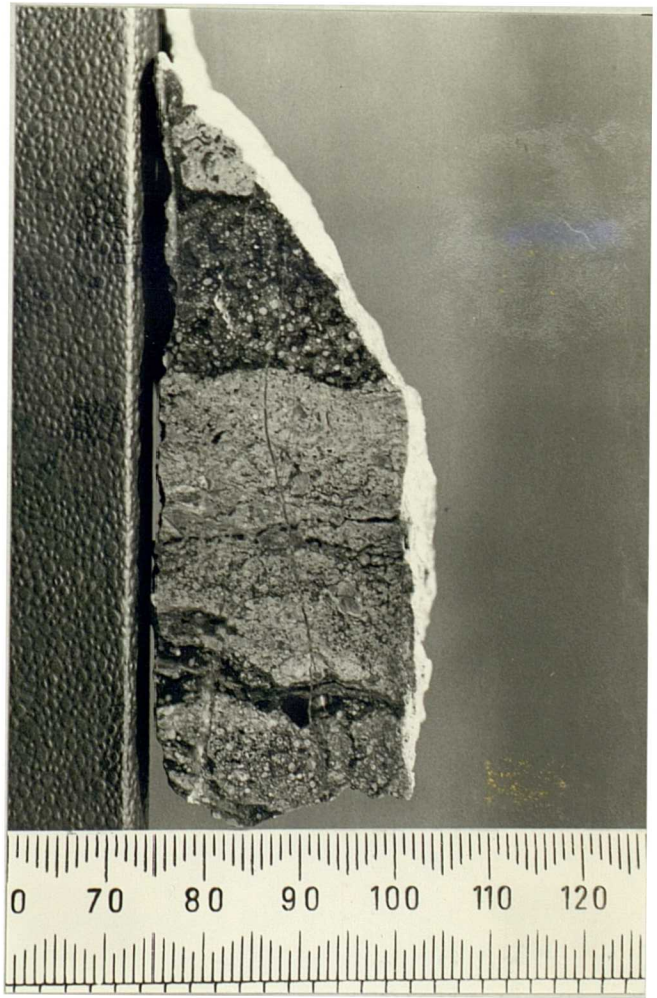
(b) Rhizolith with geopetally arranged sandstone fill; thin section (x 45), negative print.

PLATE 29

CALCRETE OOIDS

(a) and (b) Two generations of calcrete ooid grainstones. Later dark fissure filling deposits within earlier paler units developed towards the top of a palaeokarstic profile; top Upper Helaeth Beds, Principal Area.

(c) Calcrete ooid grainstone, thin section (x 15).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70
80
90
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110
120

PLATE 30

Calcrete ooid grainstone. Note micritic bridges between grains and in places slightly 'underpacked' texture. Thin section (x 15).

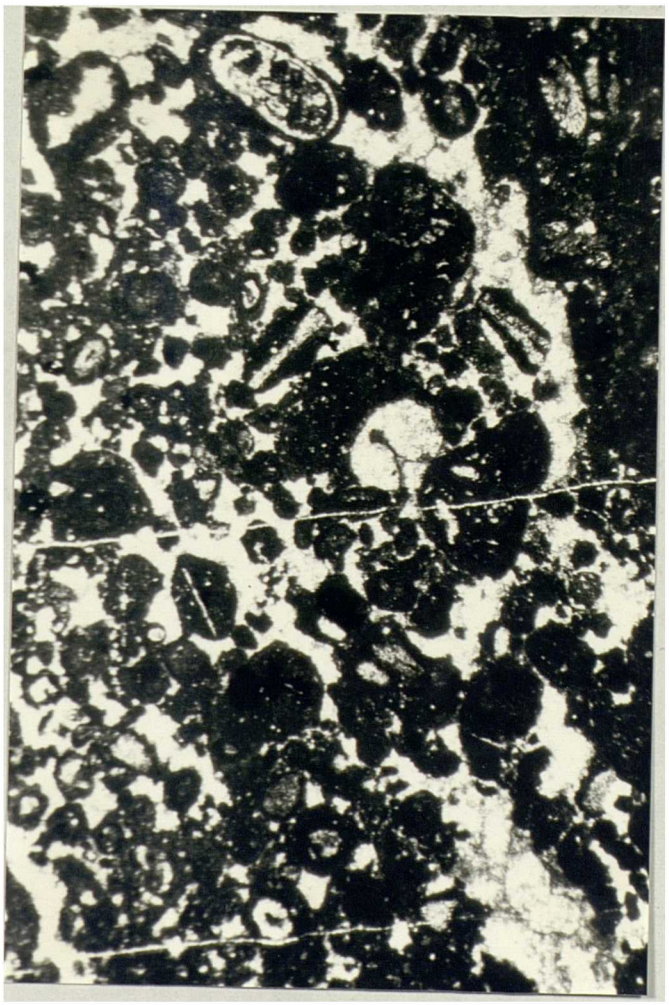


PLATE 31

BRECCIATION TEXTURES

(a) Stockwork of fine calcite filled cracks developed within block of calcretised limestone; top Pedolau Beds, Principal Area.

(b) Brecciated host limestone beneath palaeokarstic surface, note rhizoliths within matrix and crack filling material, top Upper Helaeth Beds, Principal Area.

(c) Rubbly blocks of calcretised limestone within matrix of 'chalky' microspar.

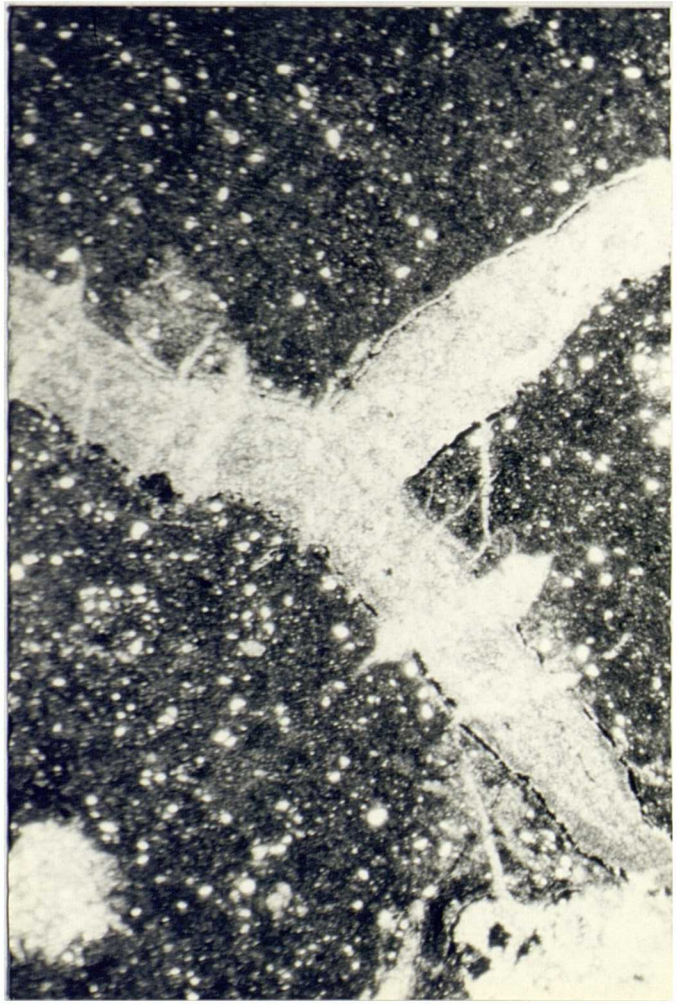
PLATE 32

BRECCIATION TEXTURES

(a) Septarian cracking within rounded 'clast' of host limestone.

(b) Irregular sigmoidal cracking within 'clasts' of calcretised limestone set in microspar matrix; thin section (x 15).

(c) Early microspar filled cracks traversed by later blocky spar filled gashes; thin section (x 45).



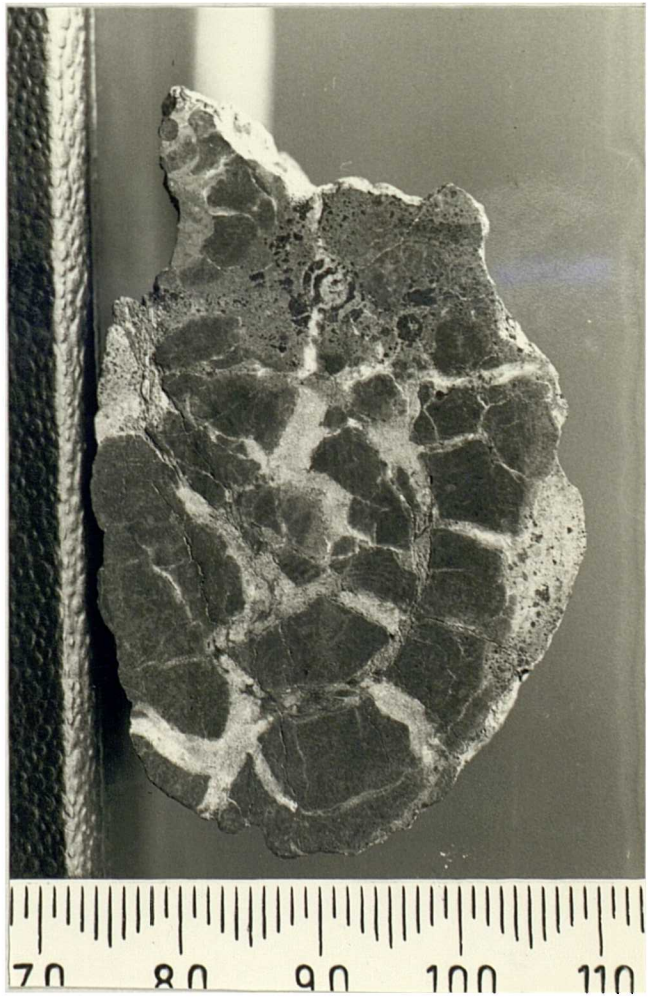

70
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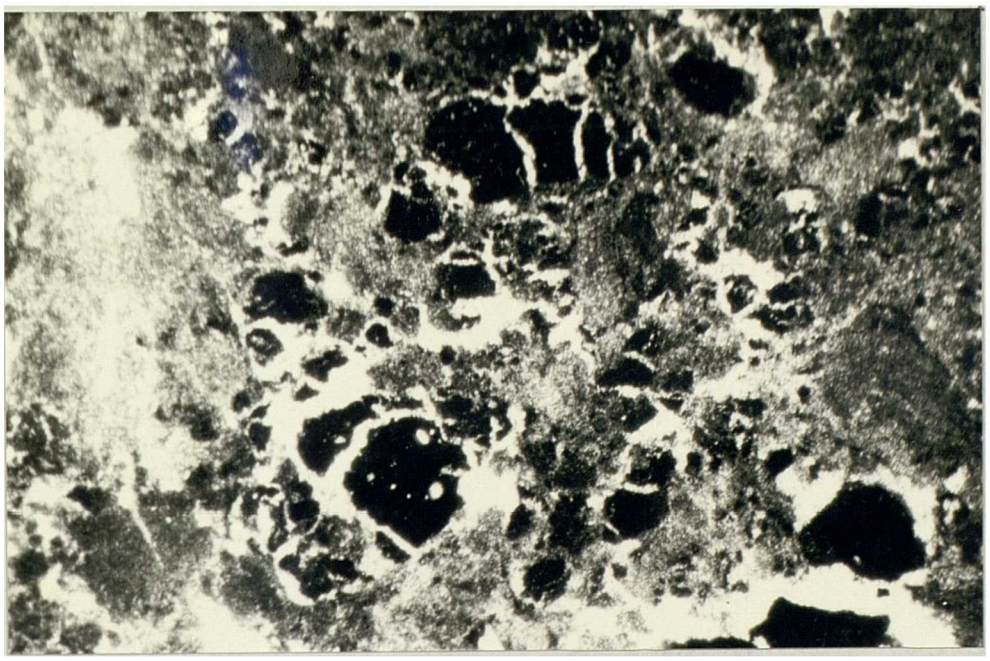
PLATE 33

BRECCIATION TEXTURES

(a) Complex retreat and bursting fissures (Freytet, 1973) developed within and around unaltered clasts of host limestone within recrystallised microspar 'matrix'; thin section (x 15).

(b) Detail of above, note geniculation and ghosting of spar filled cracks within immediately surrounding recrystallised 'matrix' (x 45).

(c) Cracking and spalling of quartz pebbles within palaeokarstic profile; thin section (x 15).



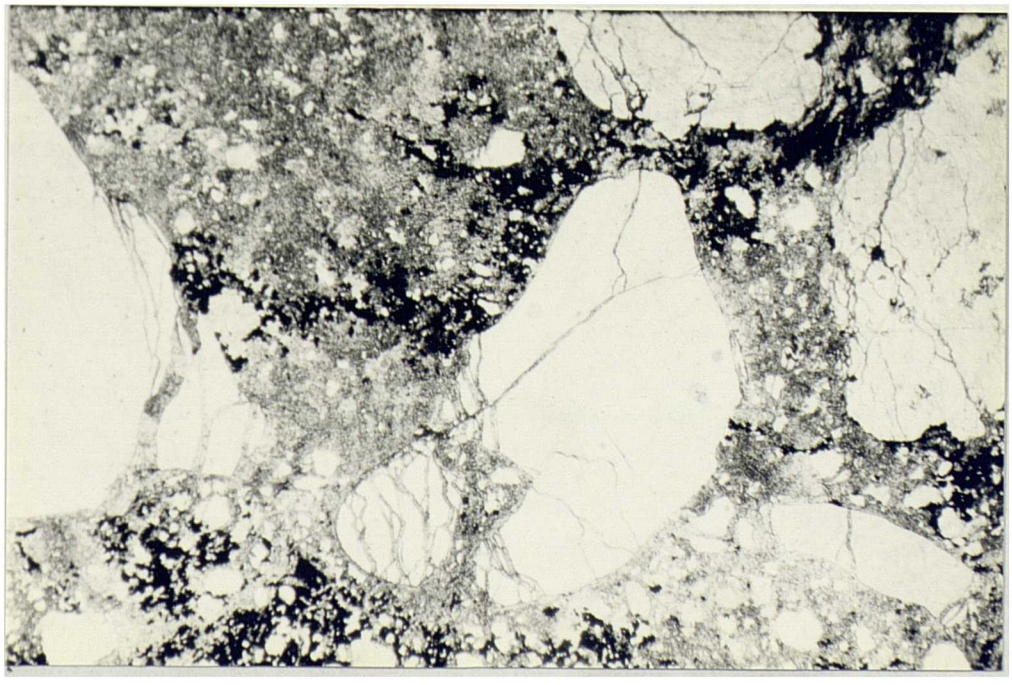


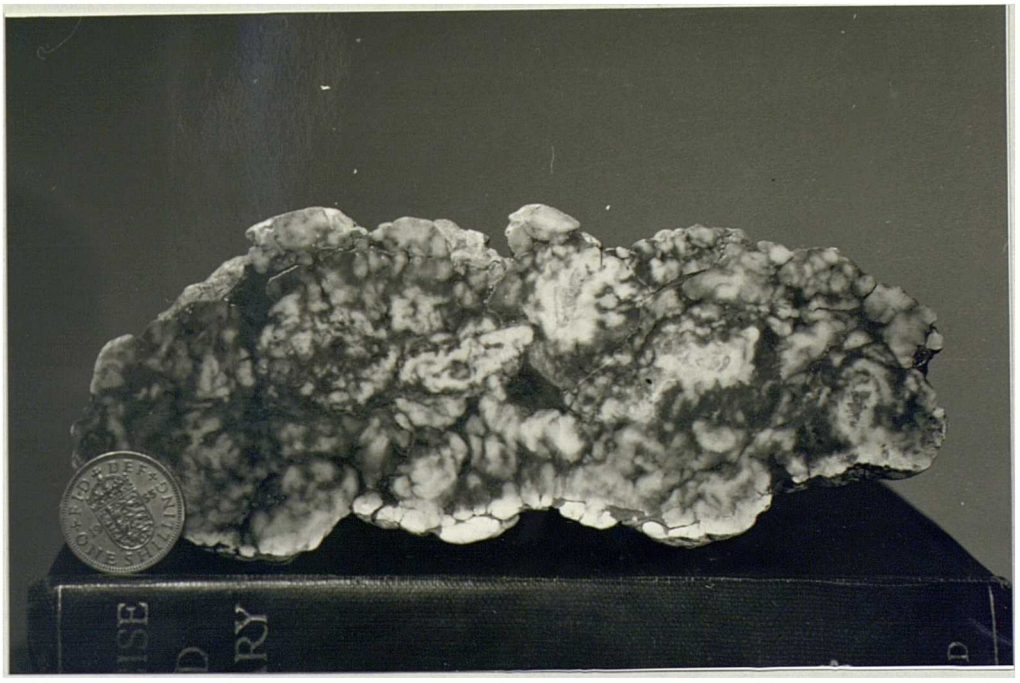
PLATE 34

RECRYSTALLISATION EFFECTS

(a) 'Clots' of microspar within nodular argillaceous limestones, Lower Morcyn Beds, Principal Area.

(b) 'Chalky' nodule of clotted growths within reworked palaeosol material, note spar filled gashes at centre of individual growths; Upper Morcyn Beds, Principal Area.

(c) Detail of above, note enterolithic type contortions of individual microspar clots.



