Chapter 29. Detail of the Later Dykes

A list of these will facilitate their identification on the maps, as they are easily confused with Palaeozoic dykeS of the same general strike.

A. Those that outcrop in Carboniferous rocks are:

Straitside Area

1. Plâs Newydd

2. Bryn Siencyn

3, 4. Gwydryn

5. Plâs Coch

6. Moel-y-don

7, 8. Shore to south-west

Pennon Area

9. In Penmon dolomite

Principal Area

10. Bodorgan, east wood

11. Malldraeth, shore

12. Capel-mawr near Tref-draeth

13. Feisdon

14. Felin-bach

15. Felin-bach: eastern branch

16. Berw mine

17. Morf-mawr mine

18, 19, Holland Arms

20. Talwrn

21. Traeth Bychan

B. Those that outcrop in the Mona Complex are:

Aethwy Region

22. Cadnant

23. Pont-y-crug

Western Region

24. Llanllibio

Northern Region

25. Porth-wnol

Holy Isle

26. Hen-borth

27. Porth Dafarch

28. Porth-yr-afon

29. Bodior

30. New Harbour

Nine of them (Nos. 5, 6, 7, 8, 9, 13, 16, 17, 30) do not seem to be exposed at present, and are therefore omitted from the new maps; but Nos. 5, 6, 7, 8, and 30 are laid down on Henslow's, and No. 30 on the old one-inch map. Some of the descriptions by Henslow, and Dr. Harker are summarized here, and, in addition to the slides in the survey collection, those cut from Henslow's specimens in the Sedgwick Museum at Cambridge are quoted, with the reference number '[H.]' taken from Dr. Harker's papers.

A. Those that outcrop in Carboniferous rocks

1. The Plâs Newydd Dyke [H. 485] is an ophitic olivine-dolerite, rather coarse, and with abundant fresh olivine. There are compact portions [H. 486], probably taken from near the margin, but still ophitic, in which some secondary quartz is found. The best exposure is at the Strait, but the recess of cliff into which the dyke passes is now full of dense bush, so it is well seen only on the foreshore, where it is 134 feet wide. In the woods 'above, it has decomposed to a basic sand, softer than the boulder-clay. The banded grey lydianites are easily found on the cliff, but the remarkable garnet-analcime contact-products [H. 511–23; (E11440) [SH 521 696]-(E11441) [SH 521 696] collected by Henslow seem to have disappeared in recent years.

2. *The Bryn-Siencyn Dyke* has been seen only at a nook of a lane at the north end of a cottage yard at the- 100-foot contour about half a mile west of the church. It is about 30 feet wide, and deeply decomposed.

3, 4. *The Rose and Thistle Dykes, Gwydryn*, are spheroidal, with small amygdules. They are basalts, rather fine, with some brownish glass, and sub-ophitic structure. In them occurs the deep-tinted augite of teschenitic ' type (E10291) [SH 498 682]. They are exposed in a large quarry at the Rose and Thistle' (six-inch map). The eastern one can just be made out in a saw-pit, but the other is well seen, and is four to nine feet wide.

5, 6, 7, 8. *The Plâs Coch and Moel-y-don Dykes* do not appear to be exposed now, but Henslow describes one of the latter (he shows three on the Strait-shore) as 40 feet wide. A slide [H. 563] from Moel-y-don is described by Dr. Harker as an ophitic amygdaloidal dolerite, the vesicles being filled successively by a zeolite, chalcedony, and calcite.

9. Penmon — Ramsay records a 'short felspathic dyke' (not shown on the old one-inch maps) piercing the limestone a little east of the brown dolomite. Mr. Morton, Mr. Muir, and the writer have failed to find any exposure.

10. The Bodorgan Dyke is obscurely seen in the woods. It seems to strike for a dyke on the shore, but this may be a mere coincidence, as the latter is probably one of the Paleeozoic series.

11. The Malldraeth Dyke is much broken np, and the blocks may not be quite in place.

12, 13. ***The Capel-mawr Dyke*** is an ophitic olivine-dolerite, rather light in tint, with much felspar, and is wonderfully fresh (E6057) [SH 415 714], (E10205) [SH 422 709], (Plate 28), Fig. 6]. In its long course it can often be traced by a hollow feature, but is well exposed where it is crossed by a lane near Plâs-bach, and west of Fferam. The marmarosis it sets up (E10286) -can be seen at Ty-calch among the farm-buildings. Marmarosis is also seen at a farm on the 100-foot contour east of Feisdon, but no dyke is now visible.

14, 15. ***Felin-bach*** — The main dyke (E10206) [SH 435 737] is one of the second type, a coarse dolerite with serpentinized olivine and a little glass; is spheroidal, and deeply decomposed. It is well exposed in the ravine below Cefn-canol, at the hamlet, and at Felin-bach; while the branch is seen among the cottages, on the eastern side of the lane. It has developed spots in the Gwna schists and in the black sandstone of the Carboniferous.

