
Appendix 1 The geological maps

Without the geological map, to which it refers throughout, upon which it is based, and of which it is an explanation, very little use can be made of this book. This Appendix explains the relations between the different maps which have been employed for different purposes, some of the methods used in their construction (whereby they can be interpreted), and the ways in which they can be obtained.

Ordnance maps on the following scales have been made use of:

One Inch to One Mile. Fraction of Nature = $1/63360 = .00001572$

Six Inches to One Mile. Fraction of Nature = $1/10560 = .00009469$

25.344 to One Mile. Fraction of Nature = $1/2500 = .0004$

Only the two larger scales have been employed in the actual geological surveying on the ground. But the book always refers to the new one-inch map<ref>In a few cases, mentioned in the text itself (and also on the Corrigenda-sheet), the larger scales are referred to.</ref>, which is published concurrently with it.

The One-Inch maps

[BGS Anglesey special sheets](#)

On the one-inch Ordnance maps as usually issued, Anglesey is divided between five different sheets of the new series. For the present purpose, however, the Ordnance Survey have combined Sheets 92, 93, and portions of 94, 105, 106, so as to bring the whole of Anglesey within a single sheet. They also kindly engraved a number of additional place-names. To this special sheet have been added the geological lines, symbols, and colours, thus constituting the new geological one-inch map of the Island<ref>No geology is shown on the portion of the mainland which falls within it.</ref>. The lines are a reduction from the six-inch geological maps; and, in parts where there is much detail, they have not only been reduced, but abstracted and generalised.

The 'Solid' (*i.e.* Pre-Glacial) formations are shown by colours with symbols; the Glacial Drifts by dotted stipples, through which the colours are seen as through a veil; driftless areas being un-stippled. Out of so many colours, a few are inevitably somewhat alike; but such can be distinguished, if not by a formation-symbol, then by the description in the text.

Faults, Thrusts, and other ruptures have not been distinguished by any special kind of line. In the Mona Complex (particularly in its Gwna Mélange) they are so numerous that we have failed to devise any method of distinguishing them which would not have brought confusion into the map. And, obviously, ruptures of later date could not be accorded a treatment which was denied to those of the Mona Complex. No course, consequently, remained but to show them all as ordinary black-ink lines. The nature of many of them, however, is quite evident upon the map itself; and where such is not the case, the verbal explanations or the sections given in this book will suffice to elucidate it.

Where Obtainable — Both editions are obtainable in the same way as copies of this book (see Title-page). Some of the Local Agents are: Aberystwyth: S. V. Galloway. Bangor: Jarvis & Foster. Chester: Philipson & Golder. Liverpool: Philip, Son & Nephew, Ltd. Manchester: J. E. Cornish, Ltd.

The maps used in the field

The Six-inch Maps — The Island has been geologically surveyed throughout on the six-inch scale. The maps (Anglesey 1–25) used in the field were those of the first (1888) edition, which gives the natural inland features with more detail and precision than do the later editions. In certain districts of exceptional complexity (see below) the field-surveying was done on the .0004 scale, but that work was reduced to the six-inch scale, so as to produce a complete six-inch geological map

of the Island.

The .0004 Maps — The districts mapped on this scale (p. 29) come within the six-inch sheets—1 N.E., 1 S.E., 2 N.W., 2 N.E., 2 S.W., 3 N.W., 3 N.E., 3 S.W., 3 S.E., 11 S.E., 12 S.W., 18 N.W., 18 S.E., 21 S.E., 22 S.W., 24 N.E. The .0004 sheets were not always completed, but those parts only used where special detail was needed, the rest of the ground included in them being surveyed on the six-inch scale direct.

Access to Six-Inch and .0004 Maps— Manuscript coloured copies of the six-inch (and of some of the .0004) maps are available for reference in the offices of the Geological Survey. Copies of these are supplied at the cost of draughtsmanship. But colour-print facsimiles of six-inch field-maps are published in this book in (Folding-Plate 13), (Folding-Plate 14), (Folding-Plate 15) (see Appendix 4); and uncoloured reproductions of parts of six-inch and .0004 maps in (Figure 10), (Figure 11), (Figure 121) (Figure 122), (Figure 131), (Figure 134), (Figure 136), (Figure 139), (Figure 154) (Figure 155), (Figure 160), (Figure 178), (Figure 185), (Figure 188), (Figure 202), (Figure 207), (Figure 210), 2(Figure 26)–(Figure 227), (Figure 232), (Figure 241), (Figure 245), (Figure 269), (Figure 327), (Figure 337), (Figure 343). Further, the uncoloured six-inch (and some of the .0004) field-maps were photographed as the surveying proceeded, and prints therefrom coloured for 'solid' geology. The negatives are preserved in the office of the Geological Survey.

Methods adopted on the Field-Maps — These can easily be interpreted as follows: The original six-inch and .0004 maps used in the field have been kept uncoloured; but the meaning of any line can be ascertained in a moment from the coloured-up photograph of the sheet. By keeping the originals uncoloured, alterations or additions can be made at any time without a general re-survey of the tract in question, and, in such a formation as the Mona Complex, revision is certain to become necessary as knowledge advances. There is one exception to the absence of colour. Grass-green ink margins have been drawn along the detailed drift-lines. These green margins delimit the exposures of rock, and will enable the evidence for any solid-geology line to be found with perfect ease upon the ground itself. Somewhat generalised drift-lines, without green margins, have been added on the six-inch maps, in order to facilitate the one-inch drift-reduction. The working-maps thus contain three series of lines—(1) Solid-geology lines which have been coloured-up on photographic prints; (2) Detailed drift-lines with green-ink margins; (3) Generalised drift-lines not yet coloured-up on any photographic prints. On the photographs, the grass-green margins appear in a soft grey tint. It should be mentioned that the colours employed on the original suite of photographs which were coloured by me during the progress of the surveying are a provisional scheme only. They differ in several respects from the scheme finally adopted for the published one-inch map. Indeed, they are not always in accord with the views as to correlation which are given in Chapter 6 — views which had not been adopted until some years after the surveying of those tracts. The symbols also differ somewhat from those on the published one-inch map, and a number of abbreviations are employed which do not appear on that map at all. Some of them are explained in Appendix 4 (in the notes to (Folding-Plate 13), (Folding-Plate 14), (Folding-Plate 15)). *But a complete code of field-map symbols, abbreviations, and colours has been deposited with the original maps and coloured-up photographs themselves.*

Index-charts to the maps

As all the maps, including even the one-inch reductions, are of necessity more or less complicated, their general significance may not be obvious at first glance. Accordingly, the simplified charts (Figure 345)–(Figure 346)) may be of service as indices. Only the leading formations are shown in them. And each of those formations is shown by a single stipple, its sub-divisions being ignored. The smaller inliers and outliers, also, are either ignored or combined so as to ensure visibility. The terms 'drift-laden' and 'driftless' (Figure 346) must of course be understood with the latitude expressed on p. 703. From these charts, the general distribution of the formations of the Island, both 'solid' and 'drift', becomes apparent at a glance.

NORTH WEST CORNER OF ANGLESEY.

- Alluvium.
- Metamorphic Quartz.
- Palaeozoic Diabase or Dolerite.
- Palaeozoic Felsite.
- Ordovician Shale (black shale).
- Ordovician Conglomerate or Grit.
- Antech Beds (chloritic mica schist).
- Church Bay Tuffe (pelite).
- Omea Diabase.
- Omea Limestone.
- Omea Quartzite.
- Omea Green Schist (chloritic quartzose schist).
- Mithroge (Cretaceous) clastic schist.
- Pyllym Beds (Volcanic schist).
- Granite of the Gneiss.
- Hornblende Gneiss.
- Gneiss.

Scale, 6 inches to one Mile.



(Folding-Plate 13) The North-West corner of Anglesey. Reproduction of manuscript six-inch map.

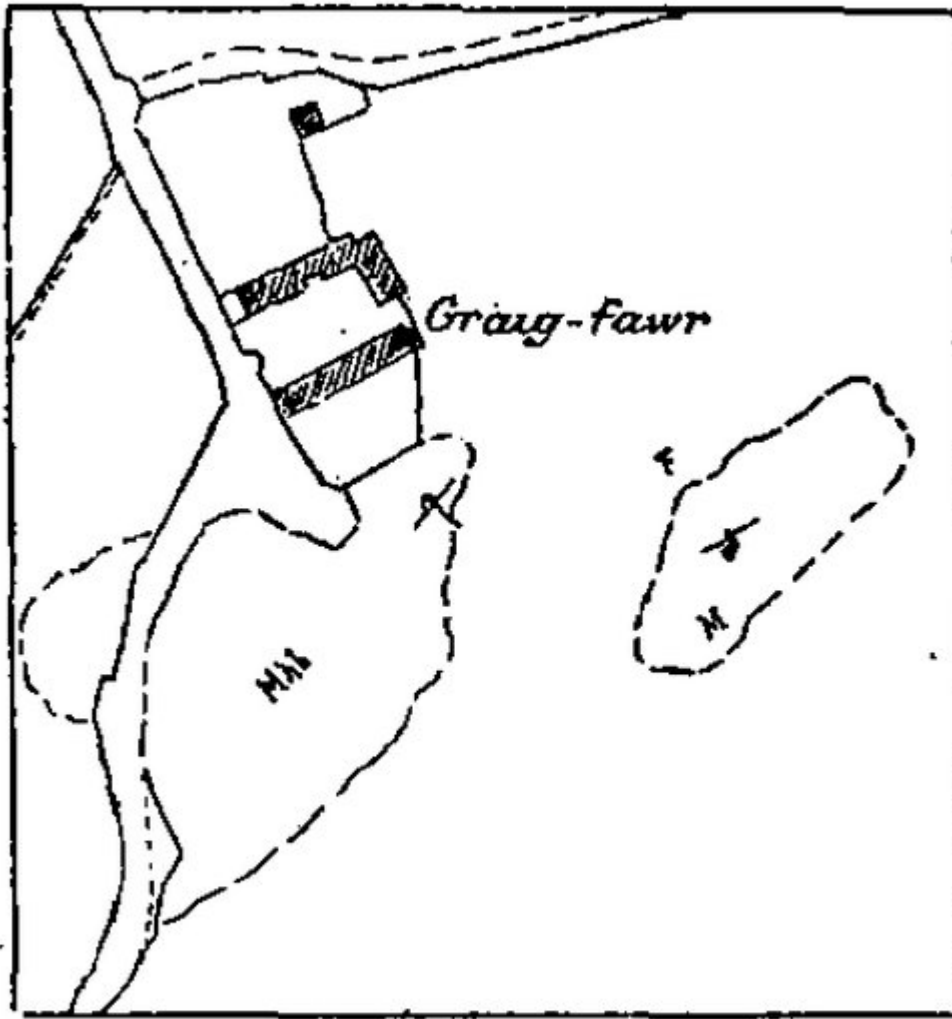


FIG. 10.