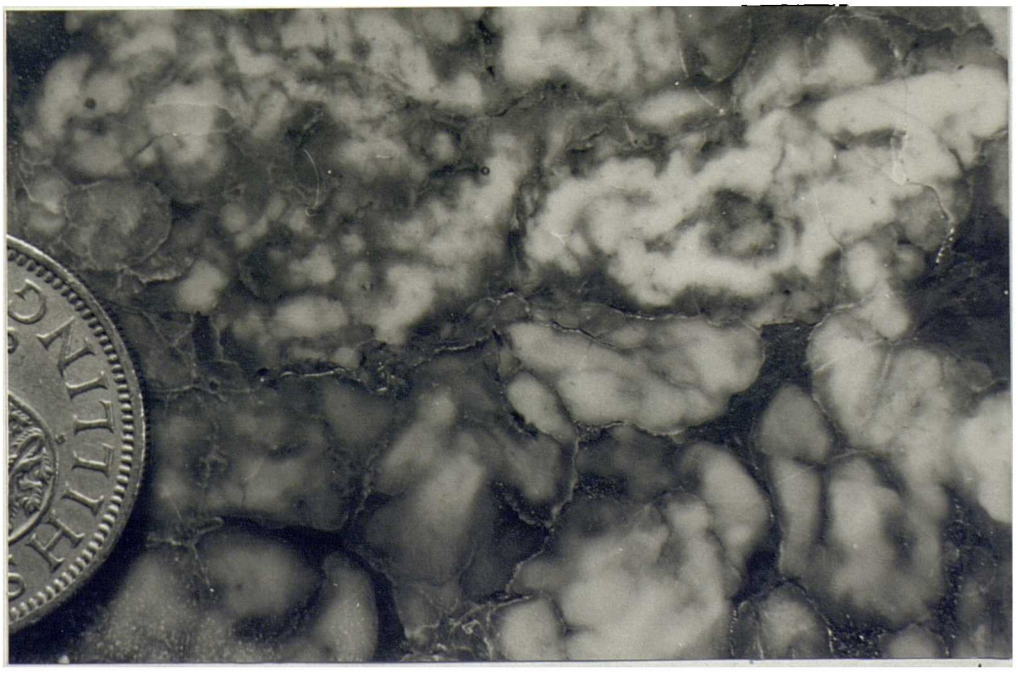


PLATE 35

RECRYSTALLISATION EFFECTS

(a) and (b) Clots of microspar with fringes of radial fibrous calcite; thin sections (x 15).

(c) Microspar and radial fibrous calcite enveloping brachiopod valve; thin section (x 15).

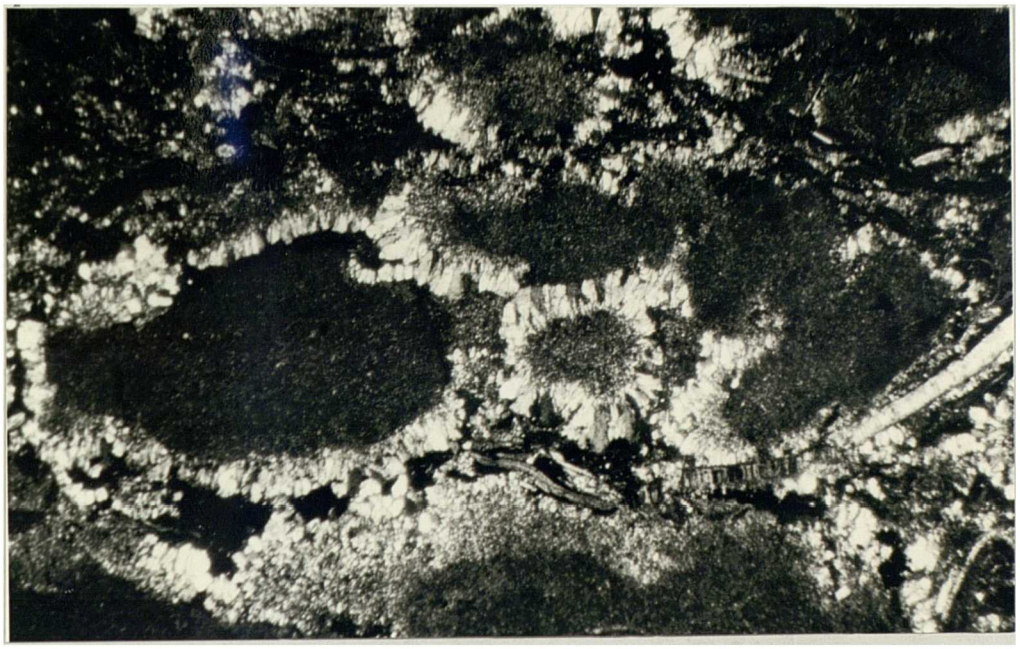


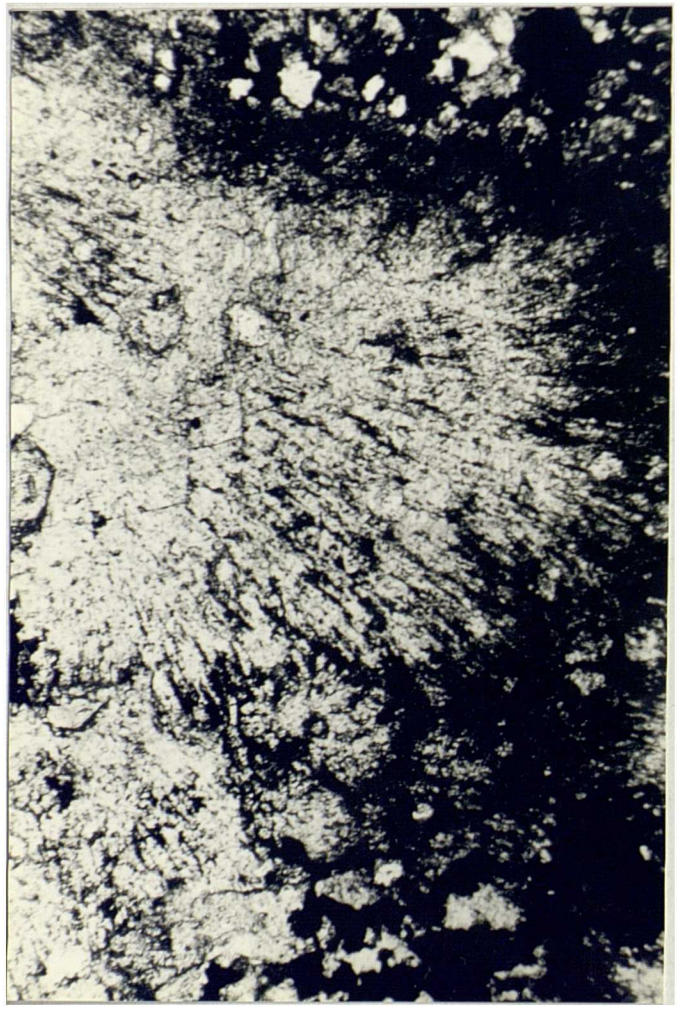
PLATE 36

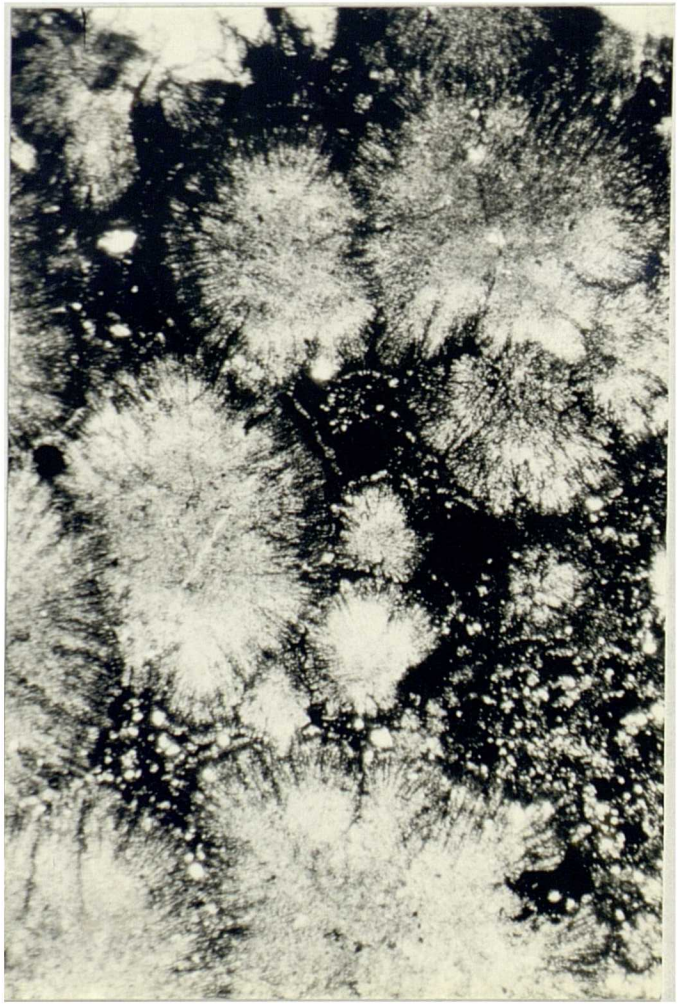
RECRYSTALLISATION EFFECTS

(a) Botryoidal texture developed by spherulites of radial fibrous calcite.

(b) Needle crystal spherulites, note secondary tufted growths and concentration of detrital quartz grains around edges; thin section (x 15).

(c) Detail of spherulite structure, note curved cleavage planes of fasicular optic calcite; thin section (x 45).





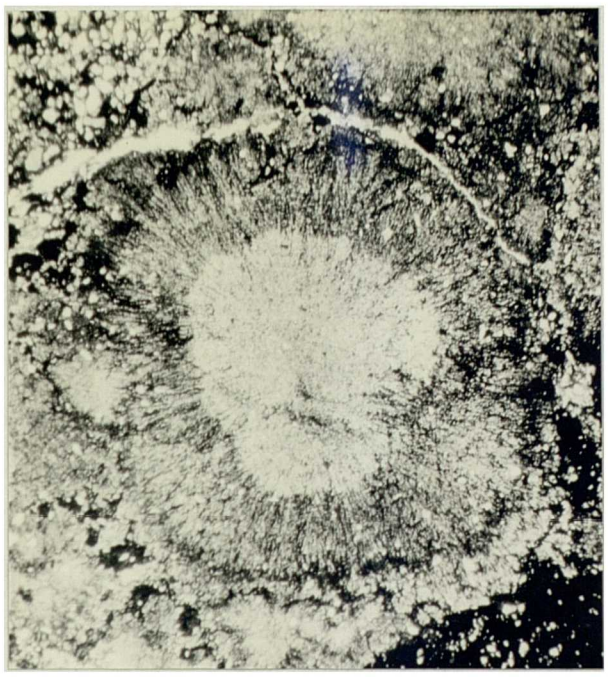

STANLEY

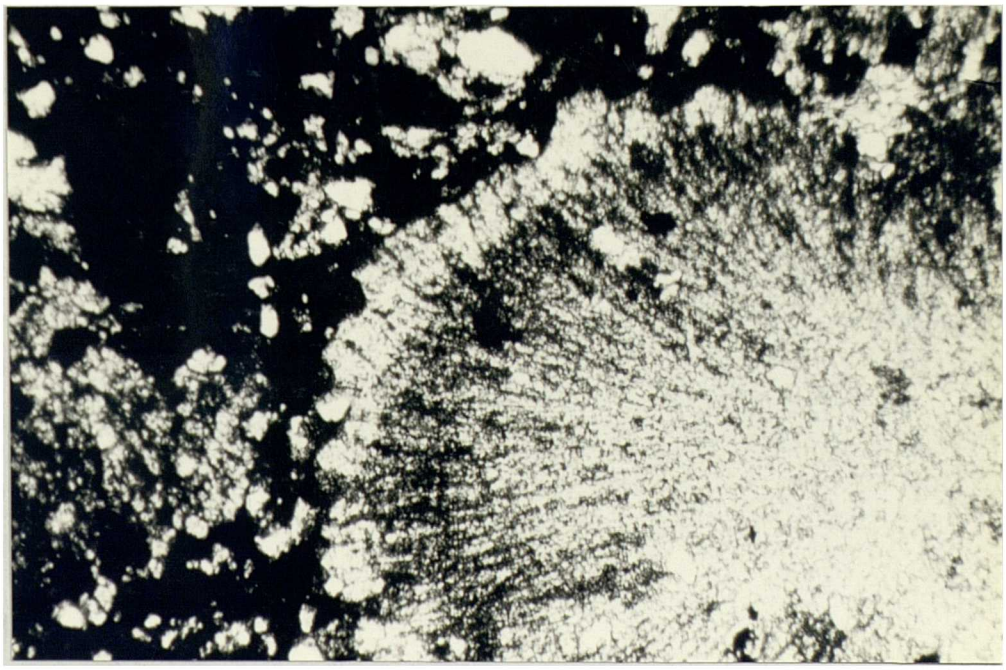
PLATE 37

(a) Detail of spherulite structure (p.p.l. and cross nichols), note centre of fasicular optic calcite and pseudouniaxial extinction cross; thin section (x 15).

(b) Spherulite with outer fringe of blocky calcite crystals; thin section (x 45).

(c) Concentric cracking within spherulite; peel (x 45).





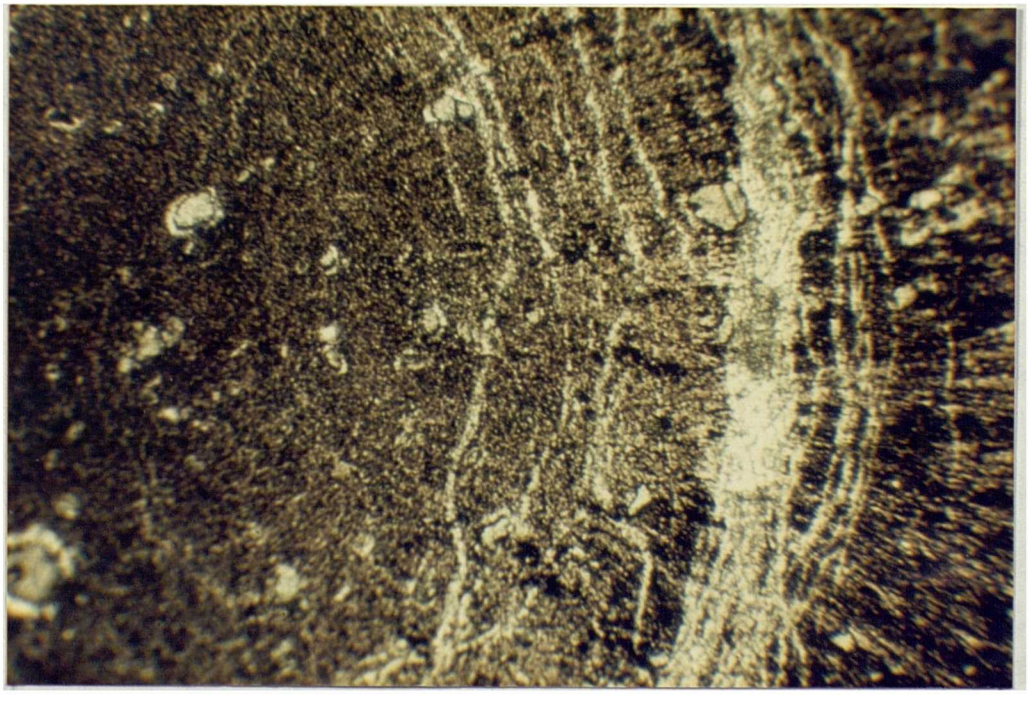
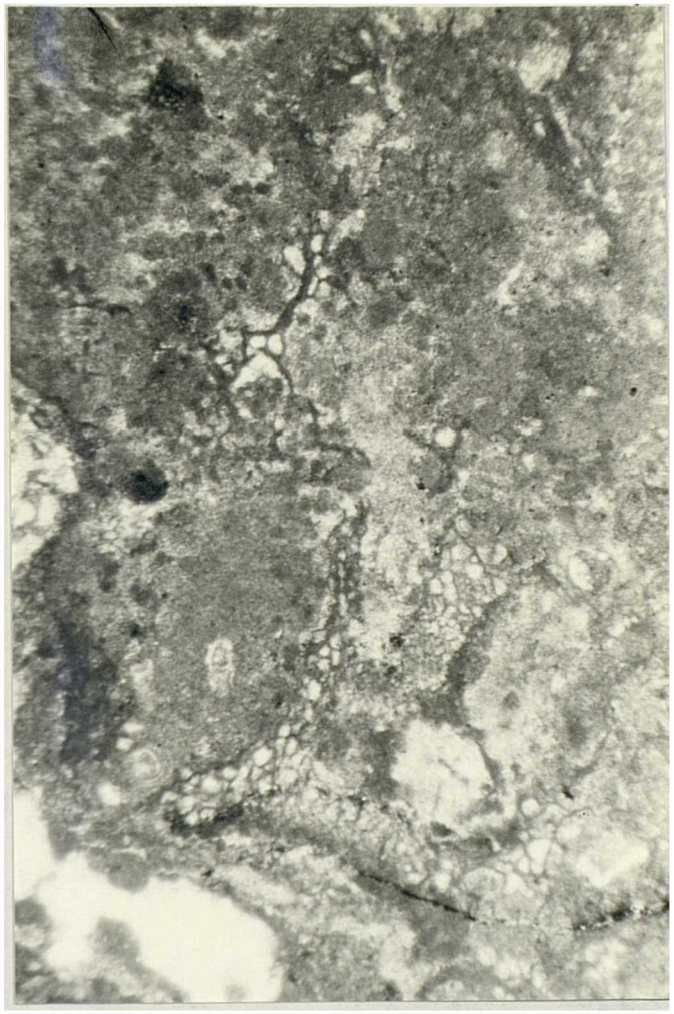


PLATE 38

(a) and (b) Cellular structures observed within palaeokarstic profiles. Such structures are generally referred to calcification around roots (rhizoliths) (e.g. Adams, 1980), but are potentially of diverse origin; thin sections (a x 45, b x 65).