16, 17. ***The. Coal-Mine Dykes*** [H. 571, or 564–6]. —Dr. Harker describes one of these as a very fresh dolerite, rather coarse, without olivine, and resembling that of Cadnant, though not strongly ophitic. Henslow states that it renders the shales 'jaspideous', and that it converts the coal itself into ' a scoria-ceous cinder… which will neither inflame nor emit any smoke before the blowpipe'. The Morfa-mawr intrusion is merely recorded by former miners. The Berw dyke is said to coincide with a fault, which must belong to the Carboniferous internal system (p. 678), for it does not displace the Berw fault.

18. The Holland Arms Dyke (E9870) [SH 471 725] is a typical ophitic olivine-dolerite, with hypidiomorphic olivine in grains large enough to be easily visible with the hand-lens, and very well preserved. The rock is coarse and spheroidal, fresh in the spheroids, but decomposed between them, and has a fissility without deformation. It is moderately well-exposed in the railway cutting, several times in the ravine below the Inn (which is determined by it), and at the place (see pp. 687–8, (Figure 306)) where it meets the Palaeozoic dyke, to the other side of which, however, it has not been traced. Its thermal effects on the Red Measures are seen in the cutting between it and the high-road-bridge; while those on the Carboniferous cherts may be studied by the stream, about 25 yards east-south-east of the railway. Of all the dykes of the group, this is the most interesting. It traverses more formations, and later ones, than any other, as well as several great faults, it is seen in contact with an older dyke, it is large and well preserved, and is easy of access.

19. The Holland Arms Lesser Dyke, 50 feet wide, is exposed only in the railway cutting between the high road and the station, among sandy shales of the Red Measures, which it alters.

20. The Talwrn Dyke (E10008) [SH 488 771] is one of the second type, a glassy, serpentinized olivine-dolerite. The chlorite has a high bi-refringence and seems to be delessite. There are abundant amygdules filled with zeolites. The rock is decomposed except in the spheroidal cores. It is seen in a quarry about 265 yards south-south-east of the Inn, traversing a pebbly sandstone, and has the aspect of coinciding with a small fault, but those sandstones are often so irregular that the dyke may merely rise along an irregular junction such as that at Borth-wen (p. 613). Its full width is not seen, but must be more than 27 feet, and there is a chilled selvage.

21. The Traeth Bychan Dyke (E10302) [SH 517 846] is a porphyritic tholeiite, with a dusky glass full of rods of iron-ores. The cores of the phenocrysts are highly basic. Though only one and a half feet wide, it is well exposed in the sea-cliff. It is probably a branch from a much larger dyke that outcrops beneath the sea, for there are boulders near Dinas of a dolerite like that of Holland. Arms.

B. Those that outcrop in the Mona Complex

22. The Cadnant Dyke [(E10006) [SH 560 729], [H. 545] is the best example of the fifth sub-type, for though coarse, no olivine has been found in it. It is slightly albitised, is decomposed except in the spheroids, and has a fissility without deformation. It is exposed at the Mill-wheel and pond (at which place baking of the 61-wna schist is seen) (E9308) [SH 558 732], also in the woods, and is about 50 feet wide. The lower reach. of the deep ravine has evidently been determined by it, as well as (apparently) the straight hollow north-west of Plâs Cadnant, so it seems as if striking to cut the old Castellior dyke. A dyke in the Carboniferous rocks on the opposite shore of the Strait, of similar aspect, is in line

with it.

23. The Pont-y-crug Dyke resembles those of Plâs Newydd and Holland Arms, and doubtless connects them. It is about 120 feet wide, and is well exposed in a pit about a quarter of a mile northwest of Pont-y-crug, where it is dug for sand, and in which, decomposed though it is, the internal structures are very clearly seen, especially the albite veins (E9482) [SH 506 699] and the fissility that does not deform.

24. The Llanllibio Dyke is an olivine-dolerite seen in the little ravine at Ty'n-llan.

25. The Porth-wnol Dyke (E10423) [SH 352 943] is a tholeiite only a few feet wide, beautifully exposed on the great stack (Plate 22).