(Figure 10) The felsitic survival. Scale 1:5,000. F=Felsite, M=Mica-schist, Mhb=Hornblende-schist

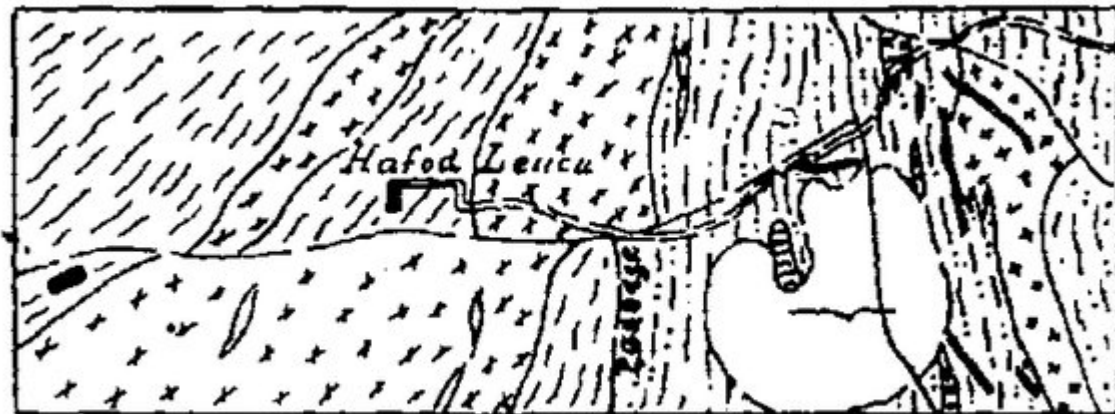


FIG. 11.

(Figure 11) Position of passage in Mynydd Llwydiarth. From the six-inch map. Dashes and dots=Gwna Green-schist. Dashes=Penmynydd Mica-schist. Crosses=Basic rocks. Dykes also shown.

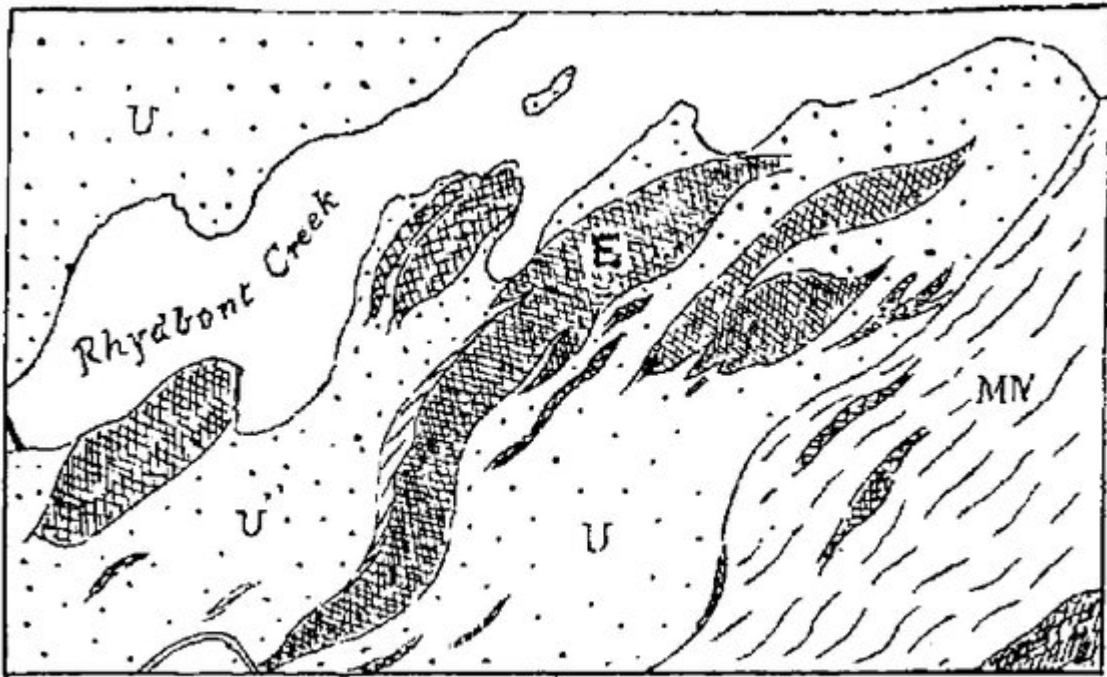


FIG. 121.—THE RHYD-BONT CREEK INTRUSIONS.

(Figure 121) the Rhyd-Bont creek intrusions. From the six-inch map. Reduced from the .0004 maps. MN = New Harbour Beds. U = Serpentine. E = Gabbro.

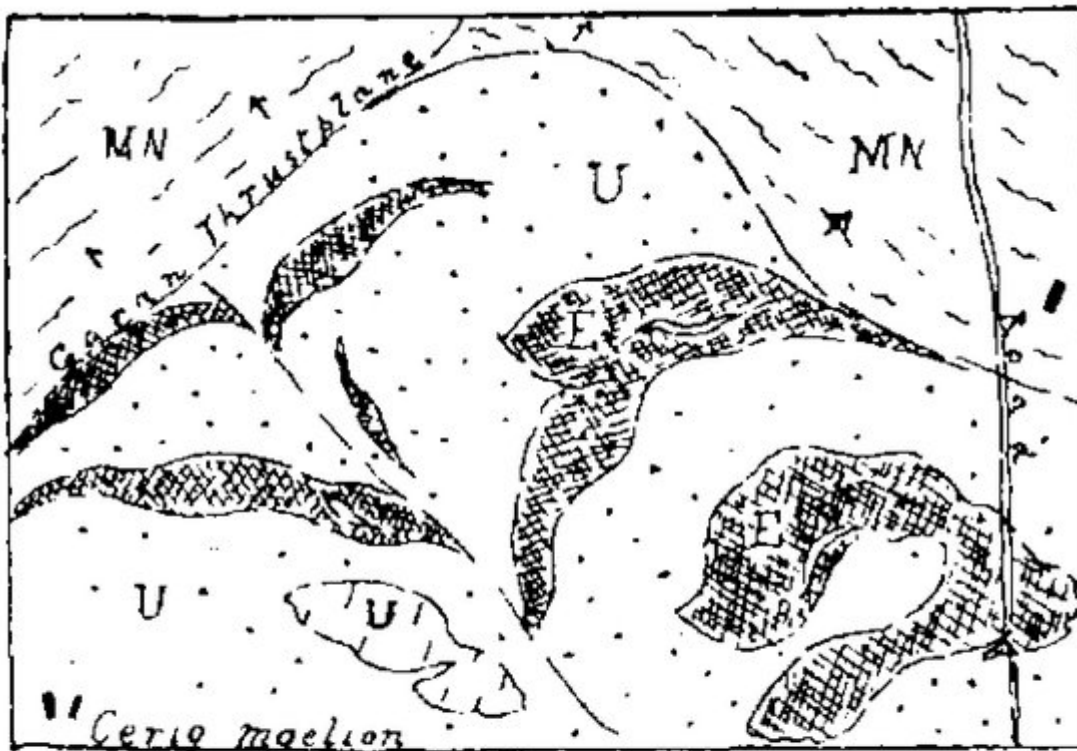


FIG. 122.

THE CERIG-MOELION INTRUSIONS AND THE GARAN THRUST-PLANE.

(Figure 122) The Cerig-Moelion intrusions and the Garan Thrust-plane. From the six-inch map. Reduced from the .0004 map. MN = New Harbour Beds. U = serpentine and ophicalcite. E = gabbro in ring dykes.



FIG. 131.—NORTHERN PART OF THE GADER INLIER.

(Figure 131) Northern part of the Gader Inlier. Scale = two-thirds of .0004 (1/2500) map. Granite sills in gneiss.