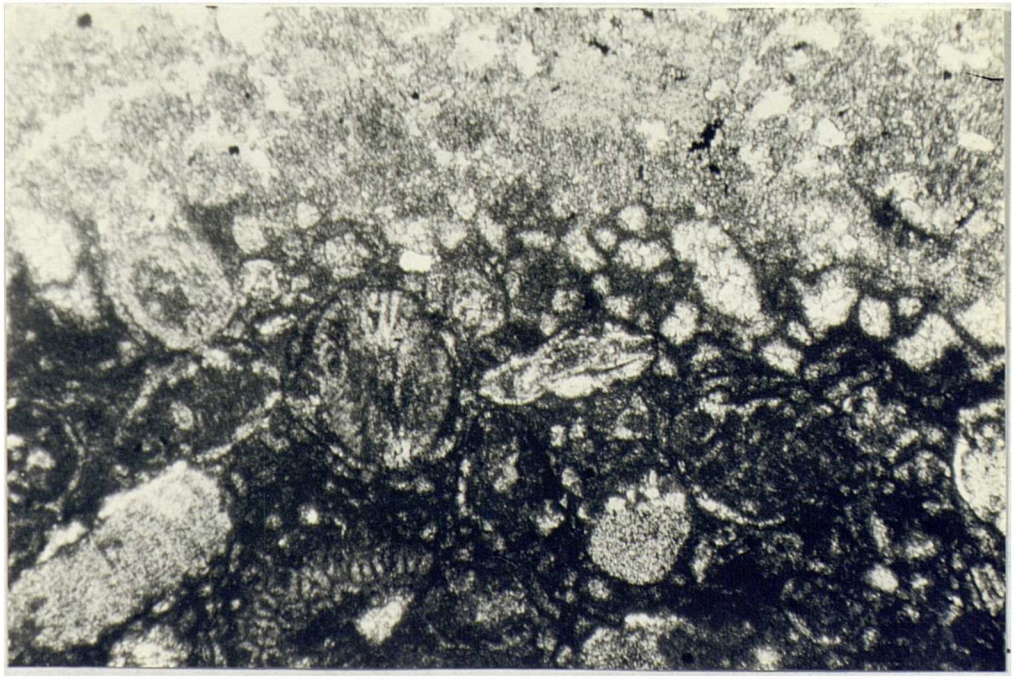


PLATE 39

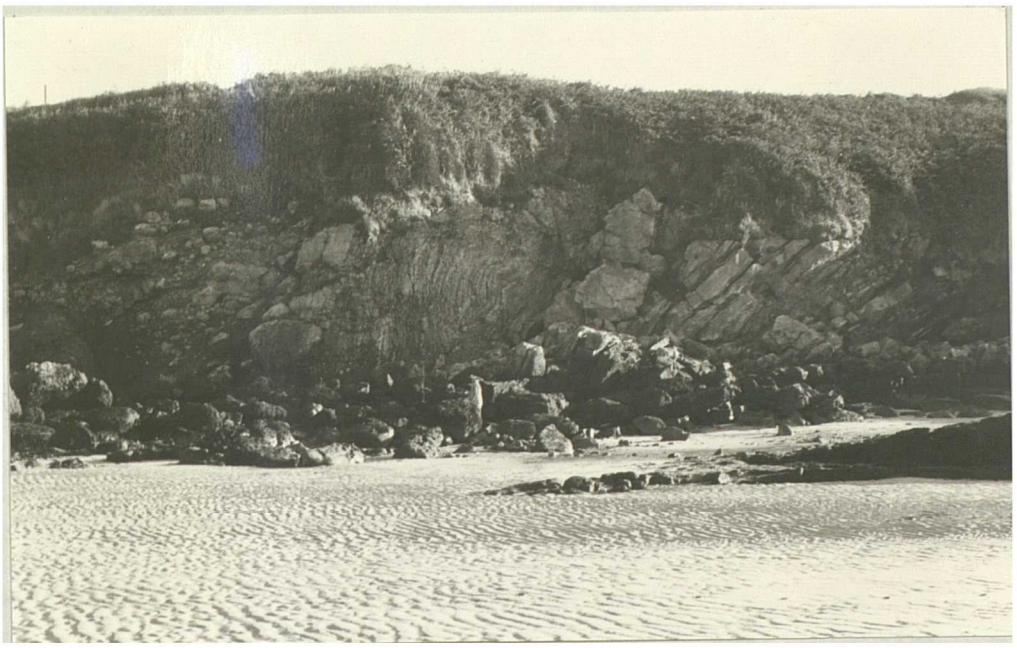
EARLY CEMENTATION

Grainstone displaying early non-ferroan fringe cements, stained pink and later poor filling ferroan generations stained blue; Lligwy Beds, Principal Area. Peel (x 65).

PLATE 40

COLLAPSE STRUCTURES

(a), (b) and (c) Lligwy Bay Disturbance.



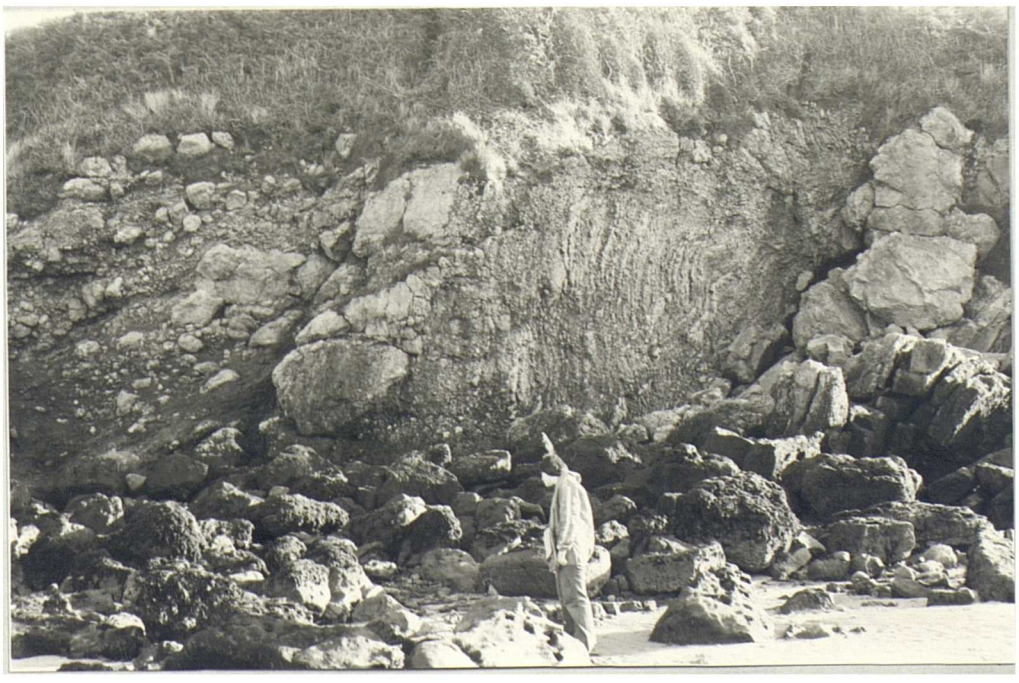


PLATE 41

COLLAPSE STRUCTURES

(a) and (b) Eastern end of Lligwy Bay Disturbance, chaotic blocks of limestone set in silty red shales with bands of fine yellow sandstone.

(c) Collapse structure in the Pedolau Beds at Pedolau [5082 8709], Principal Area.

PLATE 42

Trypanites borings, top of Lower Dinas Beds, Huslan

(a) Hummocky palaeokarstic surface overlain by basal shale of the Upper Dinas Beds.

(b) Dolomitised fills to *Trypanites* borings weathering proud of the surrounding limestone.

(c) Cut block showing details of bores and fill.

PLATE 43

Trypanites borings, top cycle T.B. 6, Trwyn Du.

(a) Upstanding hummock on palaeokarstic surface overlain by basal shale of cycle T.B. 7.

(b) and (c) *Trypanites* borings in above.


STANLEY
10m
3m

PLATE 44

LITHOFACIES A

(a) Quartz pebble conglomerate, Helaeth Sandstone.

(b) Pebbly coarse sandstone beds intercalated within conglomerates, Helaeth Sandstone.

(c) Plant debris in coarse pebbly sandstones, Lligwy Sandstone.

PLATE 45

LITHOFACIES A AND B

(a) Trough cross-bedded conglomerates, Lithofacies A, Helaeth Sandstone (map case for scale).

(b) Sharp based sheet sandstones in silty shales, note injection structure, Lithofacies B, Benllech Sandstone (scale on hammer is in centimetres).

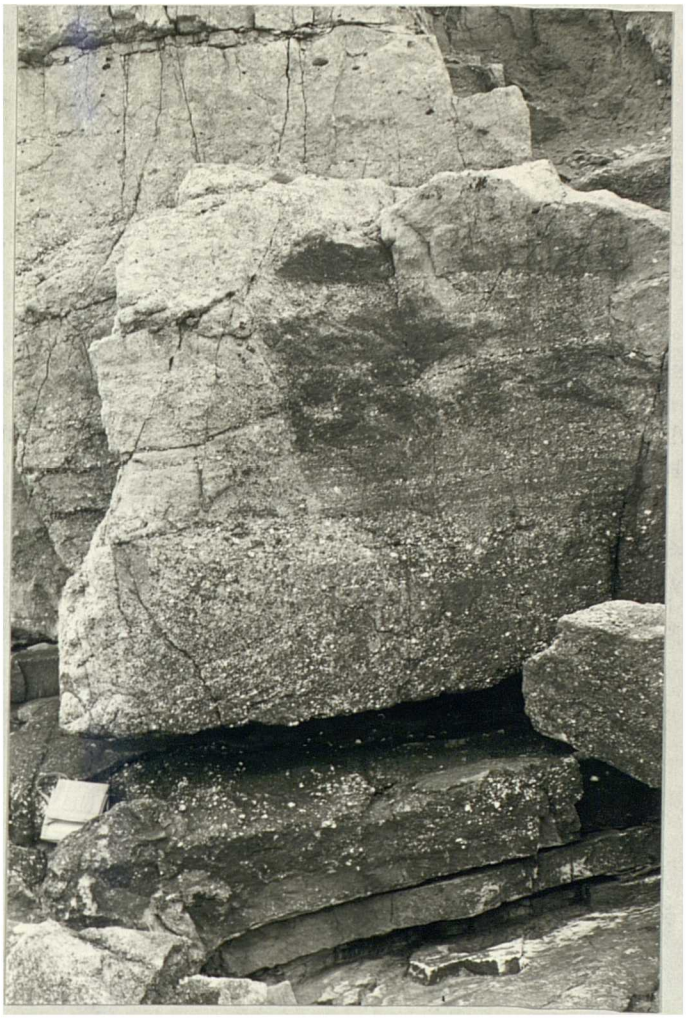


PLATE 46

LITHOFACIES B

(a) Bioturbated thin sandstone bands within flasser and linsen bedded silty shales, Benllech Sandstone.

(b) Tool marks on the base of sheet sandstone bed, Benllech Sandstone.

(c) Abundant trace fossils on the base of sheet sandstone bed, Benllech Sandstone.

PLATE 47

LITHOFACIES B

(a) Convolute and loaded base to planar laminated sheet sandstone, note symmetrical ripples at top, Benllech Sandstone.

(b) Well developed planar lamination within thick sharp-based sheet sandstone bed, note scour structure in top of same bed (left), Benllech Sandstone.

(c) Ripple-drift cross-lamination with sheet sandstone bed, Benllech Sandstone.

PLATE 48

LITHOFACIES B AND C

(a) Bi-directional cross-lamination towards the top of sheet sandstone bed, Benllech Sandstone.

(b) Cross-laminated sandstone lenses in silty shales, note Teichichnus burrow and Posidonomya bivalve, Benllech Sandstone.

(c) 'Honeycomb ' weathering in bioturbated calcareous sandstones, Lithofacies C, Lligwy Bay Sandstone.

PLATE 49

LITHOFACIES C

(a) Cross-bedded and honeycomb weathered calcareous sandstone, note abrupt contact with overlying limestones; Helaeth Sandstone.

(b) Ripple-drift cross-lamination within pebbly calcareous sandstone; Helaeth Sandstone.

PLATE 50

LITHOFACIES C

(a) Symmetrical ripple marks with frond-like traces of Haentzschelinia.

(b) Planar and low angle wedge-shaped cross bedding in calcareous sandstones; Aber Sandstone.

(c) Pebbly coquina; Aber Sandstone.

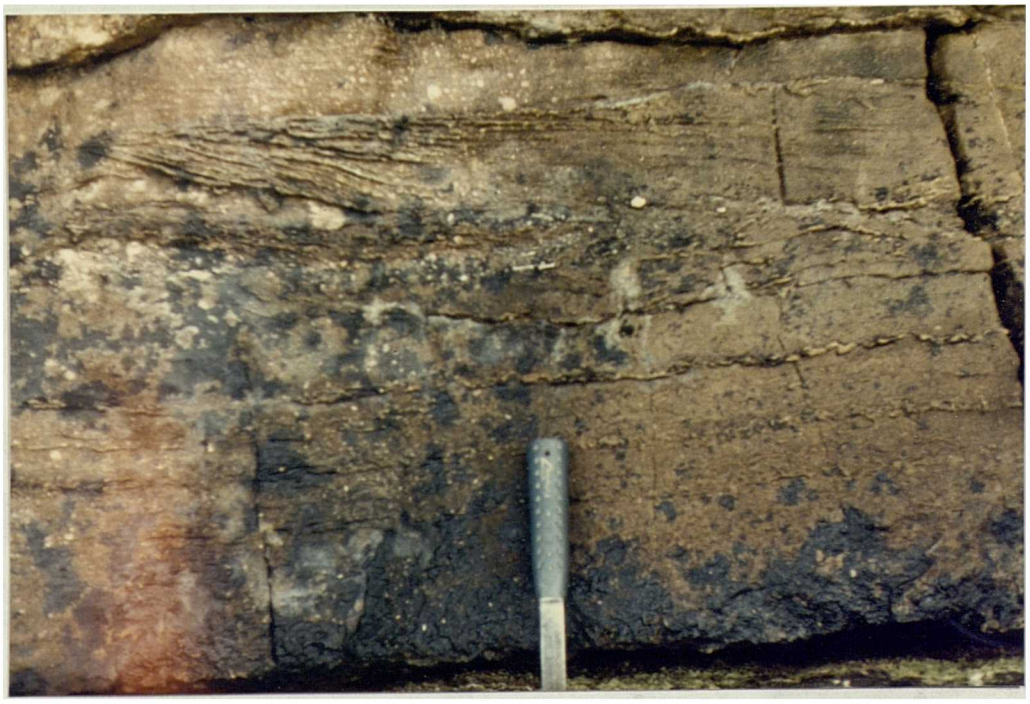


PLATE 51

LITHOFACIES C

(a) Vertical escape traces in calcareous sandstones; Aber Sandstone.

(b) Protrusive Diplocraterion; Helaeth Sandstone.

PLATE 52

BENLLECH SANDSTONE

(a) Step-like relief in conglomerates caused by synsedimentary faulting, northern channel.

(b) Small graben structure units of Lithofacies B let down into underlying conglomerates of Lithofacies A, northern channel.

(c) Cross-bedded conglomerates with reactivation surfaces and intercalated bioturbated silty shales; Borth Wen, southern channel.

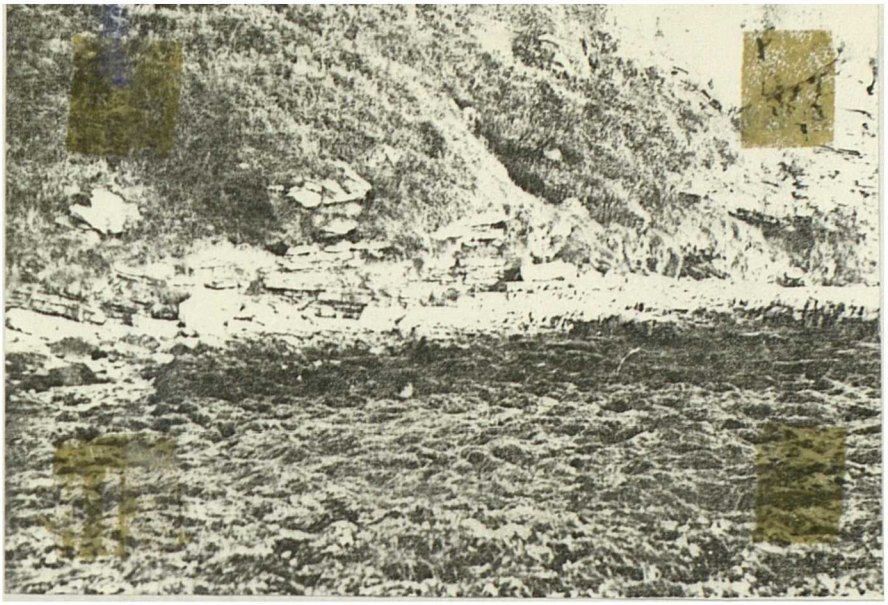


PLATE 53

BENLLECH SANDSTONE

(a) Conglomerates of Lithofacies A (foreground) overlain by interbedded sandstones and shales of Lithofacies B and in turn by thinly bedded limestones of the Upper Dinas Beds, southern channel (see (b) for scale).

(b) Packet of sheet sandstones (centre in (a)) overlying conglomerates and trucated to the south (left) by curved erosion surface.

(c) Close up of above.

PLATE 54

BENLLECH SANDSTONE

(a) Wedge shaped beds truncated by left facing curved erosion surfaces. These units occur in the lower right-hand corner of Plate 53b.

(b) Erosion surface truncating planar lamination within these wedges.

(c) Erosion surface with sinuous traces of Gyrichnites.

PLATE 55

BENLLECH SANDSTONE

Interbedded sandstones and shales of Lithofacies B abruptly overlain by thicker bedded calcareous sandstones of Lithofacies C, northern channel.