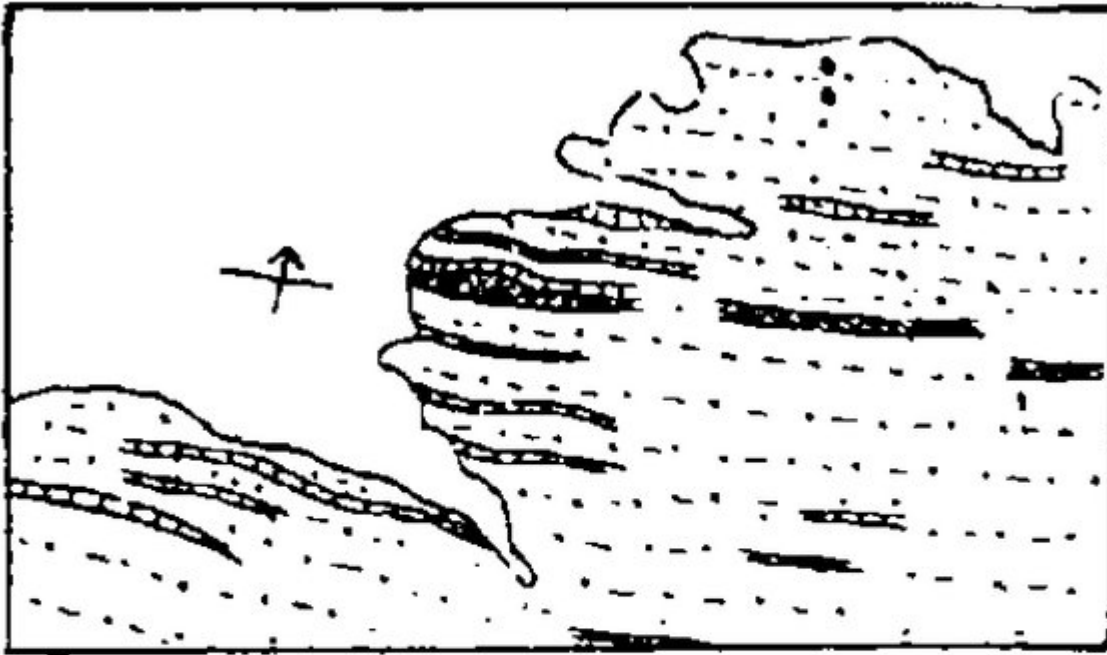


FIG. 134.
 JASPERS AND SPILITES IN
 AMLWCH BEDS.

(Figure 134) Jaspers and spilites in Amlwch Beds. Coast near coastguard path end Amlwch. From the .0004 (1/2500) maps.



FIG. 136.—FOLDED JASPERS IN AMLWCH BEDS.

(Figure 136) Folded jaspers in Amlwch Beds. On Amlwch Port Moor. From the .0004 or 1/2500 maps.

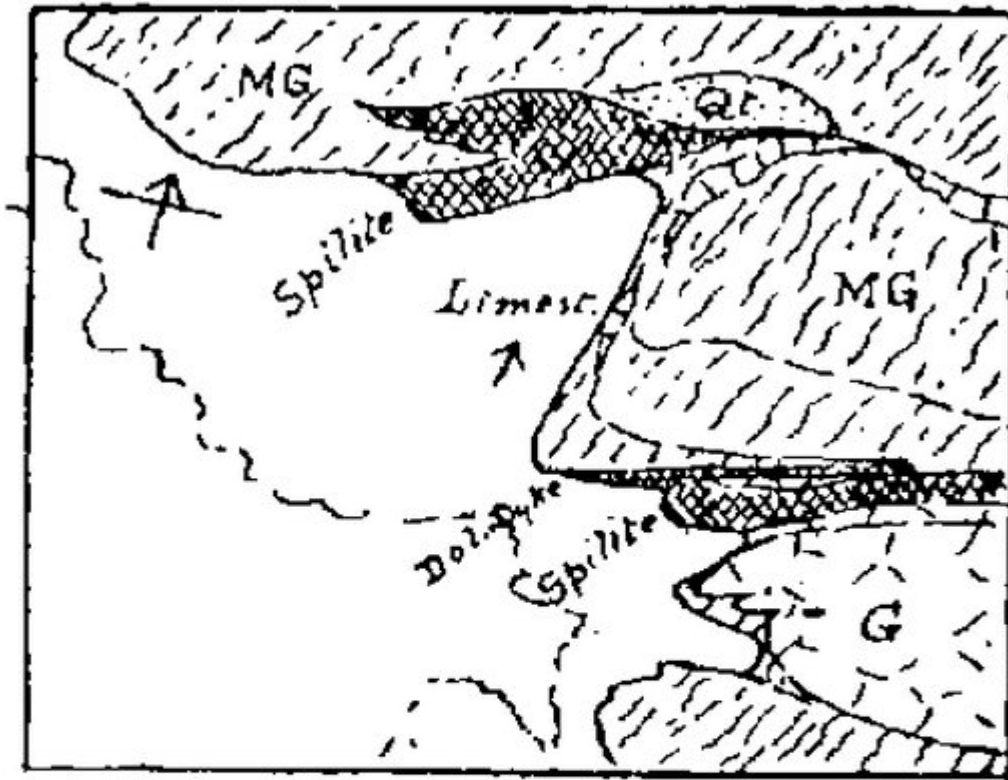


FIG. 139.

NORTH-WEST CLIFFS OF
Mynydd Wylfa.

(Figure 139) North-west cliffs of Mynydd Wylfa. From the 1100-1 or 1:2500 map. MG=Gwna Mélange. Qt=Gwna Quartzite. G=Granite.

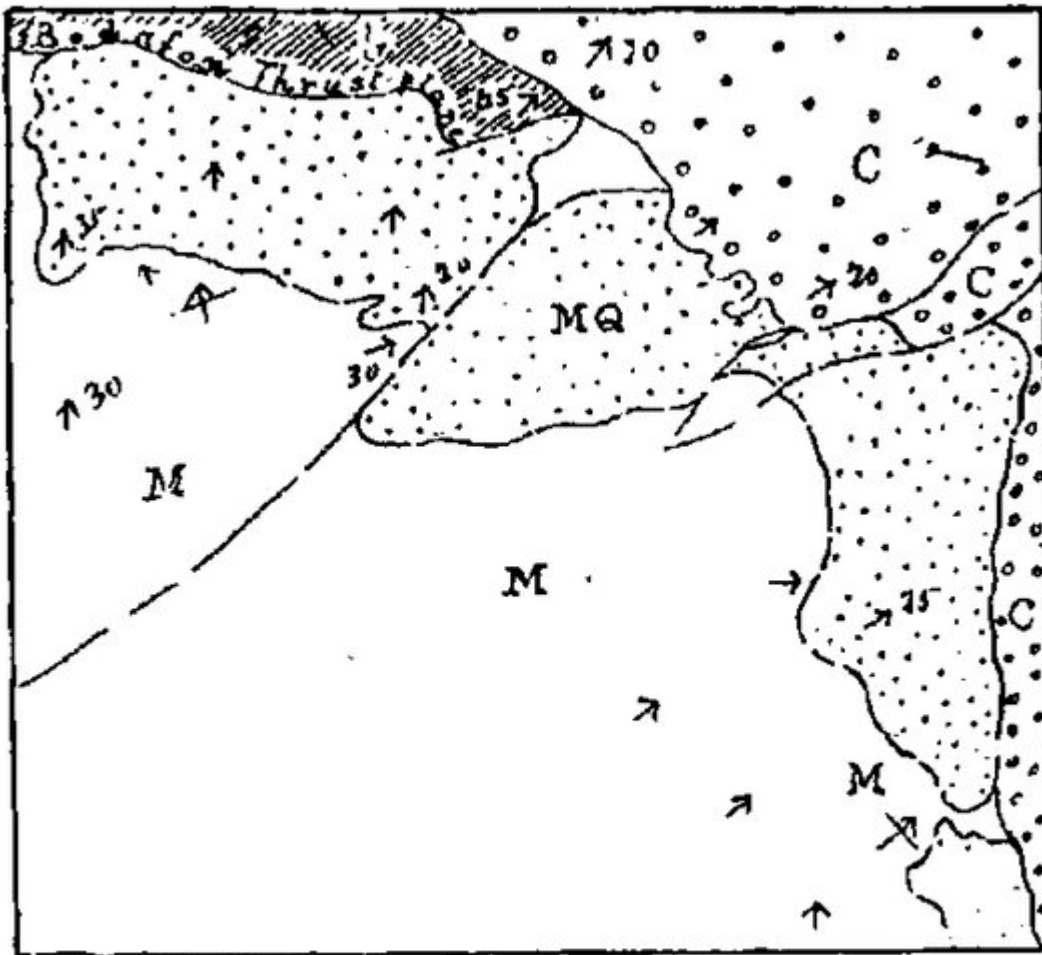


FIG. 154.

NORTHERN PARTS OF BODAFON MOOR.

(Figure 154) Northern parts of Bodafon Moor. From the six-inch maps. M = Bodafon Moor Schist. MQ = Bodafon Quartzite. b = Ordovician Shale. c = Old Red Sandstone.