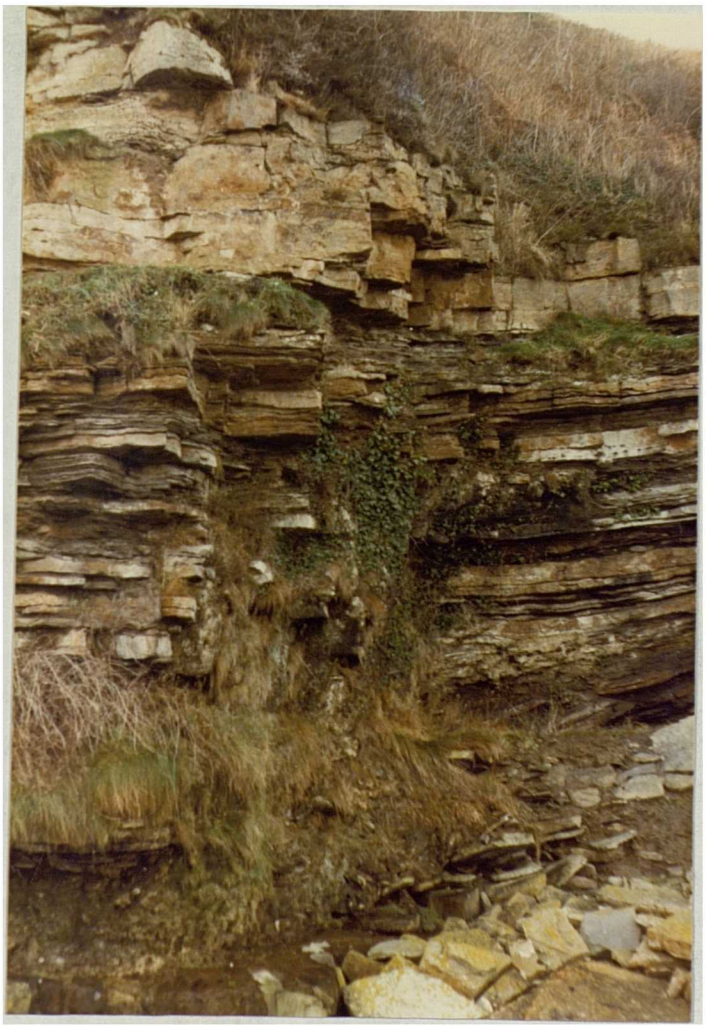


PLATE 56

HELAETH SANDSTONE

Western exposures in the foreground are developed in conglomerates with low angle lateral accretion surfaces, note hammer for scale; brown, calcareous sandstones exposed at the base of the background cliffs (upper left) comprise the eastern cliff section, note caravans for scale.

PLATE 57

HELAETH SANDSTONE : WESTERN EXPOSURES

Shales and lenticular sandstones (far right in Plate 56).

PLATE 58

HELAETH SANDSTONE : WESTERN EXPOSURES

(a) Scour trough in basal pebbly sandstone.

(b) Coarsening upwards unit within shallowly dipping conglomeratic beds.

(c) Pebble lined scour at the top of the lower dipping unit.

PLATE 59

HELAETH SANDSTONE : EASTERN CLIFF SECTION

(a) General view illustrating Lower Unit of dipping lenticular sandstones, Middle Unit of shales with sharp-based sheet sandstones (largely obscured by fallen blocks) and Upper Unit of calcareous sandstones overlain abruptly by limestones of the Lower Halaeth Beds.

(b) Planar surface truncating the dipping beds of the Lower Unit.

(c) Lenticular sandstone with intercalated silty shales, overlain by thicker bedded, coarse pebbly sandstones which cap the Lower Unit.

PLATE 60

HELAETH SANDSTONE : EASTERN CLIFF SECTION

(a) Lenticular sandstones in Lower Unit

(b) Large scour feature (above hammer) in Lower Unit, note also the low angle cross bedding in overlying sandstone beds.

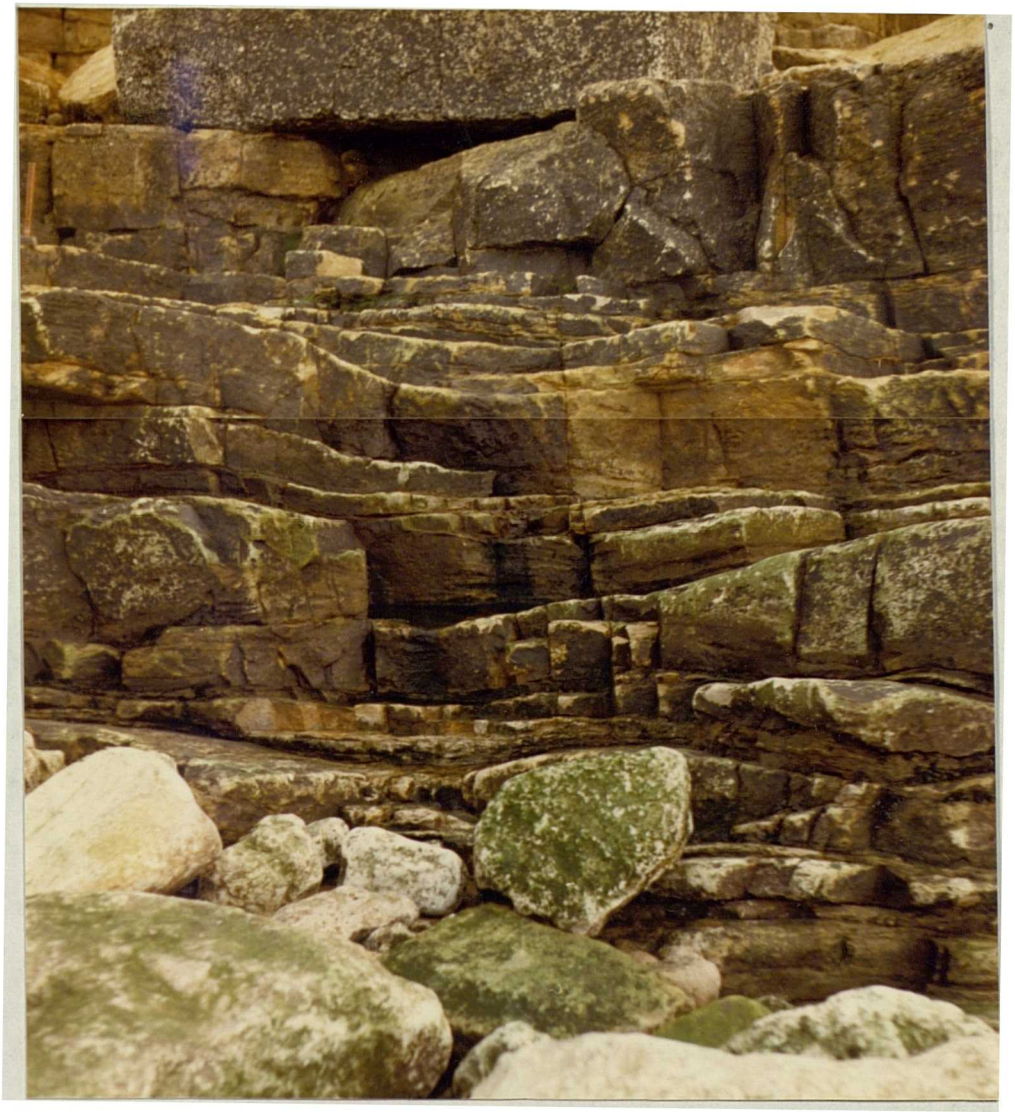


PLATE 61

HELAETH SANDSTONE : EASTERN CLIFF SECTION

(a) Lenticular sandstone tapering into surrounding shales.

(b) Tracks of Palaeohelminthoida on upper bedding surface of lenticular sandstone bed.

(c) Chondites burrow on base of lenticular sandstone bed.

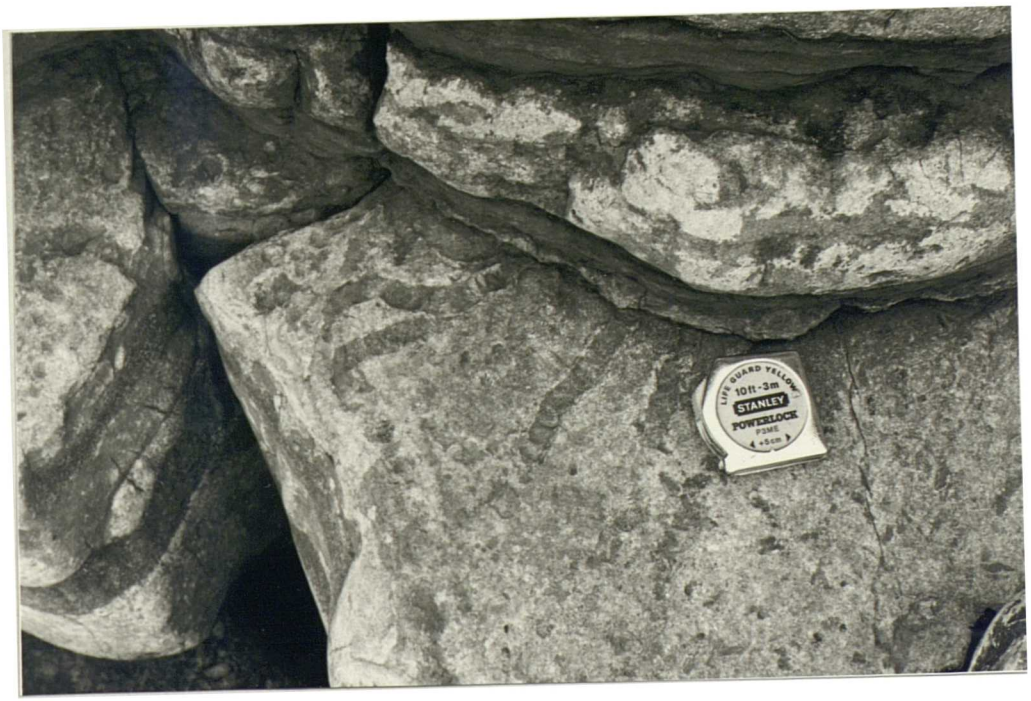

LIFE GUARD YELLOW
10ft - 3m
STANLEY
POWERLOCK
P10MS

PLATE 62

HELAETH SANDSTONE ; EASTERN CLIFF EXPOSURE

(a) Large scale trough cross-bedding in coarse pebbly sandstone which cap the Lower Unit.

(b) Trough cross-bedding at the top of the Lower Unit truncated by erosion surface, note othoquartzitic sandstone veneer (lateral field of view approximately 100 cms).

(c) Antidune(?) cross-bedding towards the base of major channel feature shown in Plate 63.

PLATE 63

HELAETH SANDSTONE : EASTERN CLIFF SECTION

Large channel feature developed within the Lower Unit

PLATE 64

HELAETH SANDSTONE : EASTERN CLIFF EXPOSURES

(a) Planar erosion surface at the top of the Lower Unit overlain by interbedded sandstones and shales of the Middle Unit, and in turn by calcareous sandstones of the Upper Unit.

(b) Sharp-based sheet sandstones of Lithofacies B within the Middle Unit.

(c) Scour filled by calcareous sandstone in top of sharp-based sheet sandstone, overlying tabular cross-bedded calcareous sandstone are part of the Upper Unit.

PLATE 65

HELAETH SANDSTONE : EASTERN CLIFF EXPOSURES

(a) Low angle and wedge-shaped cross-bedding in the Upper Unit.

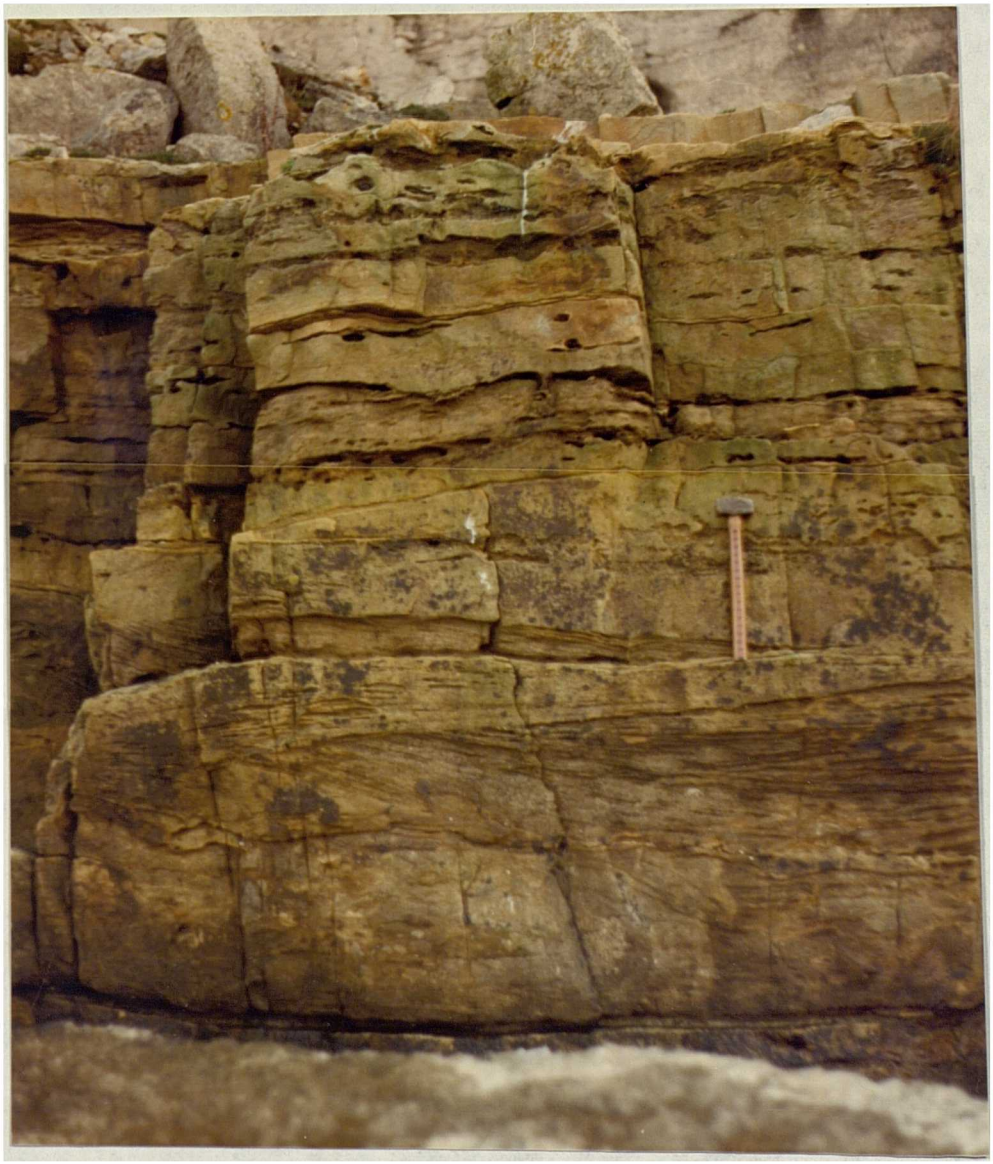


PLATE 66

PEDOLAU AND TRAETH BYCHAN SANDSTONES

(a) Limestone clast and quartz pebble conglomerates overlain by black shale comprise the channel fill (left) and abut against the steeply dipping channel well eroded in the underlying Pedolau Beds.

(b) Upper surface of channel floor conglomerate (overlain by black shale in (a)) showing Phycoides(?) burrows.

(c) Traeth Bychan sheet sandstone overlying rubbly palaeokarstic surface; Traeth Bychan.

PLATE 67

LLIGWY BAY SANDSTONE

(a) Lligwy Bay Conglomerate banked against upstanding mass of underlying limestone strata.

(b) Lense of low angle cross-bedded pebbly sandstone, note scour in upper surface (centre) filled by overlying conglomerates.

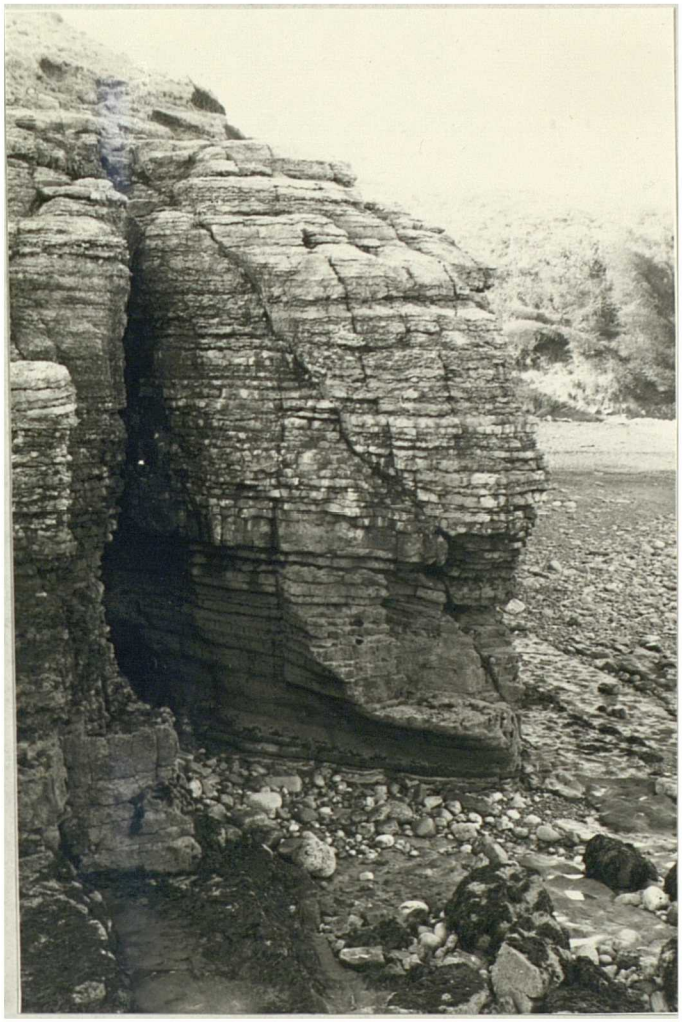
(c) Disturbed bedding within the Lligwy Bay Sandstone.