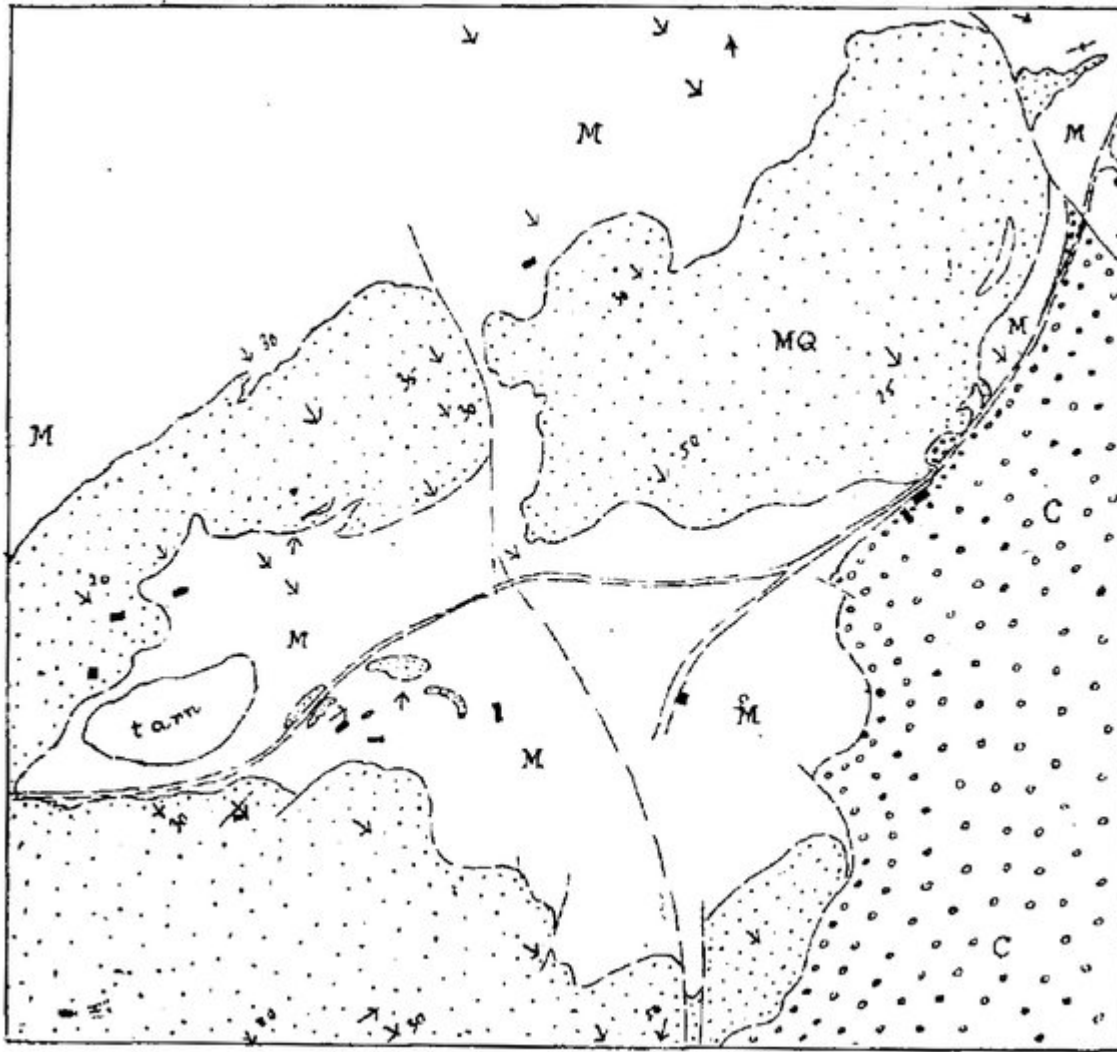


FIG. 155.—THE CENTRAL PARTS OF MYNYDD BODAFON.

(Figure 155) The central parts of Mynydd Bodafon. From the six-inch maps. M = Bodafon Moor Schists. MQ = Bodafon Quartzite. C = Old Red Sandstone.

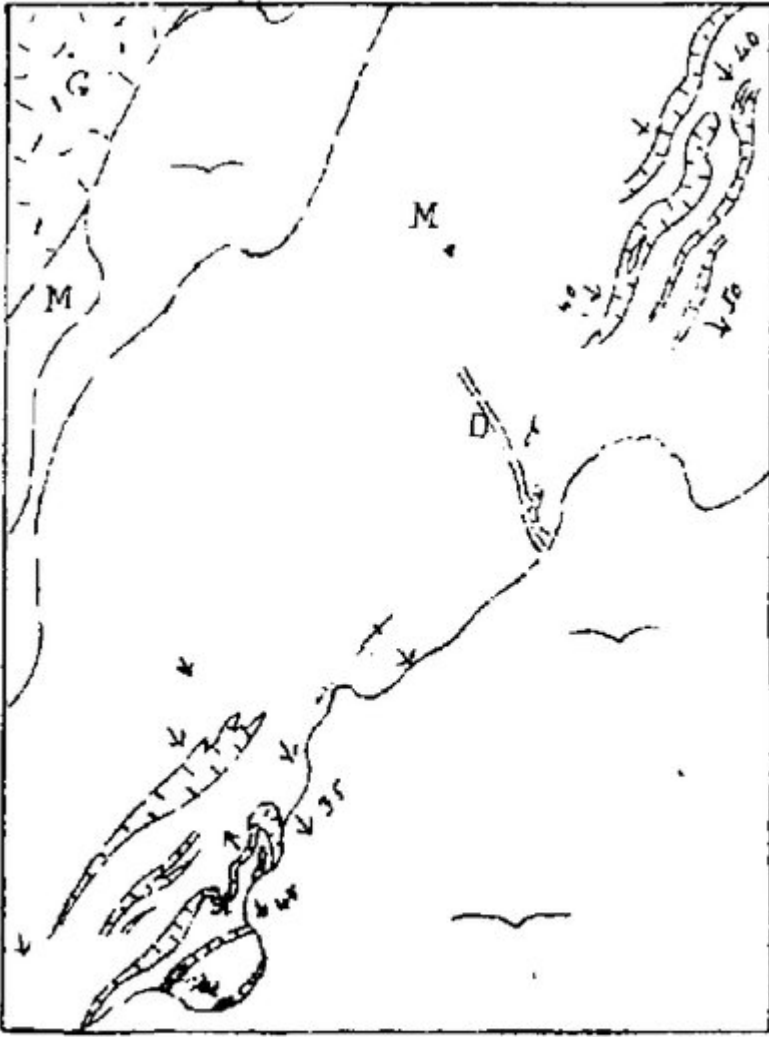


FIG. 160.

THE BODWROG MARBLE.

(Figure 160) The Bodwrog Marble. From the six-inch maps. G = Coedana Granite. M = Mica-schist. D = Palaeozoic Dyke. [alluvium symbol] = Cors Bodwrog Alluvium.

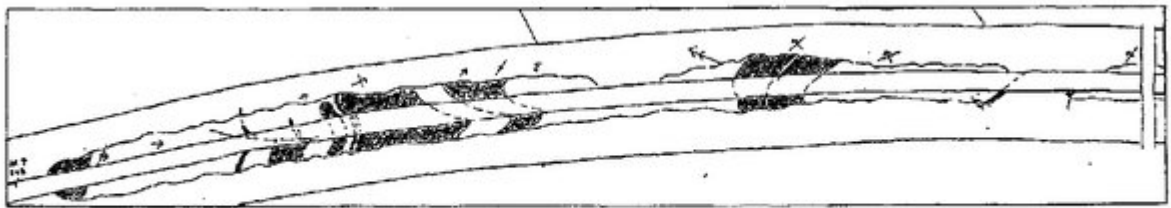


FIG. 178.—LLANGAFFO CUTTING. * '0003 plan.
Hornblende-schist and Diorite shaded, Mica-schist unshaded.

(Figure 178) Llangaffo cutting. Hornblende-schist and Diorite shaded, Mica-schist unshaded.

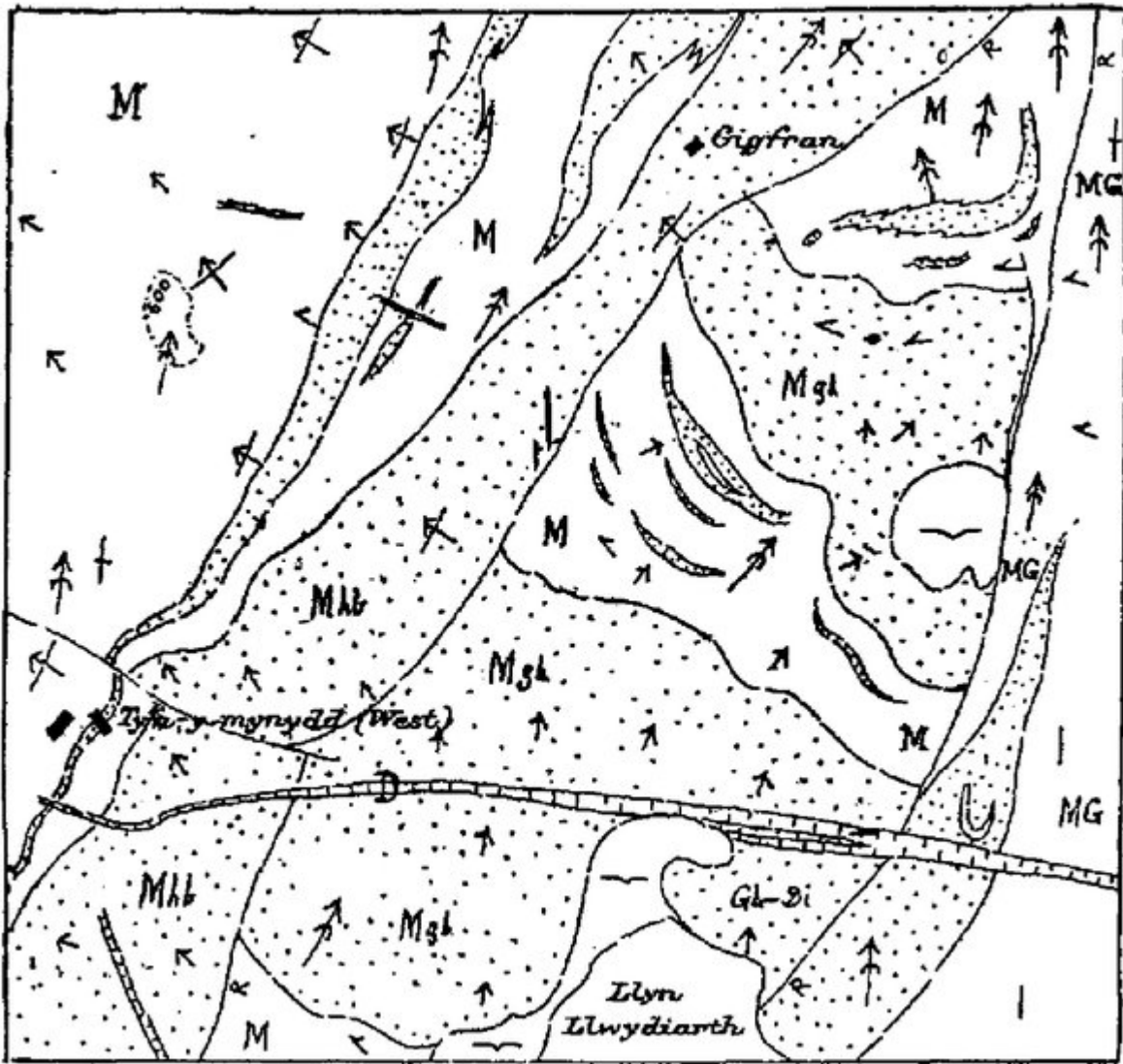


FIG. 185.—THE SOUTHERN PARTS OF MYNYDD LLWYDIARTH.