PLATE 68

LITHOFACIES I

(a) Thinly-bedded argillaceous limestones and intercalated shales within the Lower Dinas Beds at Borth Wen. Height of cliff approximately 15 m.

(b) Intercalation of thin more massive skeletal wackestone/packstone beds and shale rich, nodular burrowed horizons subfacies Ia, Lower Dinas Beds at Pen-y-coed; note hammer for scale.



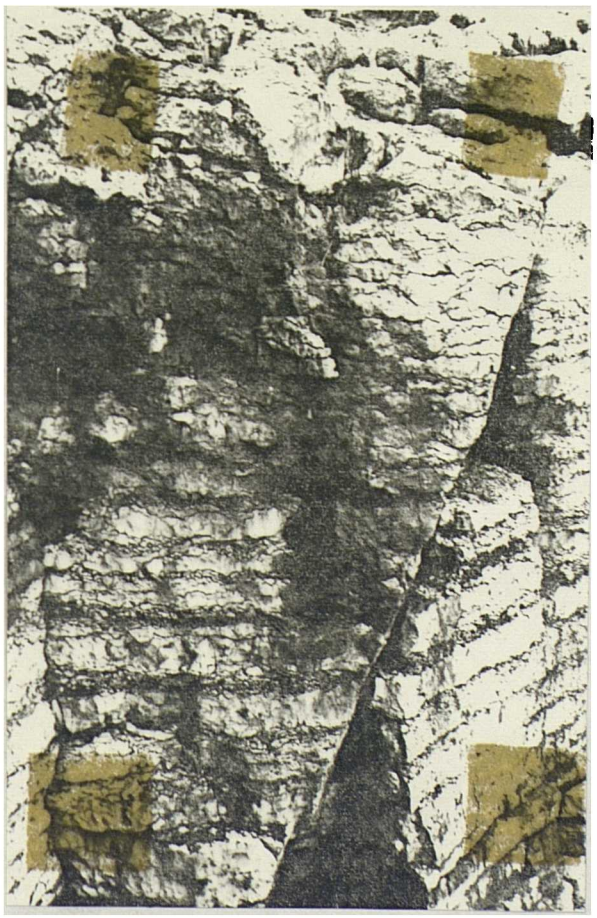


PLATE 69

LITHOFACIES I : SUBFACIES Ia

(a) Nodular limestone growths picking out burrow forms within shale rich zone, note often contorted sheet-like burrows of Zoophycus and Gigantoproductids in life position; Lower Morcyn Beds, Traeth Bychan.

(b) Limestone nodules picking out cylindrical burrows, Upper Dinas Beds, south of Penrhyn Point.

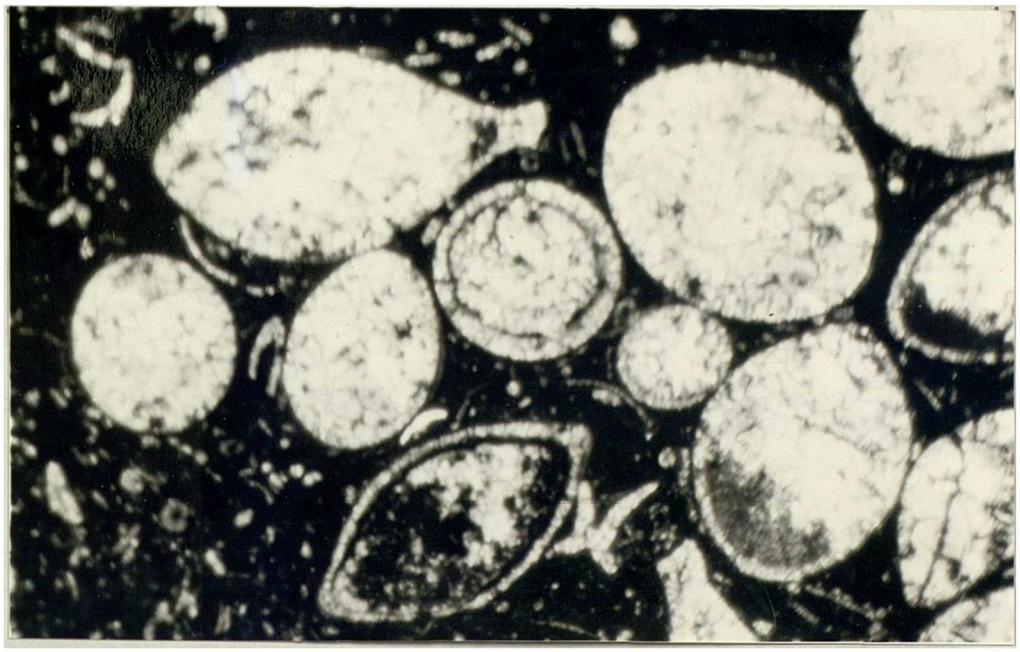
PLATE 70

LITHOFACIES I AND II

(a) Saccamminia bed, large spar cement filled tests within skeletal wackestone matrix; thin section (x 15), Porth yr Aber Beds.

(b) Wackestone/packestone texture with finely comminuted, largely indeterminate skeletal debris, larger grains (centre) are foraminiferan and transverse section of brachiopod spine; thin section (x 45), Upper Dinas Beds.

(c) Ramifying network of stylolites (cf. stylobreccias of Logan and Semeniuk, 1976) with skeletal packstones of Lithofacies II; Moelfre Formation, Principal Area.



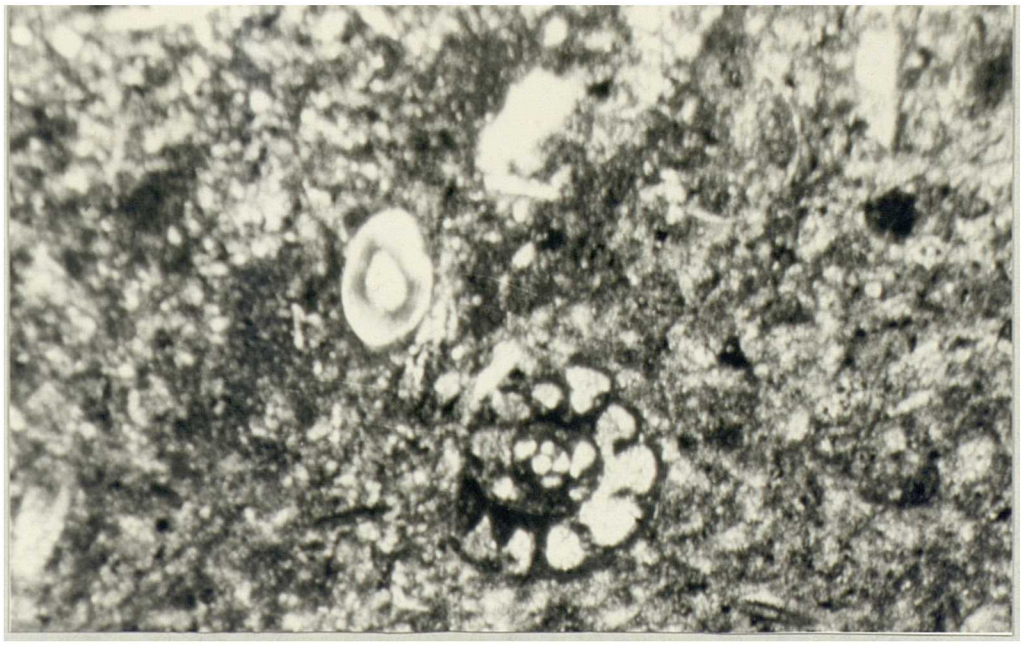


PLATE 71

LITHOFACIES II

(a) Skeletal packstone/grainstone: mixed and mottled skeletal packstone (light) and skeletal grainstone (dark), Eglwys Siglen Beds.

(b) Pronounced colour mottling in skeletal packstones, Flagstaff Formation, Penmon Area.

0
80
90
100
110
120
130

PLATE 72

LITHOFACIES II

(a) Skeletal packstone/grainstone, contact between packstone textured area (bottom) and grainstone (top); thin section (x 45), Moelfre Formation, Principal Area.

(b) Thin bed of subfacies IIa (beneath hammer) pinching out (right) against the rising palaeokarstic surface at the top of the Moryn Beds; Pedolau, Principal Area.

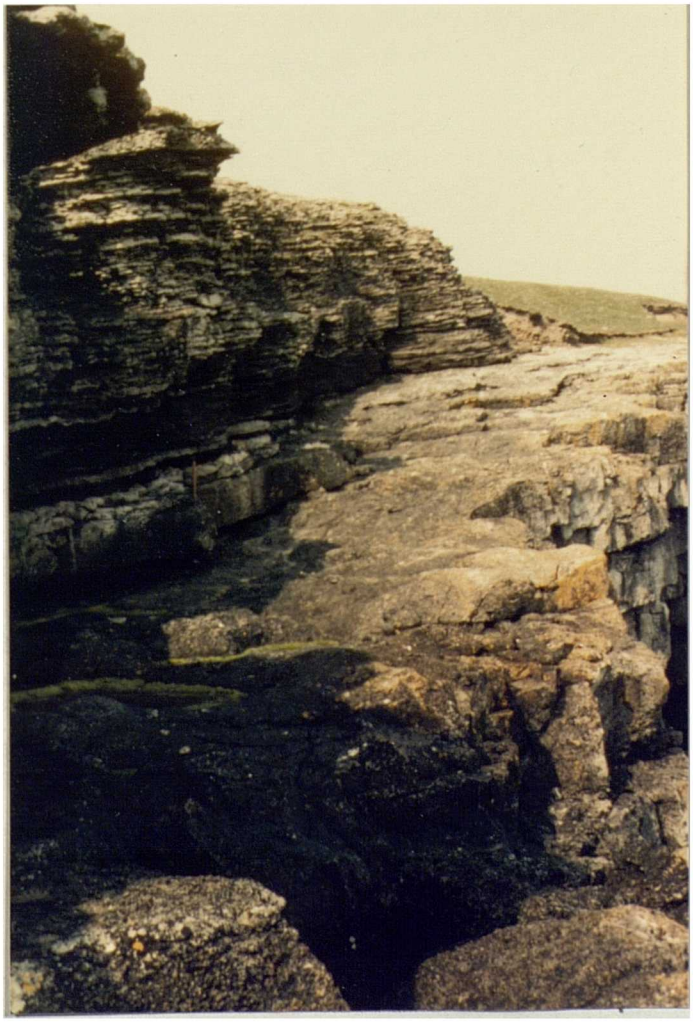


PLATE 73

LITHOFACIES II : SUBFACIES IIa

(a) Coarse intraclast rich coquina, base of Lower Lookout Beds, Bwlch-y-dafarn [492 855], Principal Area, note dark, rounded intraclasts of calcretised limestone.

(b) Intraclast, skeletal packstone/grainstone, note abundance of grains of dasycladacean algae; thin section (x 45) of bed in Plate 72b.

(c) Calcrete encrusted skeletal grains reworked within the basal units of the Porth y Rhos Beds at Traeth Bychan; thin section (x 15).

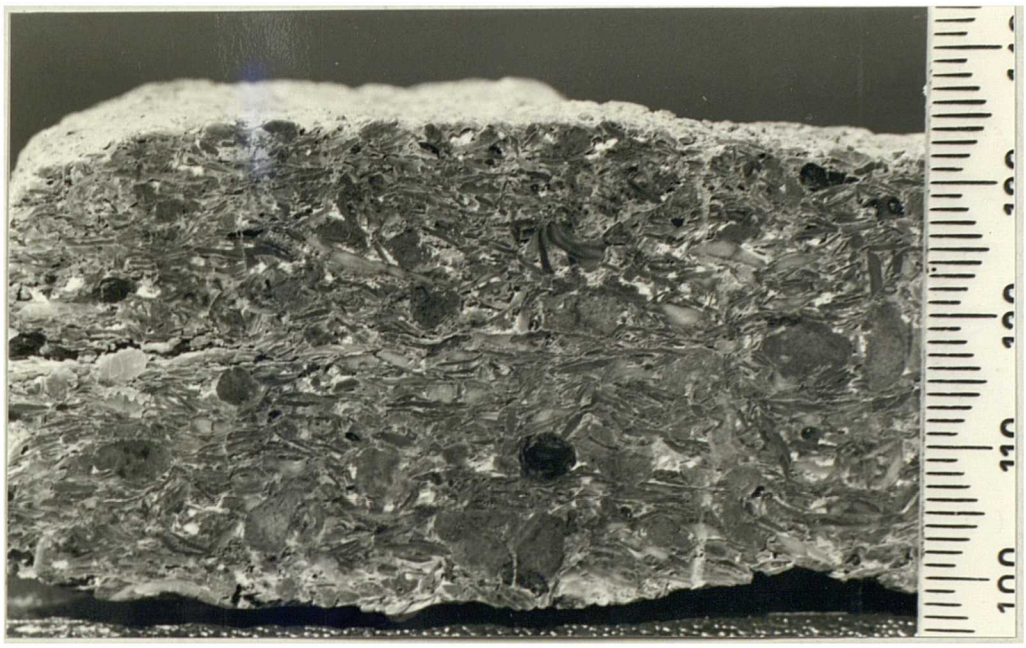


PLATE 74

LITHOFACIES III

(a) Cross-laminated skeletal grainstones, top of Lower Dinas Beds, Borth Wen.

(b) Coarse coquinoid and oncoid rudestones forming toeset phase to cross-bedded grainstones, Flagstaff Formation, Penmon Area.

(c) Coarse, cross-laminated dasycladacean grainstones overlain by fine grained, low angle cross-laminated, skeletal grainstones, Flagstaff Formation, Penmon Area.


LIFE GUARD YELLOW
10ft-3m
STANLEY
POWERLOCK
P3ME
+5cm


STANLEY

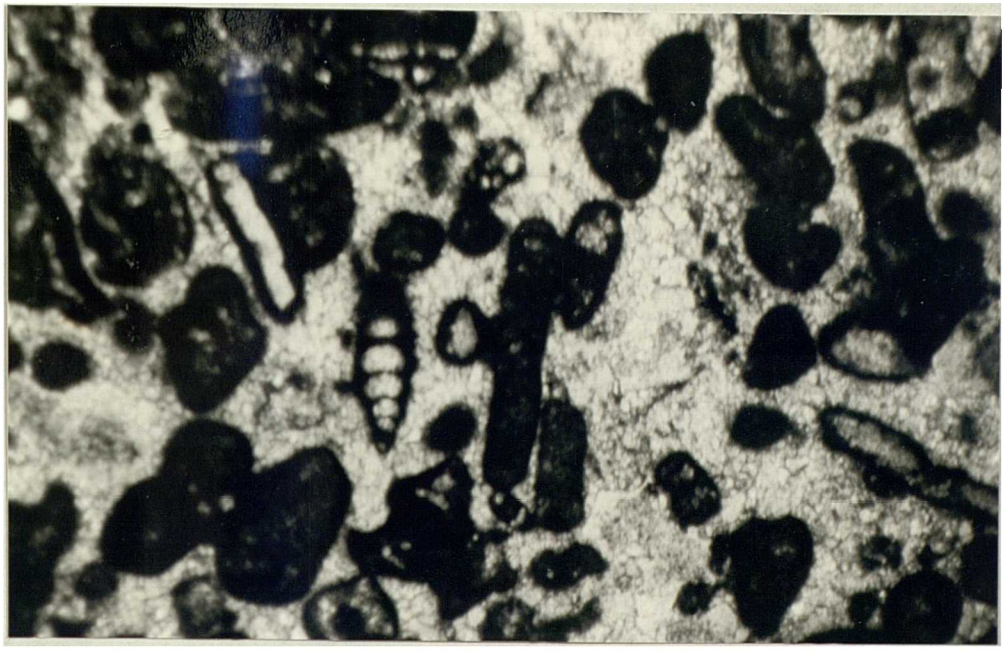
PLATE 75

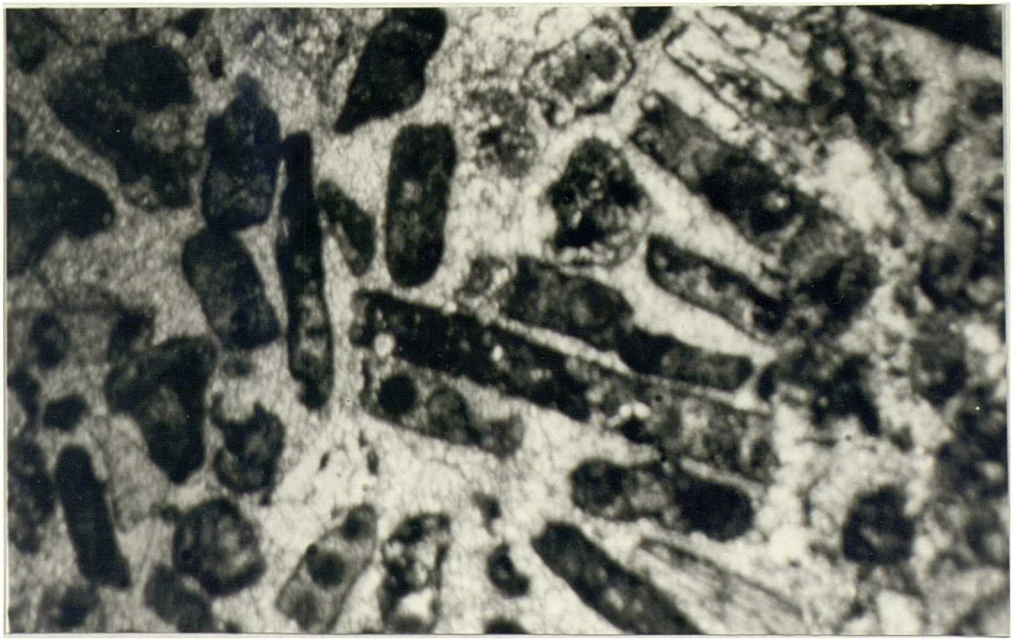
LITHOFACIES III

(a) Skeletal, pelloid grainstone, note grapestone-like compound grains; thin section (x 45).