(Figure 185) The southern parts of Mynydd Llwydiarth. From the six-inch maps. Eastern summit at the 500-foot-contour. MG = Gwna Green-schist. M = Penmynydd Mica-schist. Mhb = Hornblende-schist. MGI = Glaucophane-schist. Gl-Di = Glaucophane-Diorite. D = Palaeozoic dolerite dykes. [Alluvium symbol] = alluvium. RR = the diverging pair of Ruptures. The symbols indicate dip, isoclines and pitch, all of foliation.

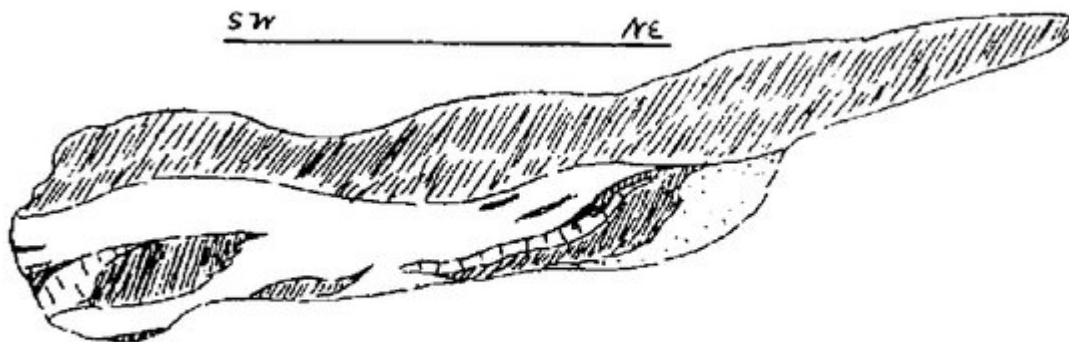


FIG. 188. -1/2500-PLAN OF BOSS AT CERIG-DUON, NEWBOROUGH.

(Figure 188) 1/2500-plan of boss at Cerio-duon, Newborough. Spillite-schist, limestone, quartzite, and Gwna Green-schist.

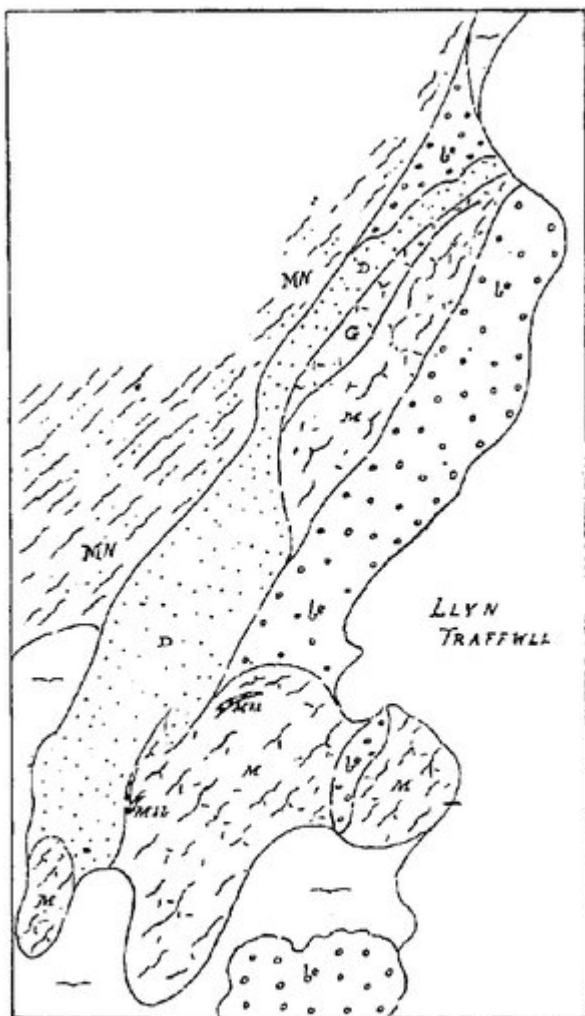


FIG. 202.—THE COMPLEX AT LLYN TRAFFWLL.

Scale .0004 or 1:2500.

M = Gneiss. Mhb = Basic Gneiss.
 G = Granite. MN = New Harbour Beds.
 be = Conglomerate of Extensus Zone.
 D = Diabase. [Alluvium symbol] = Lacustrine Alluvium.

(Figure 202) The complex at Llyn Traffwll. Scale .0004 or 1:2500. M = Gneiss. Mhb = Basic Gneiss. G = Granite. MN = New Harbour Beds. be = Conglomerate of Extensus Zone. D = Diabase. [Alluvium symbol] = Lacustrine Alluvium.

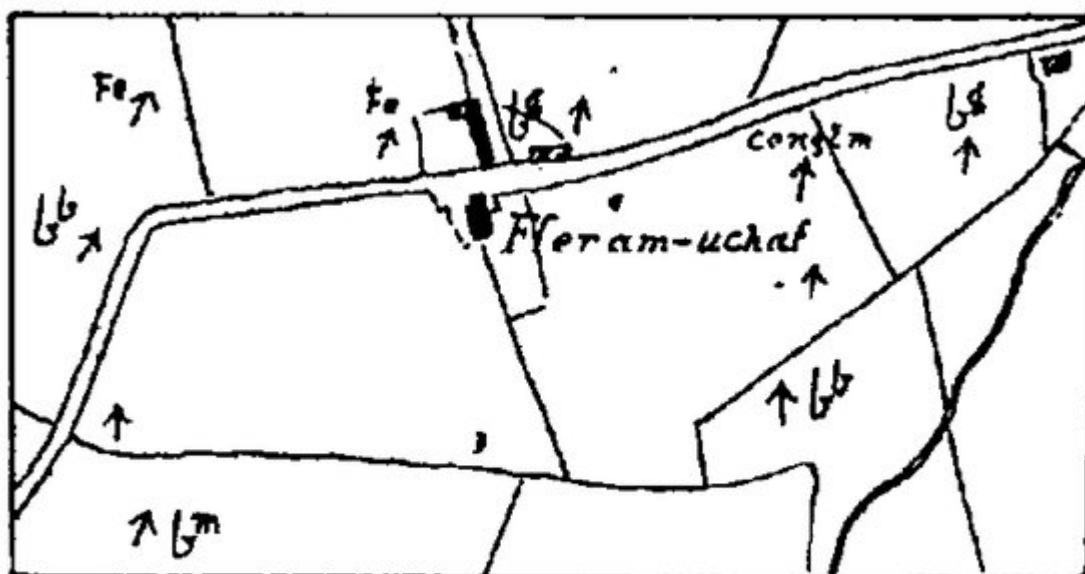


FIG. 207.—THE FFERAM INFOLD.

(Figure 207) The Fferam Infold. Six inches = one mile. Symbols as in (Figure 208) [MG = Gwna (Mona) Schists. Be = Zone Of *Did. extensus* (with basal conglomerate) Bb = Zone of *Did. bifidus*. bm = Zone of *Did. murchisoni*. Fe = Oolitic Ironstone. Bg = Zone Of *Nem. gracilis*.]

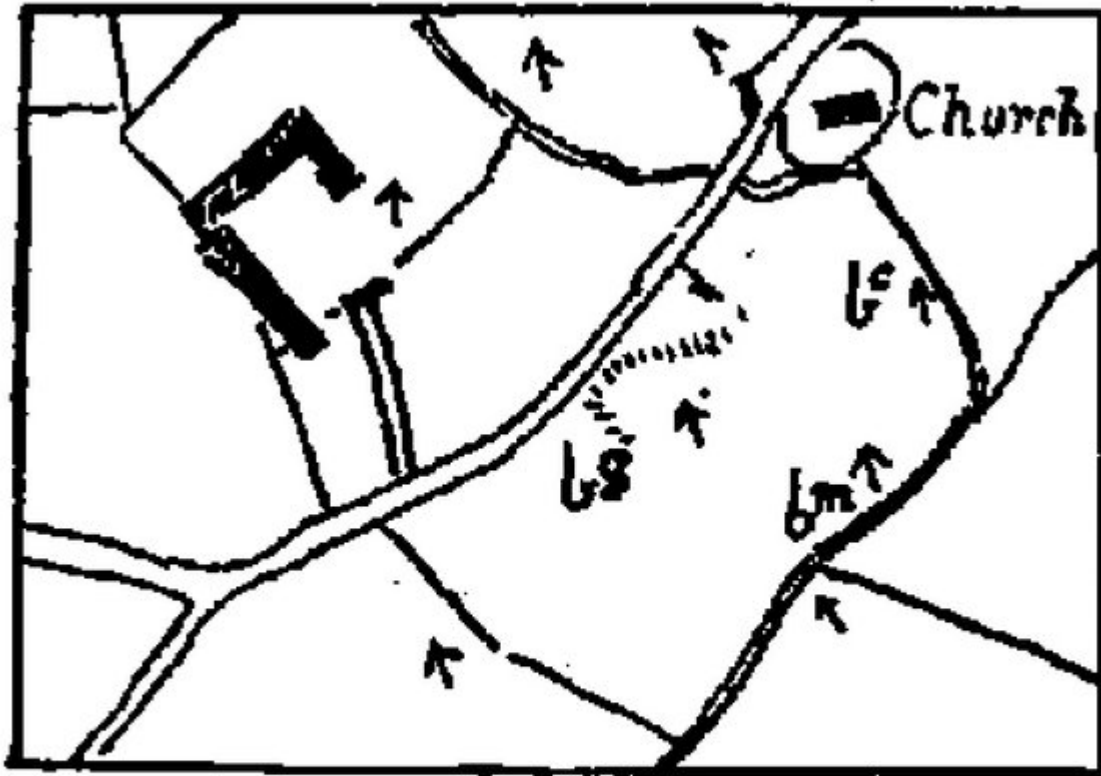


FIG. 210.—THE CHURCH INFOLD.