(b) Dasycladacean grainstone; thin section (x 45).

(c) Thinly bedded units of subfacies IIIa in the Pedolau Beds at Pedolau, here extensively replaced by clotted microspar (see Plate 35).





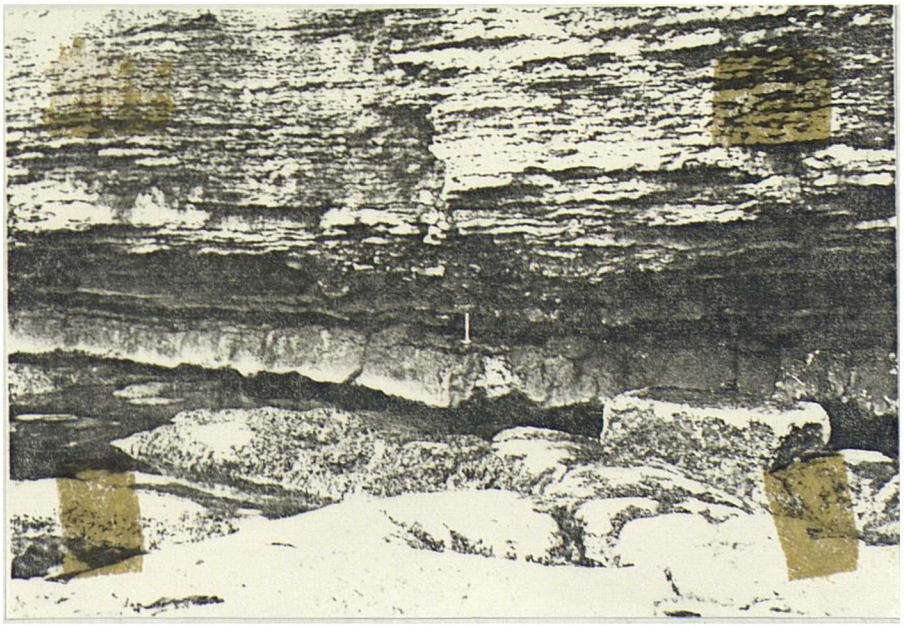


PLATE 76

LITHOFACIES III : SUBFACIES IIIa

(a) Thinly bedded, cross-laminated and bioturbated skeletal grainstones of subfacies IIIa, cycle F5, Penmon Park Quarry.

(b) Vague cross-lamination textures partly obscured by clotted growths of microspar.

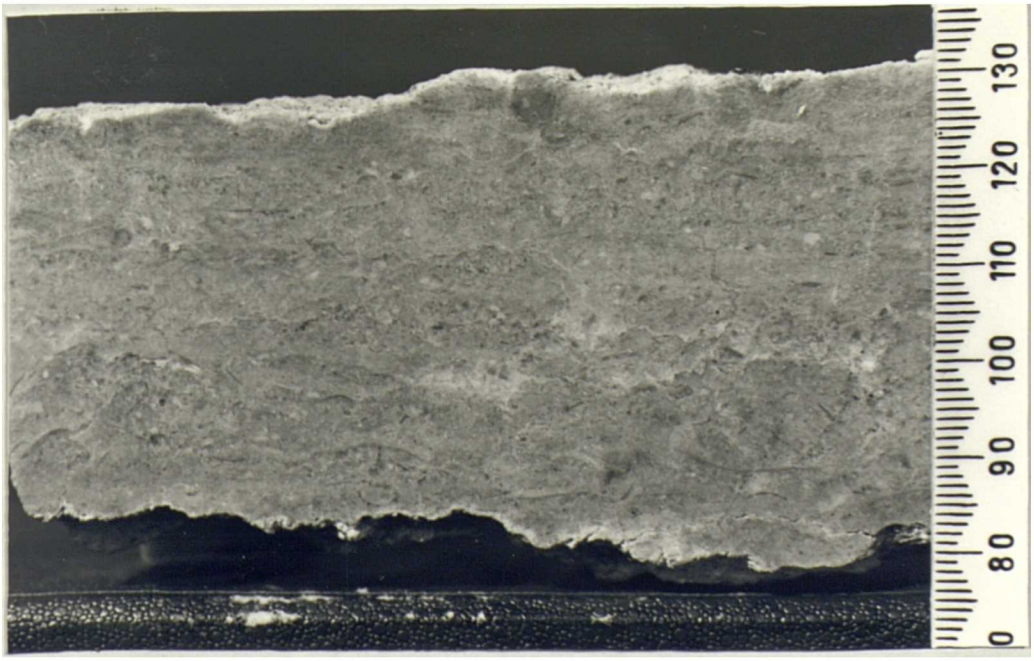

0
80
90
100
110
120
130

PLATE 77

LITHOFACIES IV

(a) Low angle cross-bedding in shelly ooid grainstones, top of Porth-y-Rhos Beds, Traeth Bychan.

(b) Ooid grainstone, note compound ooids; thin section (x 45) of intraclast in palaeosol, top Upper Helaeth Beds.

(c) Skeletal ooid grainstone, note grapestone-like compound grains; thin section (x 45).

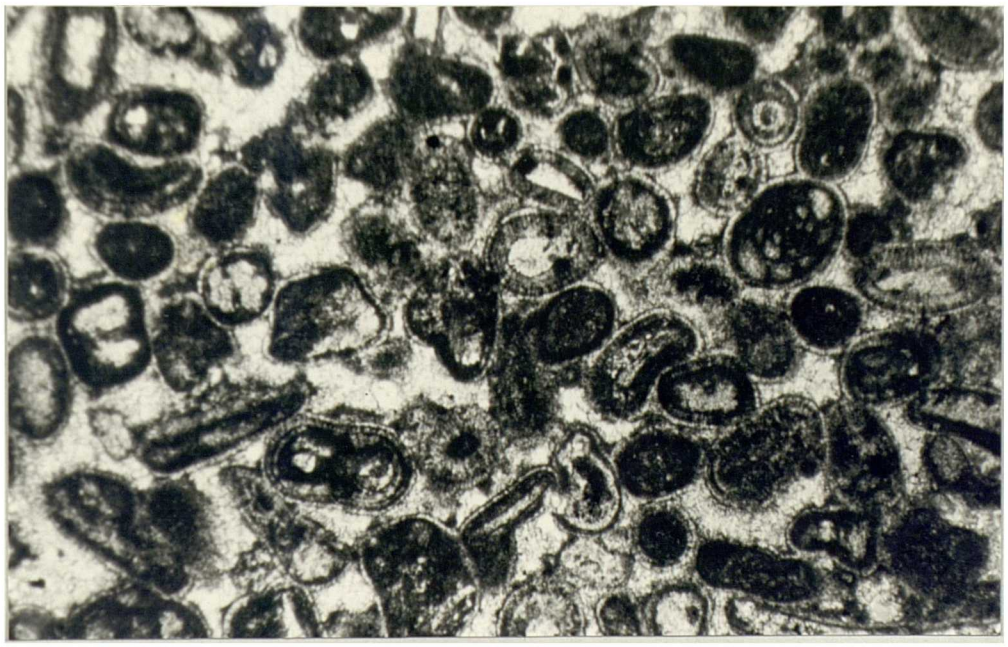


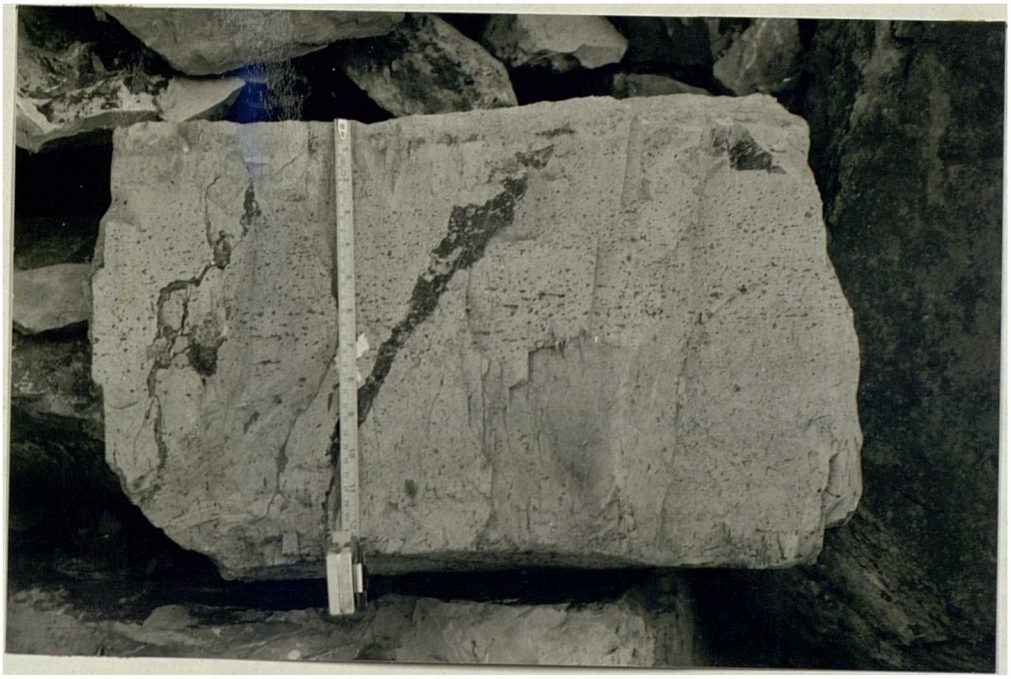
PLATE 78

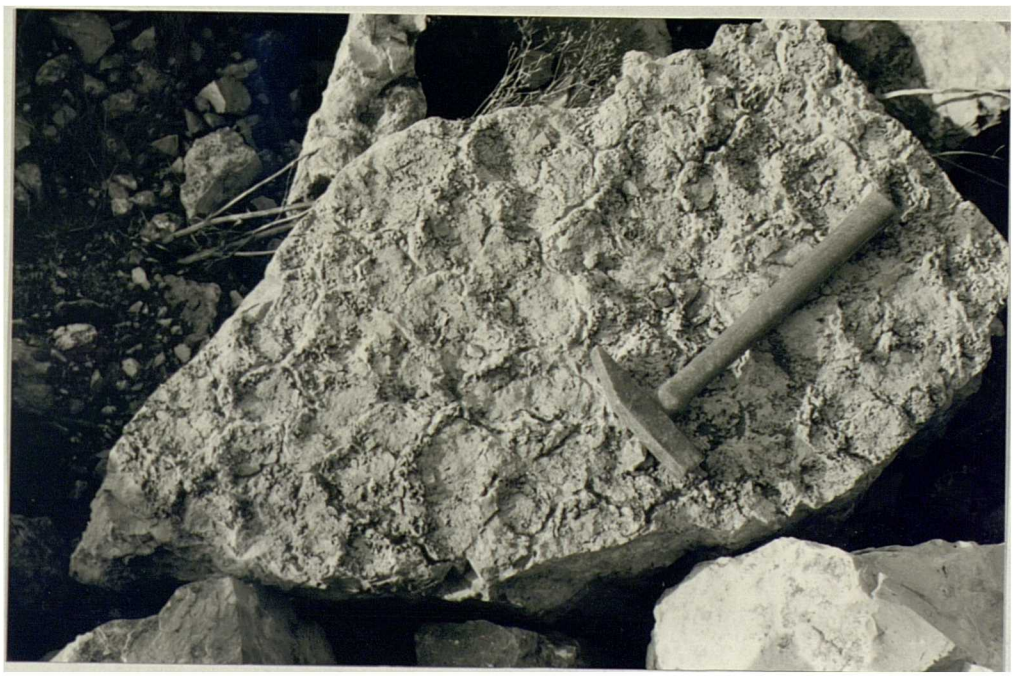
LITHOFACIES V

(a) Calcite mudstone bed with abundant birdseye structures in upper half; Careg-onen Formation, Tandinas Quarry.

(b) Desiccation cracks at top of calcite mudstone bed; Careg-onen Formation, Tandinas Quarry.

(c) Detail of birdseye structures, note preferred horizontal orientation; Careg-onen Formation, Tandinas Quarry.






STANLEY

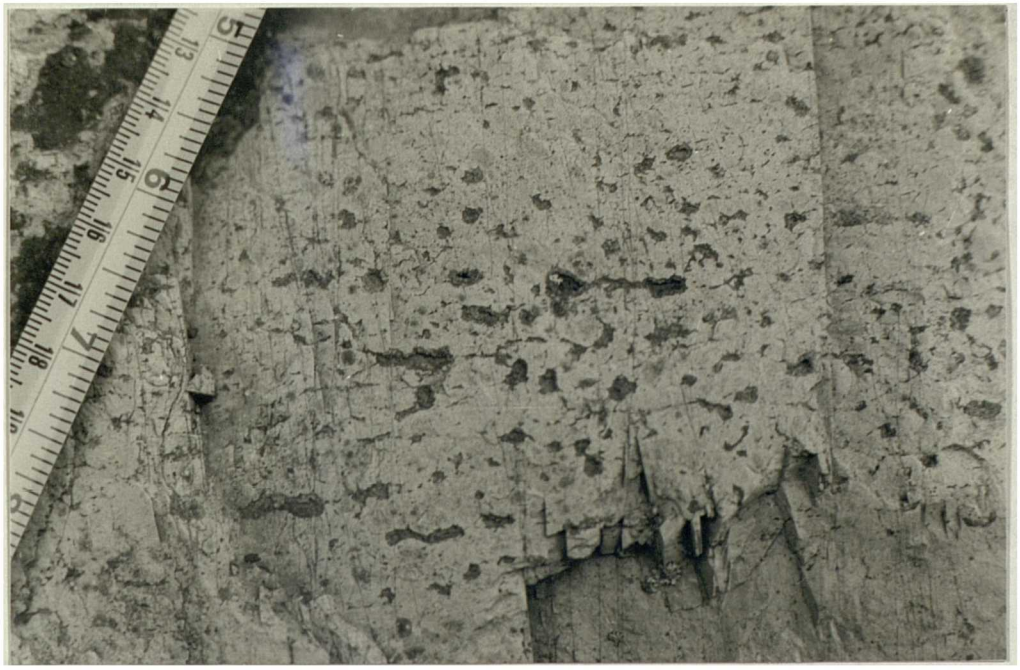
PLATE 79

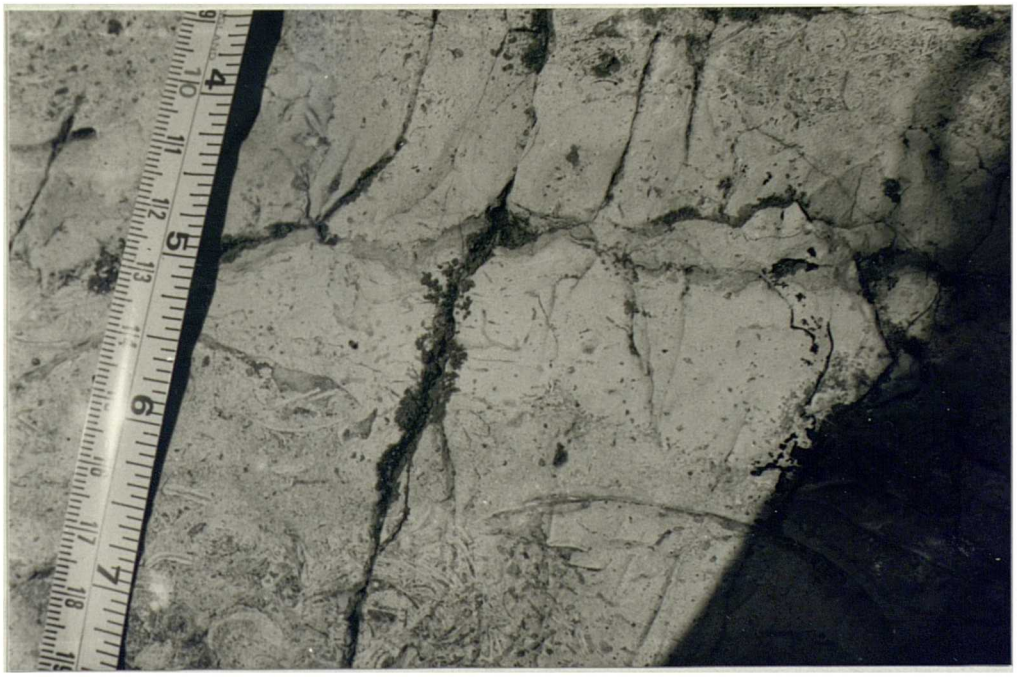
LITHOFACIES V

(a) Subspherical birdseyes within calcite mudstone bed; Careg-onen Formation, Flagstaff Quarry.

(b) Coarse oncoid mudstones fining upwards into calcite mudstones with abundant rootlets; Careg-onen Formation, Tandinas Quarry.

(c) Calcite mudstone with scattered calcispheres and ostracod valves; thin section (x 45), Lower Lookout Beds, disused quarry overlooking Ponciau [4810 8410].