(Figure 210) The Church Infold. Six inches = 1 mile. Symbols as in (Figure 211) [Be = Zone of *did. extensus* (with conglomerate) bb = zone of *Did. hirtindo*. bb = Zone of *Did. bifidus*. bm = zone of *Did. murchisoni*. Bt = Zone of *Glypt. teretiusculus*. bg = Zone of *Nem. gracilis*. be = Zone of *Dicran. clingani*.]

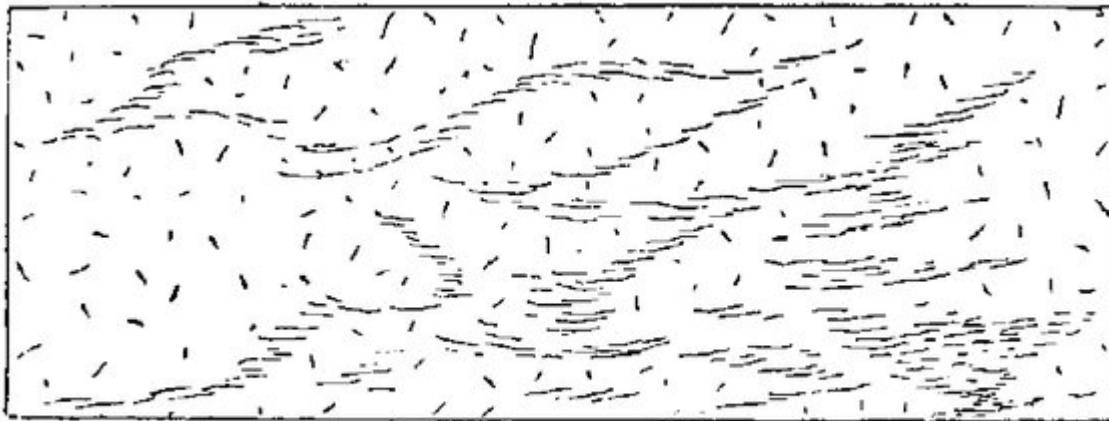


FIG. 26.—FILMS OF GNEISS IN GRANITE.

(Figure 26) films of gneiss in granite. Coast of the gader inlier. Plan 18 inches long.

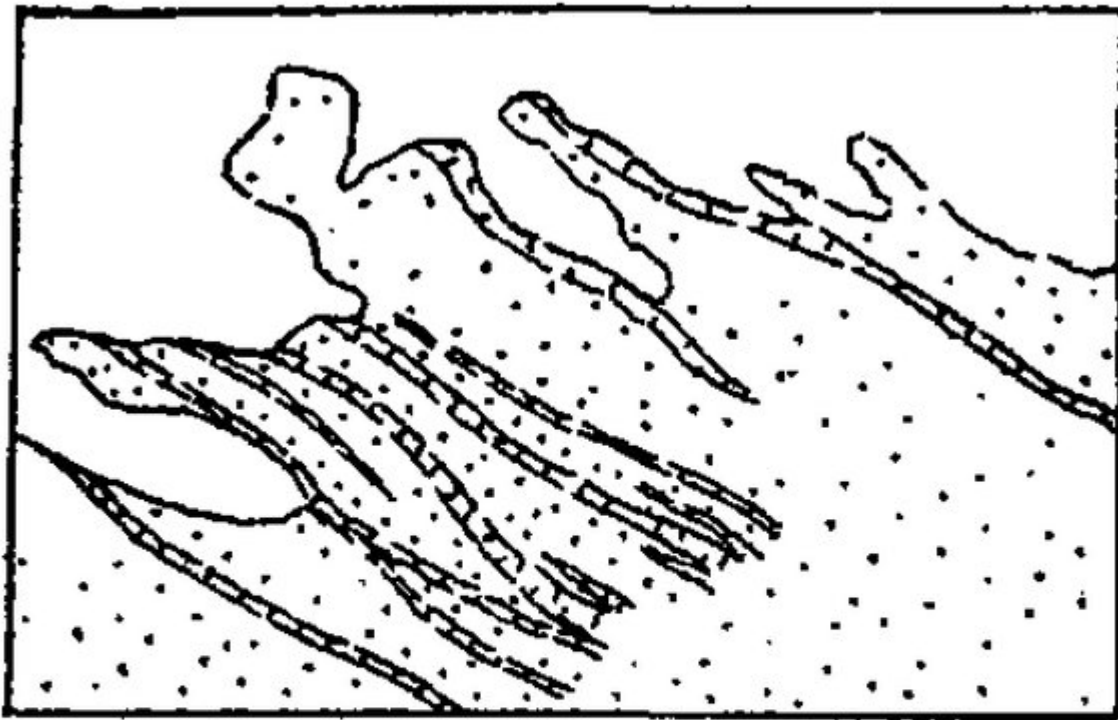


FIG. 227.

**BASIC DYKES AT PENRHYN,
CEMAES.**

(Figure 227) Basic dykes at Penrhyn, Cemaes. From the .0004 (1:2500) maps.

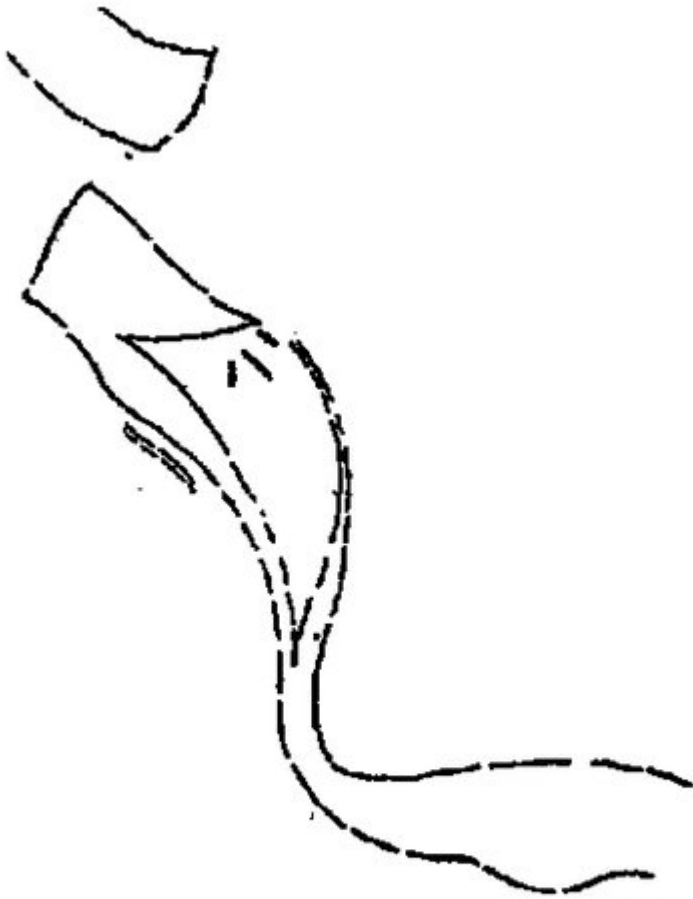


FIG. 232.
SPLITTING OF THE
RHOSCOLYN DYKE.

(Figure 232) Splitting of the Bhoscolyn dyke. Scale: .0002 or 1: 5000.

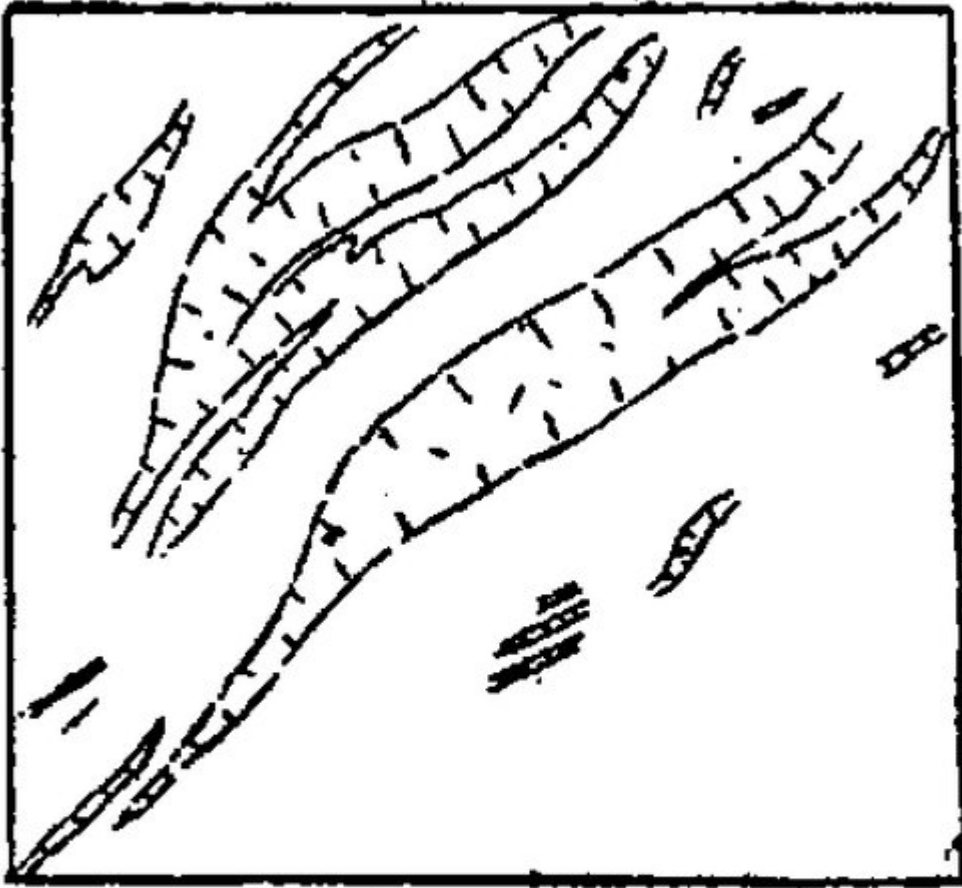


FIG. 241.
FELSITE DYKES.