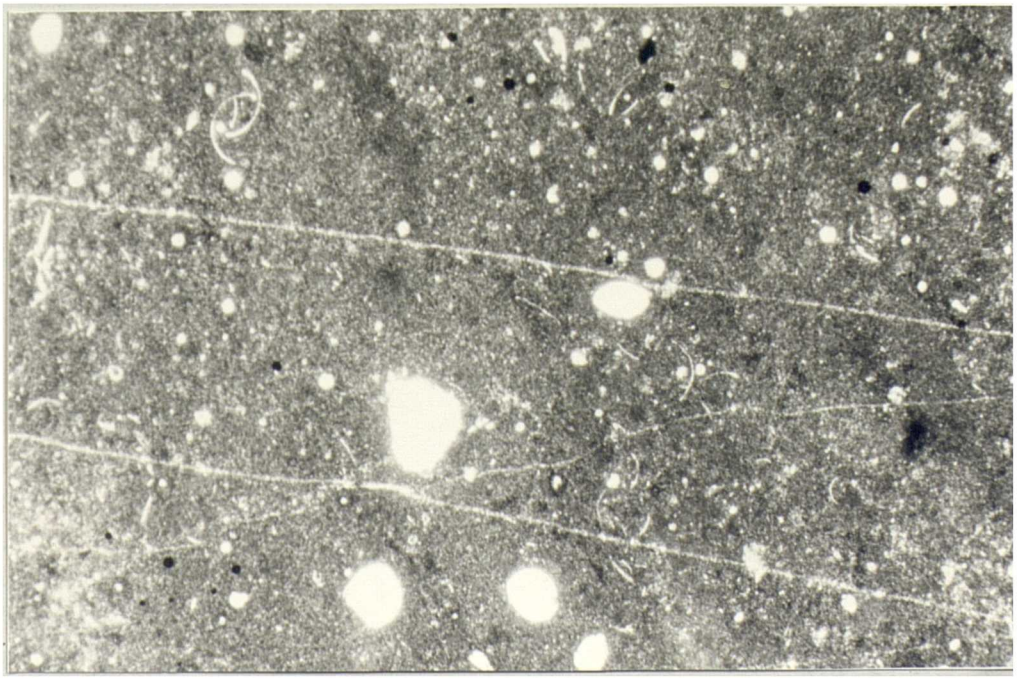
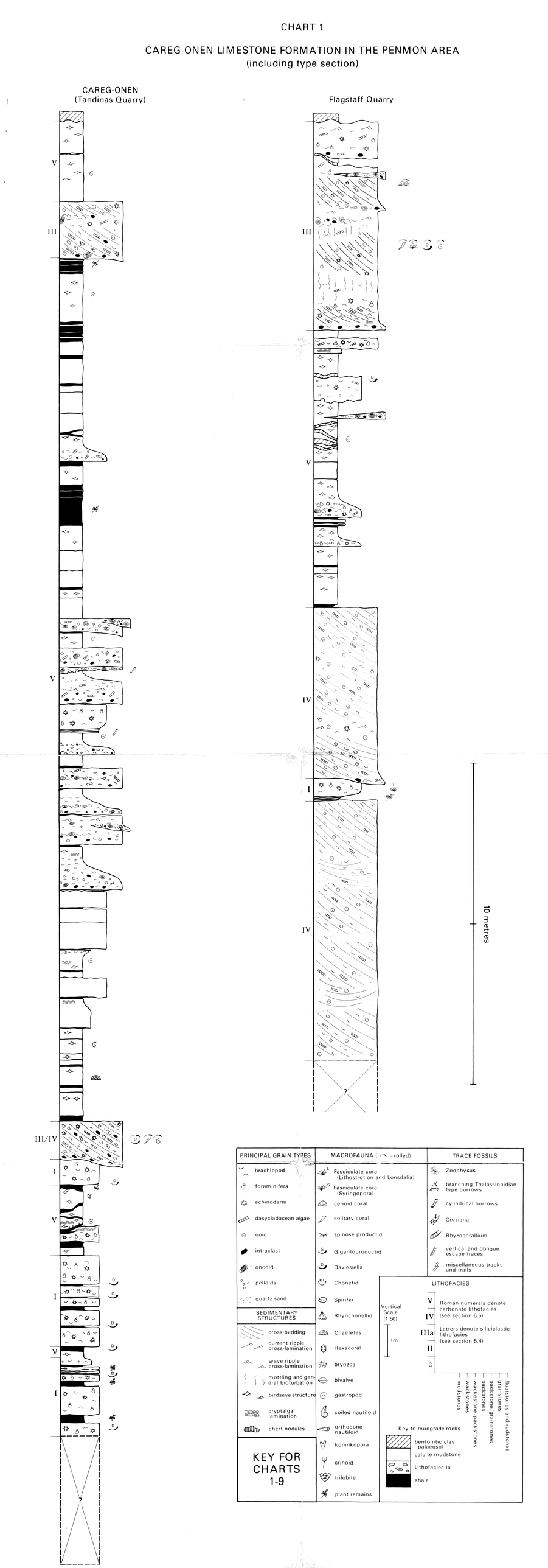


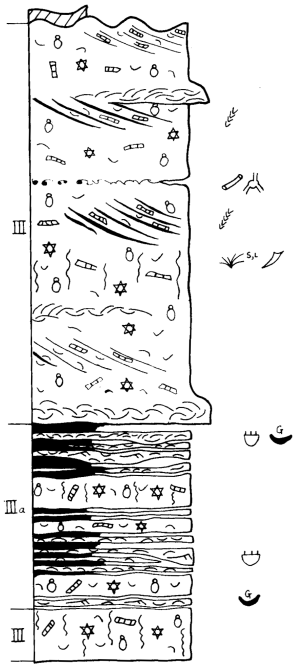
CHART 1

CAREG-ONEN LIMESTONE FORMATION IN THE PENMON AREA
(including type section)

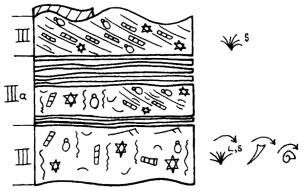


F1
(Flagstaff Quarry)

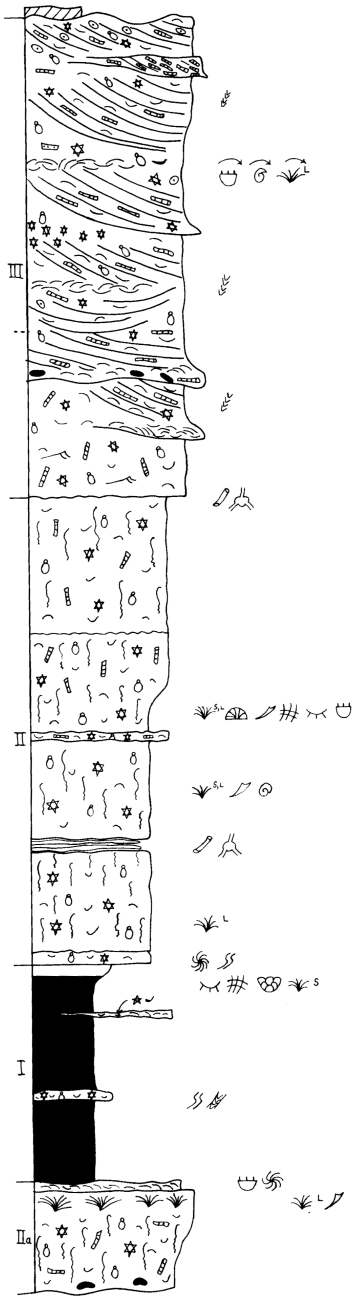
F2
(Flagstaff Quarry)



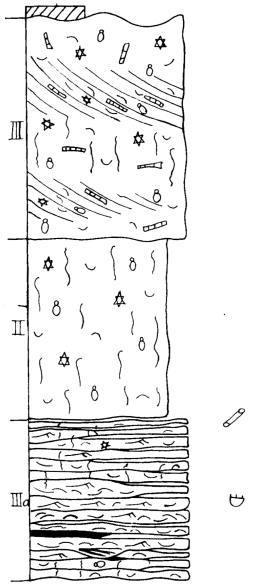
F3
(Flagstaff Quarry)



F4
(Flagstaff and Penmon Park Quarries)



F5
(Penmon Park Quarry)



F6
(Fedw - Fawr)

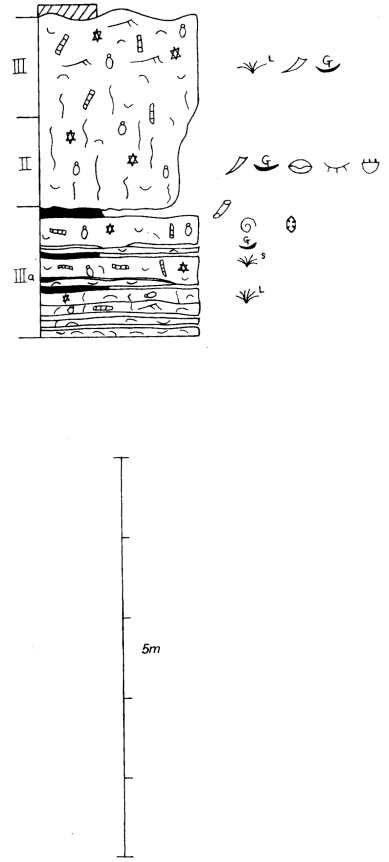


CHART 2

MINOR CYCLES OF THE FLAGSTAFF LIMESTONE FORMATION IN THE PENMON AREA

(mainly from the formation's type section in Flagstaff and Penmon Park Quarries but F6 from Fedw - fawr see figure 11)

SEE ACCOMPANYING CHART 1 FOR KEY

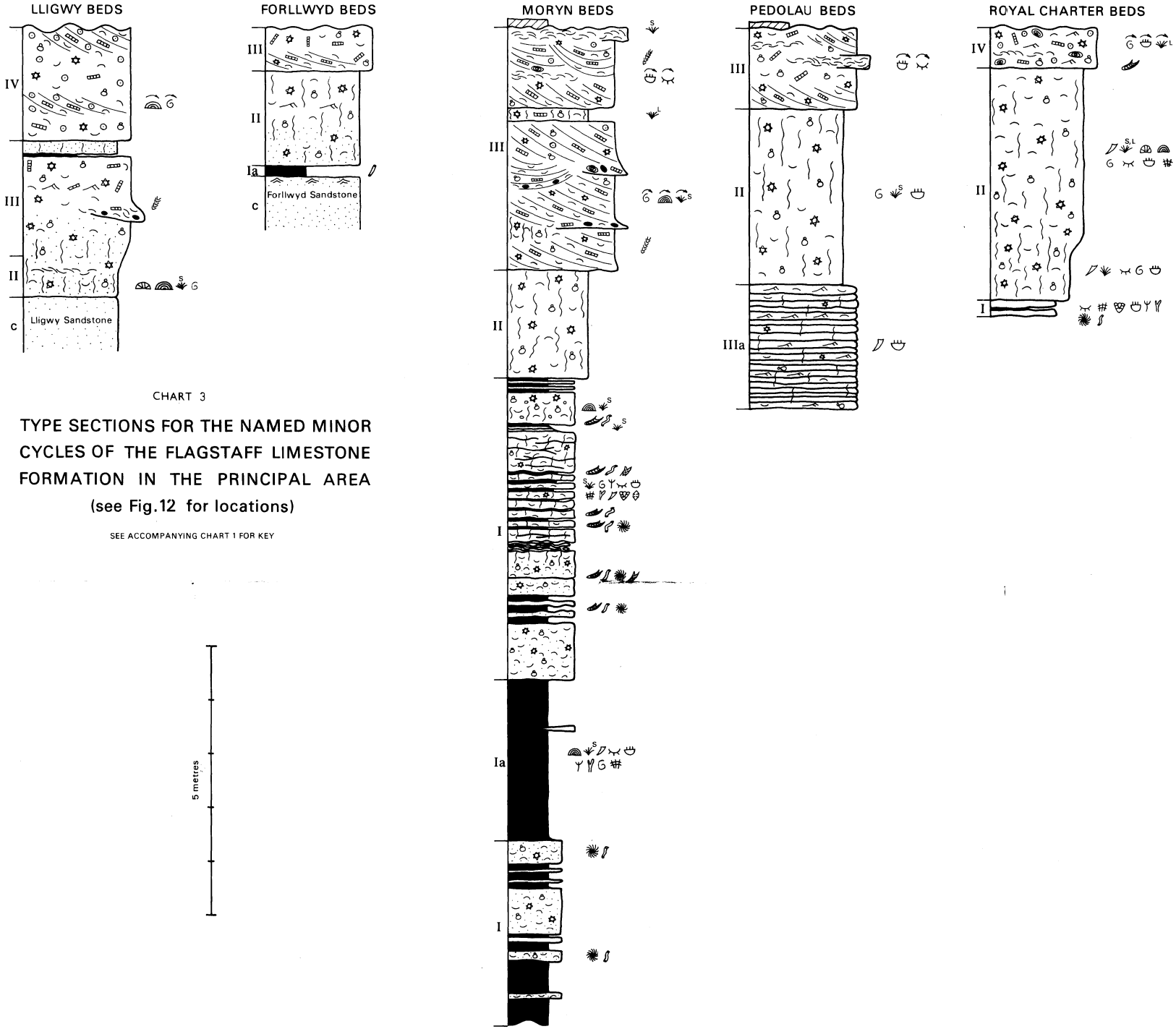


CHART 3

TYPE SECTIONS FOR THE NAMED MINOR CYCLES OF THE FLAGSTAFF LIMESTONE FORMATION IN THE PRINCIPAL AREA

(see Fig.12 for locations)

SEE ACCOMPANYING CHART 1 FOR KEY

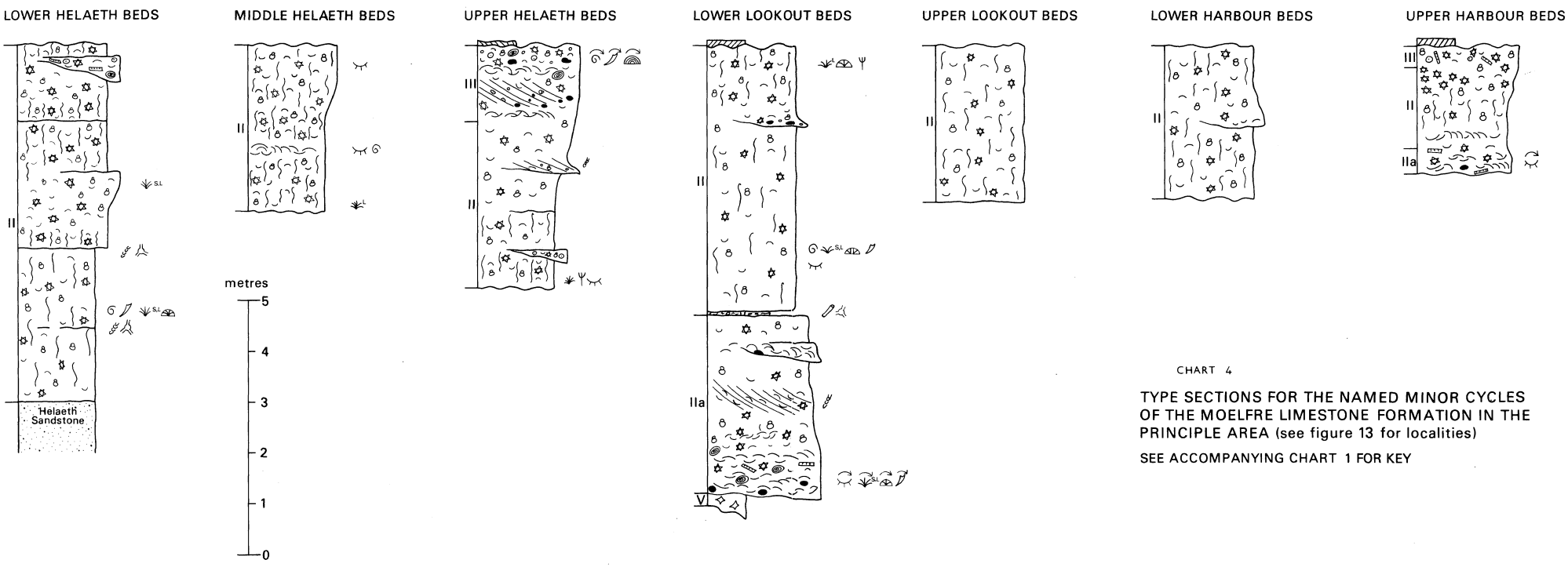


CHART 4

TYPE SECTIONS FOR THE NAMED MINOR CYCLES OF THE MOELFRE LIMESTONE FORMATION IN THE PRINCIPLE AREA (see figure 13 for localities)

SEE ACCOMPANYING CHART 1 FOR KEY

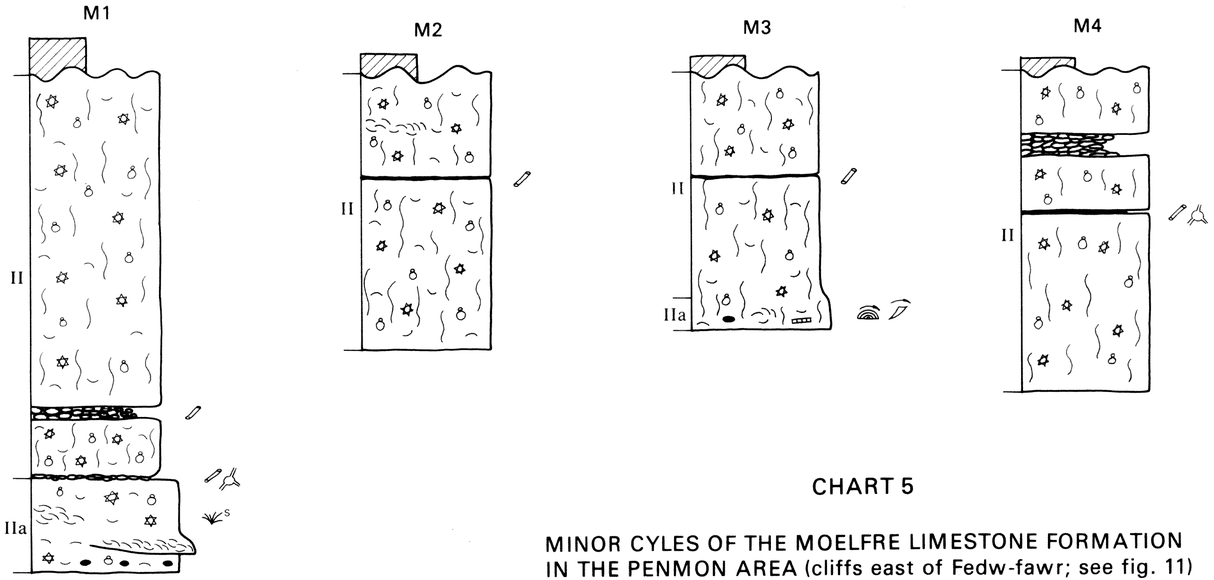


CHART 5

MINOR CYLES OF THE MOELFRE LIMESTONE FORMATION IN THE PENMON AREA (cliffs east of Fedw-fawr; see fig. 11)