(Figure 241) Felsite dykes. South-west of Gwalchmai. From the six-inch map.

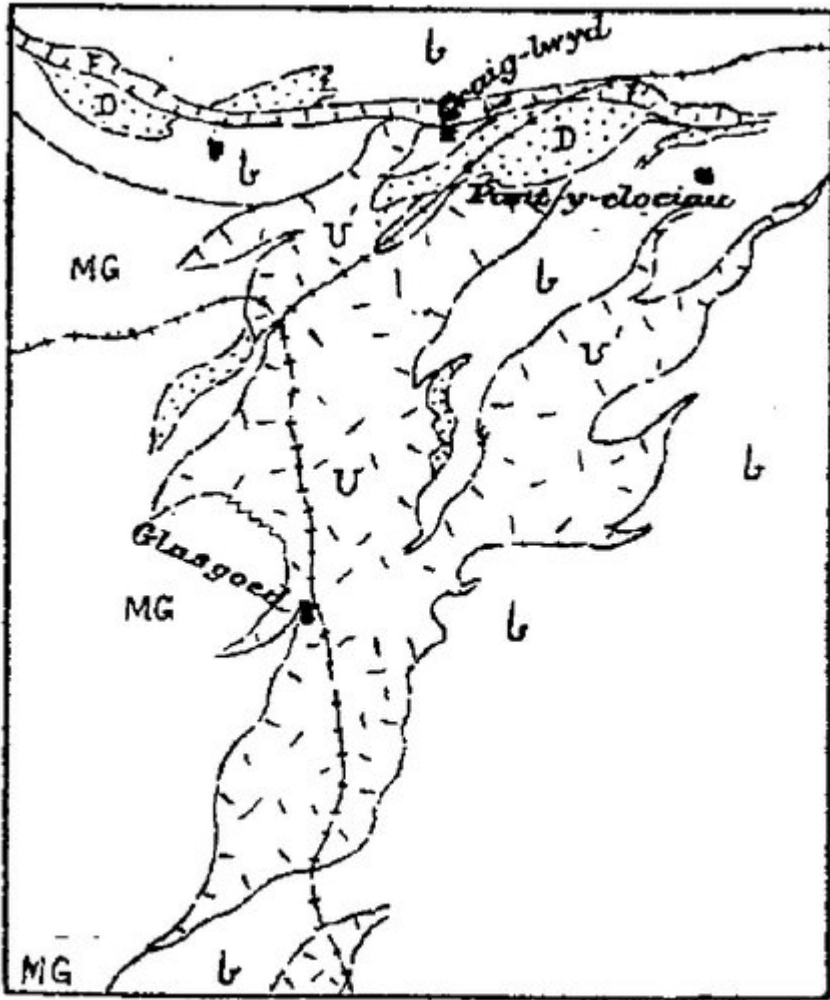


FIG. 245.

INTRUSIONS ON MYNYDD EILIAN.

(Figure 245) Intrusions on Mynydd Eilian. From the six-inch map. MG = Gwna Mélange. b = Ordovician. F = Felsite. U = Hornblende-picrite. D = Proterobase. Cross-hatched lines = roads.

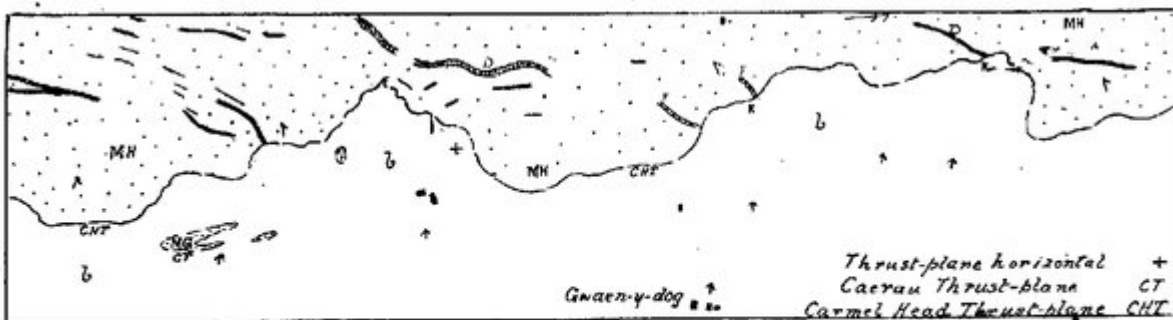


FIG. 269.—OUTCROP OF THE CARMEL HEAD THRUST-PLANE AT GWAEN-Y-DOG.

From the six-inch maps.
 MH = Coeden Beds. MG = Gwna Beds. b = Arenig Beds.
 F = Felsite Dykes. D = Dolerite Dykes. K = Crushed Dykes.

(Figure 269) Outcrop of the Carmel Head Thrust-plane at Gwaen-y-dog. From the six-inch maps. MH = Coeden beds. MG = Gwna Beds. b = Arenig Beds. F = Felsite Dykes. D = Dolerite Dykes. K = Crushed Dykes.

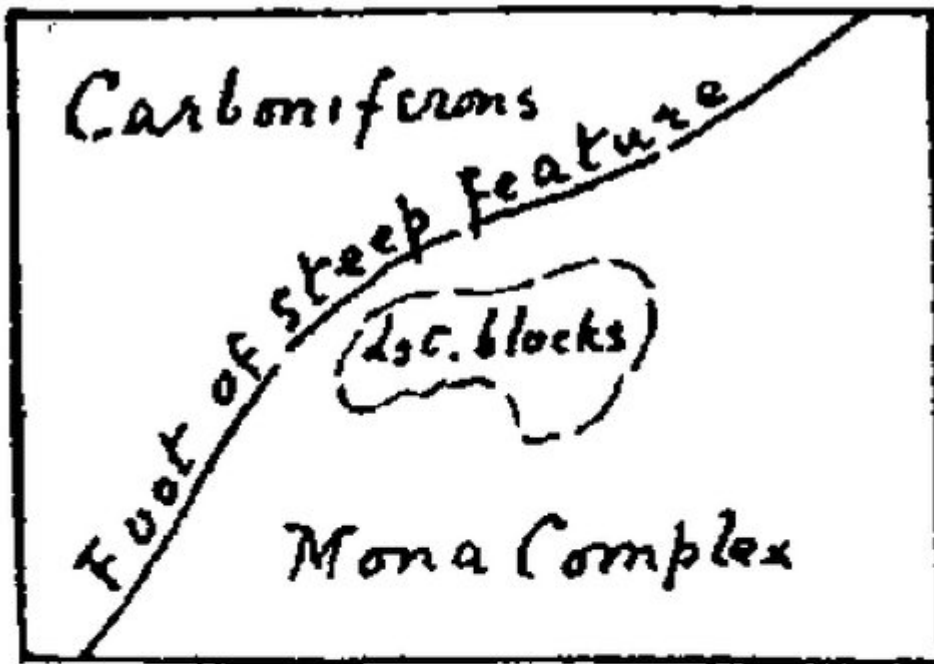


FIG. 327.

THE CARBONIFEROUS
LIMESTONE
OF BRYN-GWALLEN.

(Figure 327) The Carboniferous limestone of Bryn-gwallen. From the six-inch map.

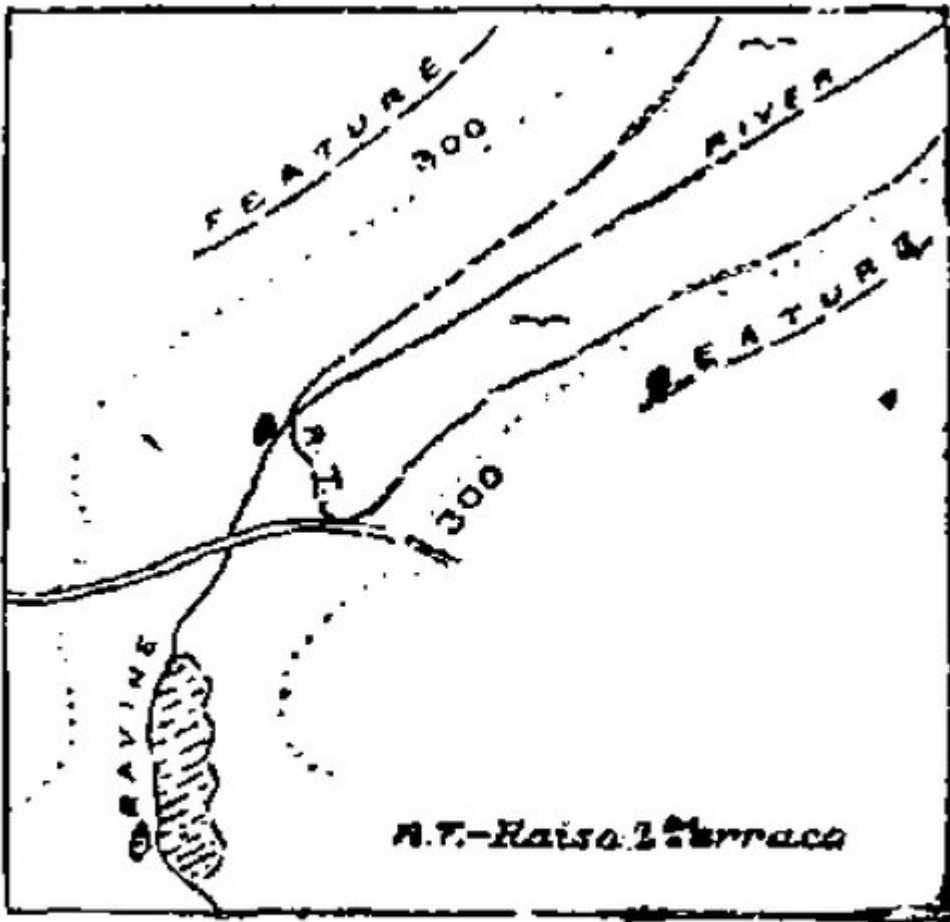


FIG. 337.
THE EXIT OF CREMLYN.

(Figure 337) The exit of Cremlyn. Scale four inches = one mile.

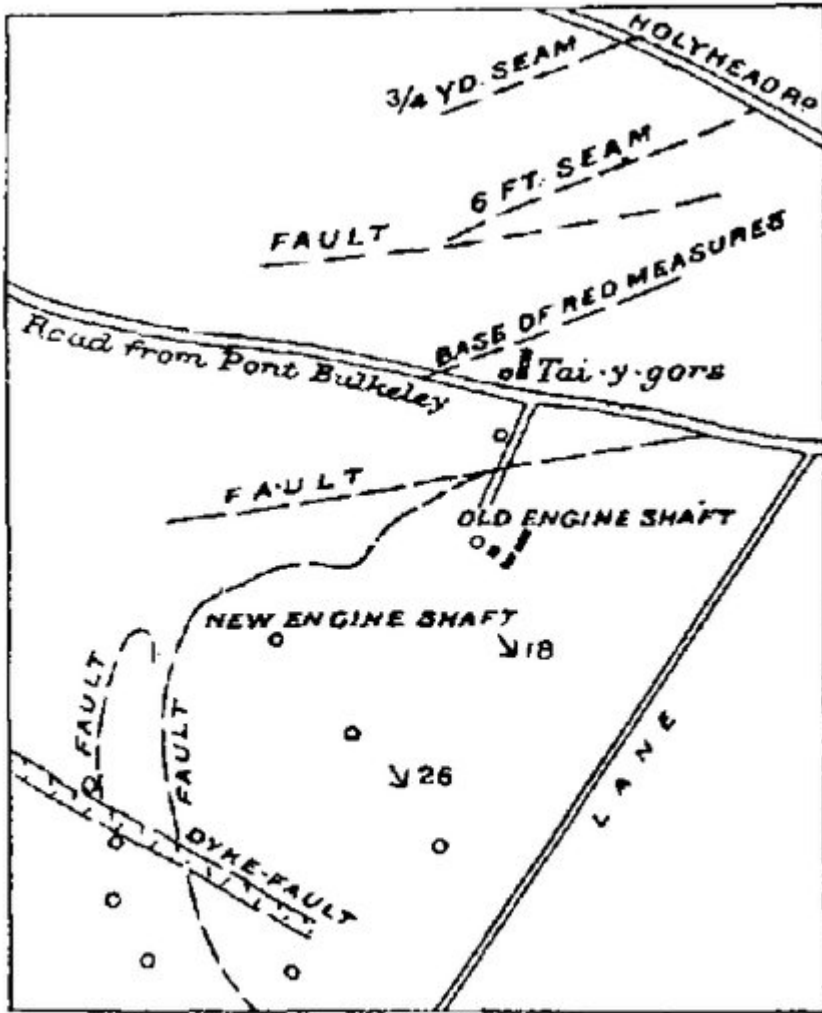


FIG. 343.

THE COAL MEASURES AT BERW.

(Figure 343) The Coal Measures at Berw. Scale: four inches = one mile.

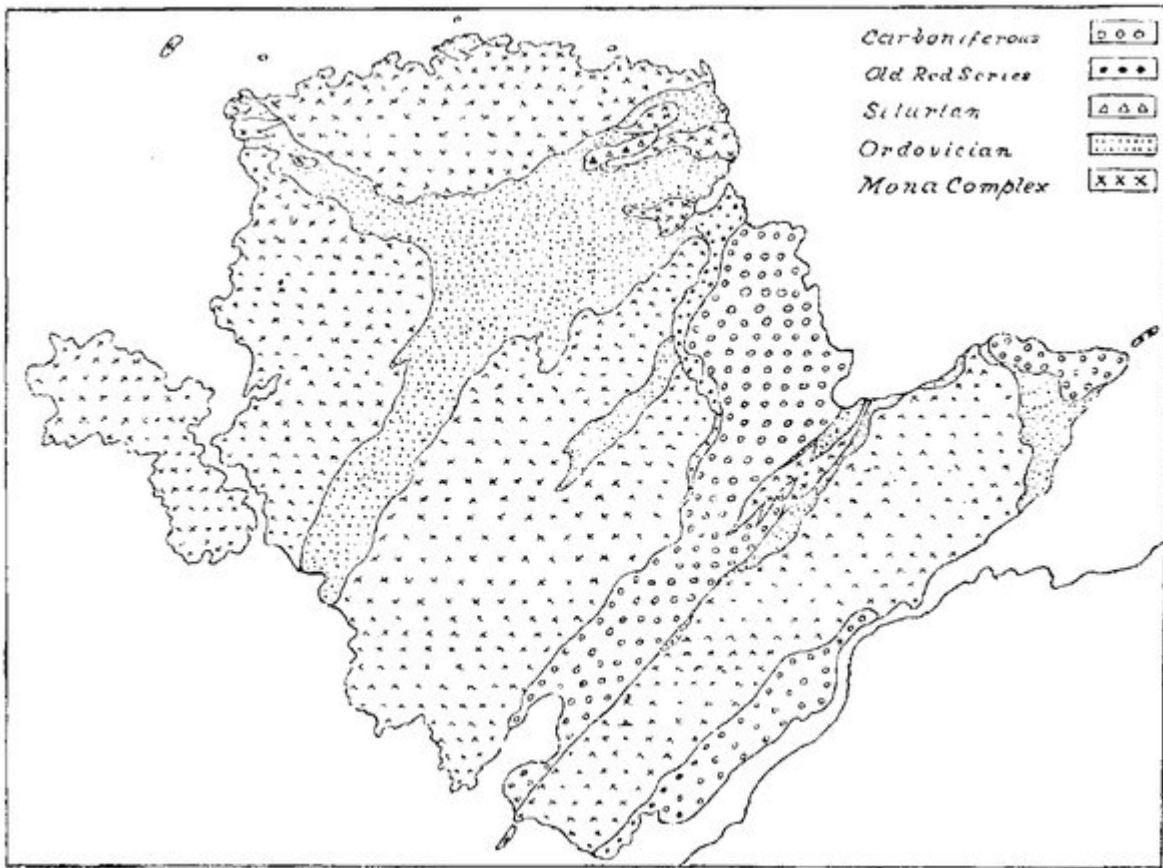


FIG. 345.—INDEX-CHART TO THE 'SOLID-GEOLOGY' MAPS.

(Figure 345) Index-chart to the solid-geology' maps. Scale one inch = six miles.

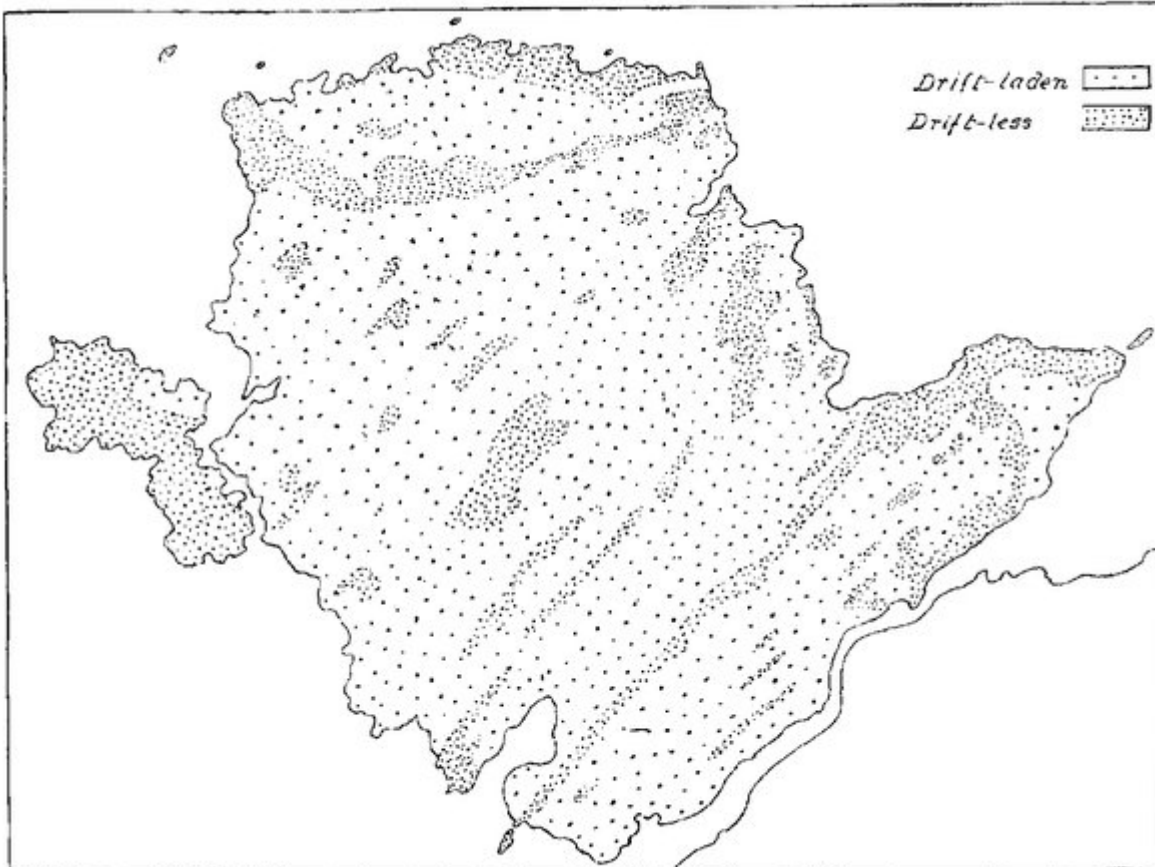


FIG. 346.—INDEX-CHART TO THE 'DRIFT' MAPS

(Figure 346) Index-chart to the 'drift' maps. Scale one inch = six miles.