See accompanying chart 1 for key

EGLWYS SIGLEN BEDS

PORTH YR ABER BEDS

PORTH Y RHOS BEDS

LOWER MORCYN BEDS

UPPER MORCYN BEDS

LOWER DINAS BEDS

UPPER DINAS BEDS

PEN - Y - COED

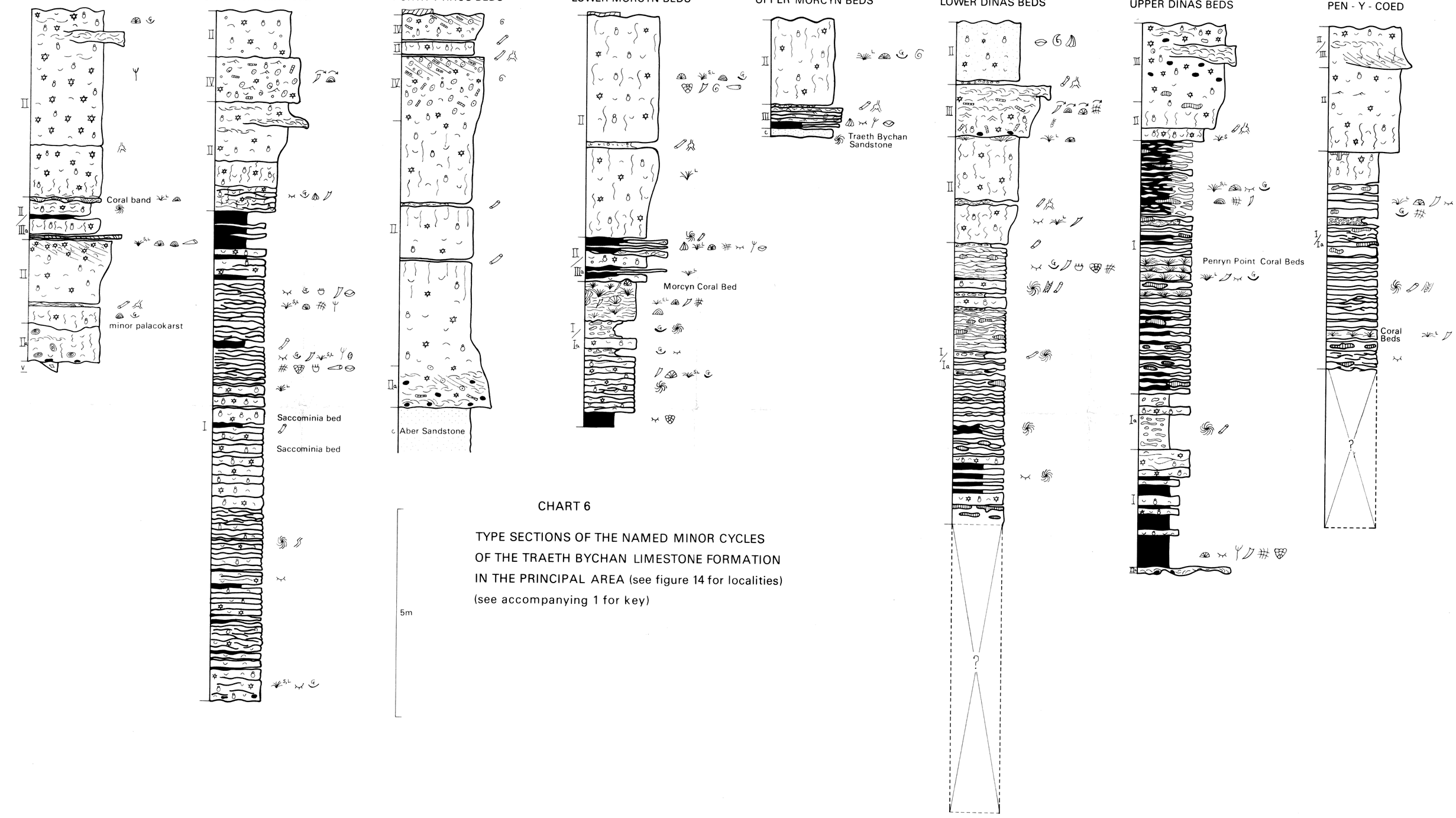


CHART 6

TYPE SECTIONS OF THE NAMED MINOR CYCLES OF THE TRAETH BYCHAN LIMESTONE FORMATION IN THE PRINCIPAL AREA (see figure 14 for localities) (see accompanying 1 for key)

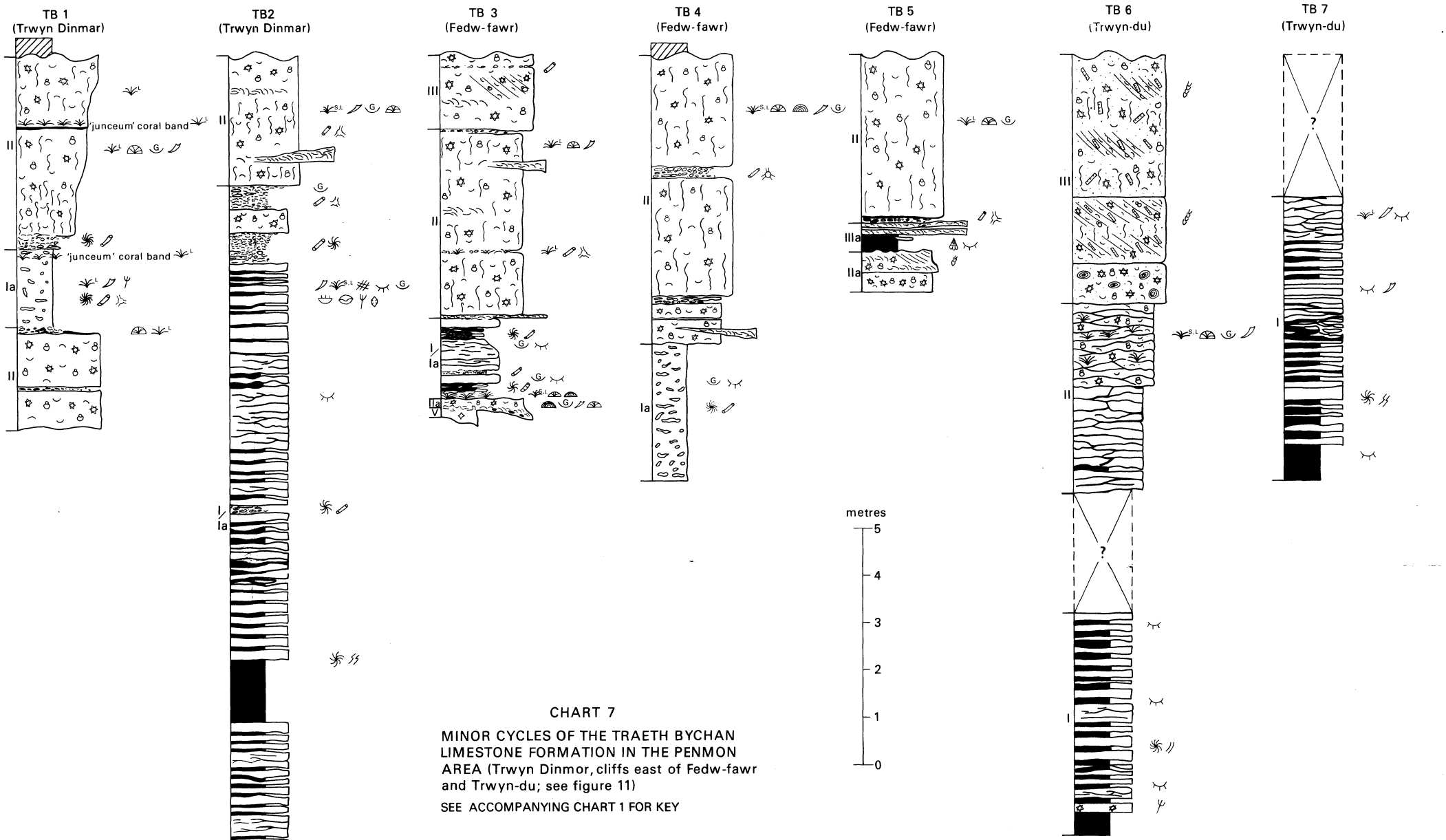


CHART 7

MINOR CYCLES OF THE TRAETH BYCHAN LIMESTONE FORMATION IN THE PENMON AREA (Trwyn Dinmor, cliffs east of Fedw-fawr and Trwyn-du; see figure 11)

SEE ACCOMPANYING CHART 1 FOR KEY

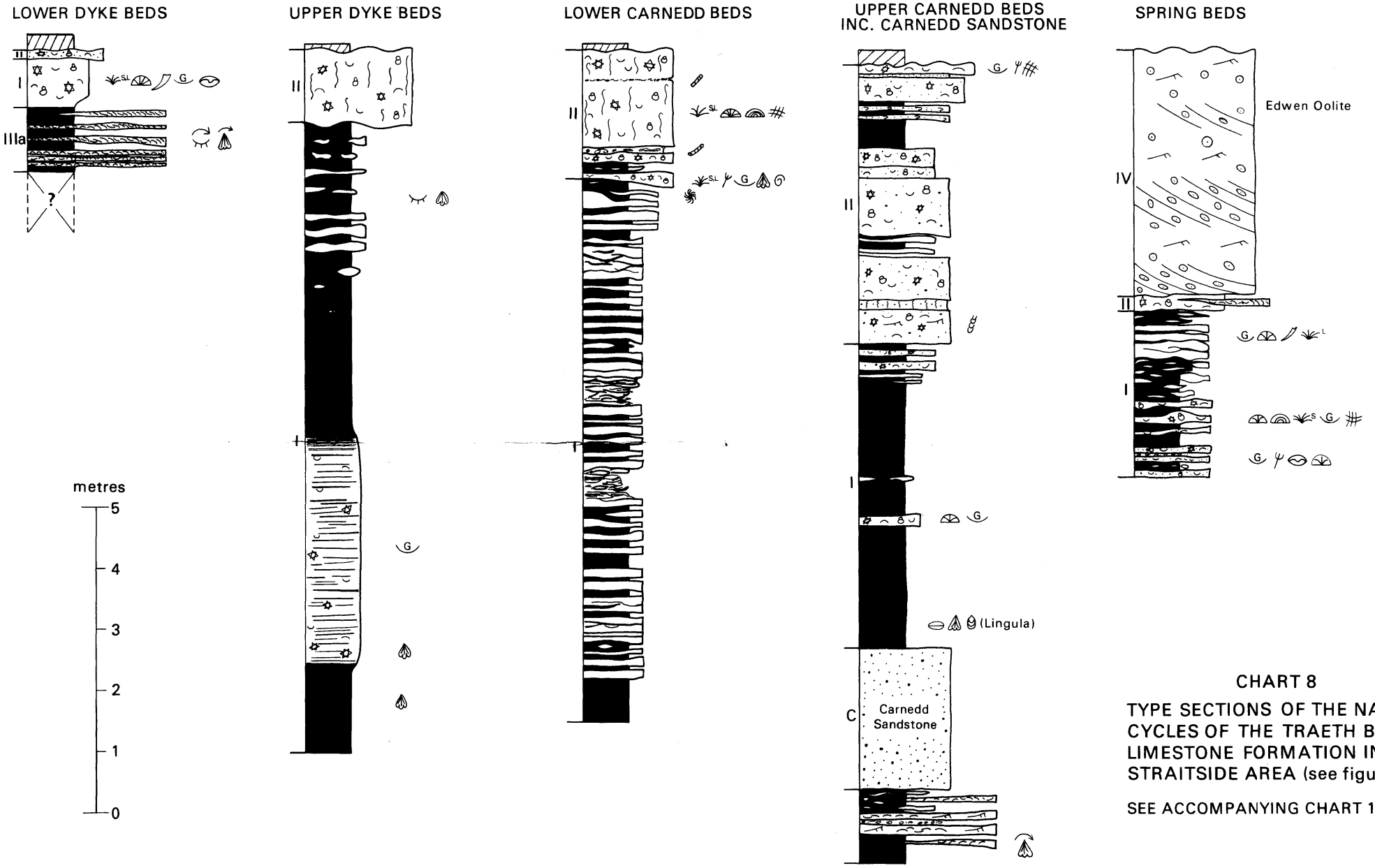


CHART 8

TYPE SECTIONS OF THE NAMED CYCLES OF THE TRAETH BYCHAN LIMESTONE FORMATION IN THE STRAITSIDE AREA (see figure 10)

SEE ACCOMPANYING CHART 1 FOR KEY

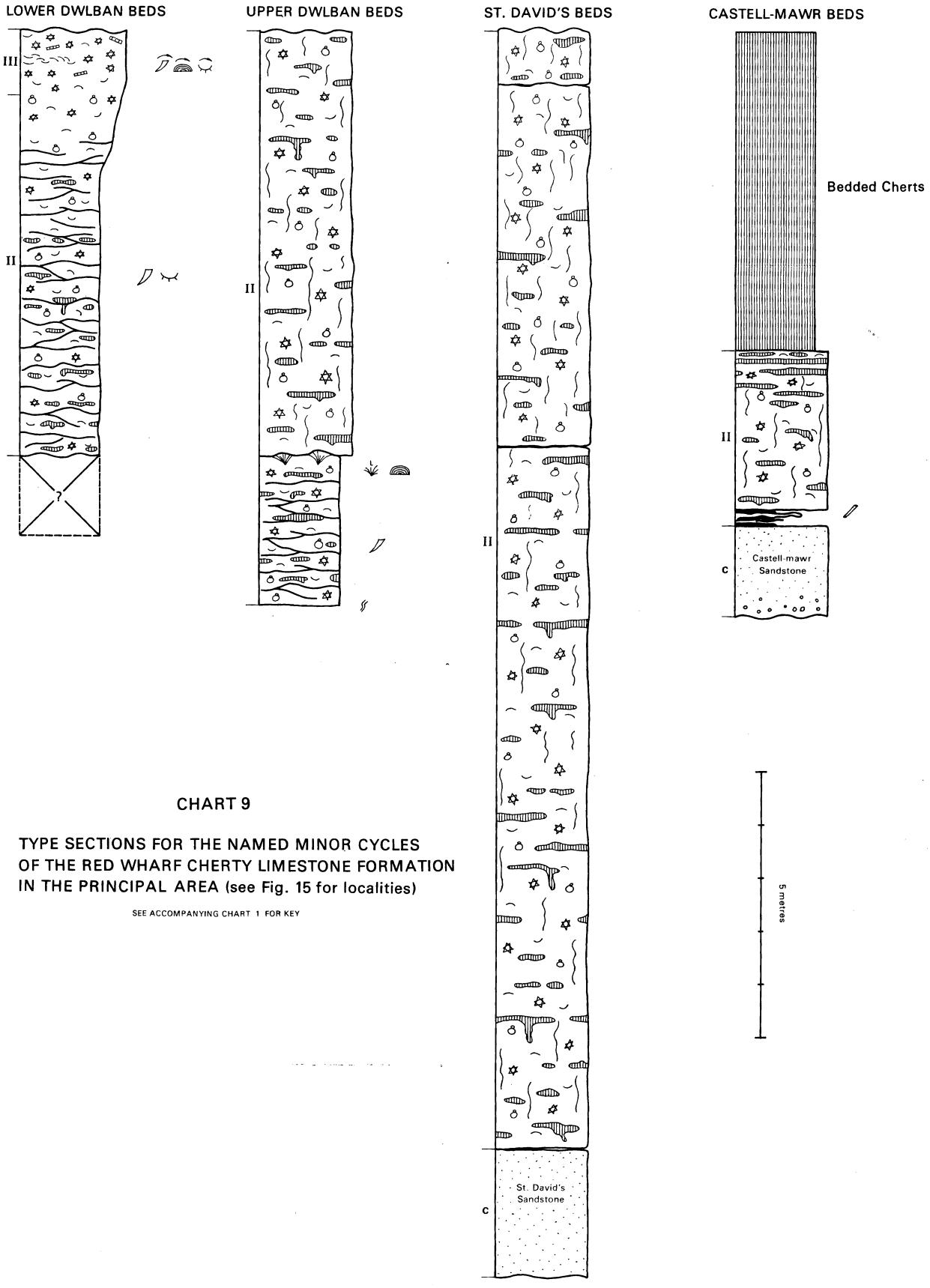


CHART 9

TYPE SECTIONS FOR THE NAMED MINOR CYCLES OF THE RED WHARF CHERTY LIMESTONE FORMATION IN THE PRINCIPAL AREA (see Fig. 15 for localities)

SEE ACCOMPANYING CHART 1 FOR KEY