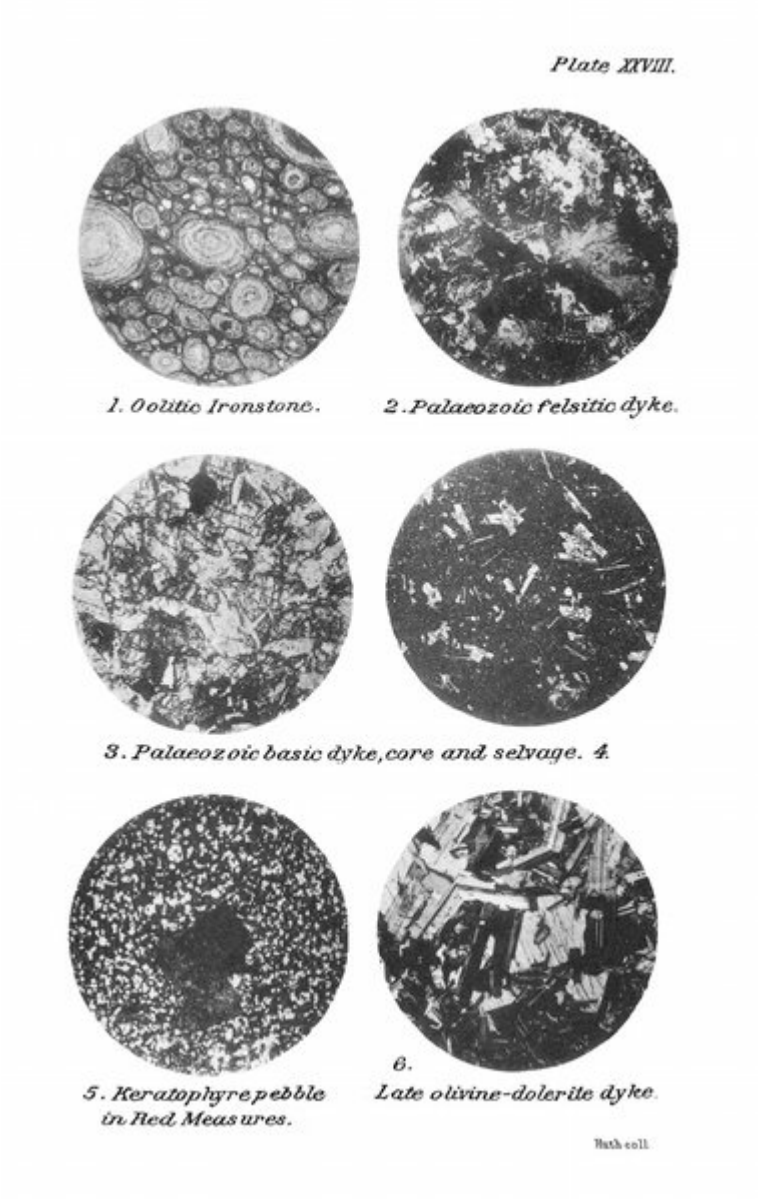
26. The Henborth Dyke (E10123) [SH 208 818] is a typical ophitic olivine-dolerite, wonderfully fresh, and evidently the rock which Dr. Teall, contrasting it with the greenstones', is inclined to regard as of much later date'. Its characters are identical with those of the olivine-dolerites that cut the Carboniferous rocks. It is about 90 feet wide, and develops grand features where it emerges on the lofty coast. At Penlas near the South Stack it ascends from the sea in great crags; then emerges on the north cliffs of Henborth in a chasm 400 feet long and 200 deep; and, reappearing across the bay, forms a pointed brown stack about 100 feet in height (Plate 42), after which it passes obliquely up the rocky walls. A strong cross-jointing accentuates the boldness of the features.

27. The Porth Dafarch Dyke is not continuous at the surface with that of Henborth, but is of the same character, and in Porth Dafarch north cliff contains a little vein with augites almost an inch in length. At the cliff near Porth y Post there is a fine contact-section, with good selvages (E9524) [SH 240 797], but the thermal effects on the crystalline schists of the South Stack Series are very slight. A thin branch at Porth Dafarch appears [H. 614] to resemble these selvages.

28. The Porth-yr-afon Dyke is an olivine-dolerite, with, an undeforming fissility, and contains at Porth y Post veins of second injection (E9481) [SH 242 796] with the laths of oligoclase. It splits up there into several small dykes (figured by Henslow), which are at low angles.

29. The Bodior Dyke is an olivine-dolerite, exposed in the creek near Bryn-y-bar, where the section looks like brown drift with boulders of dolerite. It has determined the straight feature towards Bodior.

30. The New Harbour Dyke, recorded on the old one-inch maps, appears to have been built over by the Lifeboat Station at Holyhead, and to have been traced a little to the south-east of the Rectory. Dr. Harker describes a slide [H. 638] as olivine-clolerite, and Henslow gives its width as 18 feet, with a thin dyke 10 yards away.



(Plate 28) Microphotographs of rocks later than the Mona Complex. 1. Oolitic Ironstone. 2. Palaeozoic Felsite Dyke. 3, 4. Palaeozoic Basic Dyke. 5. Keratophyre Pebble in Red Measures. 6. Late Olivine-Dolerite Dyke. See Appendix 3.

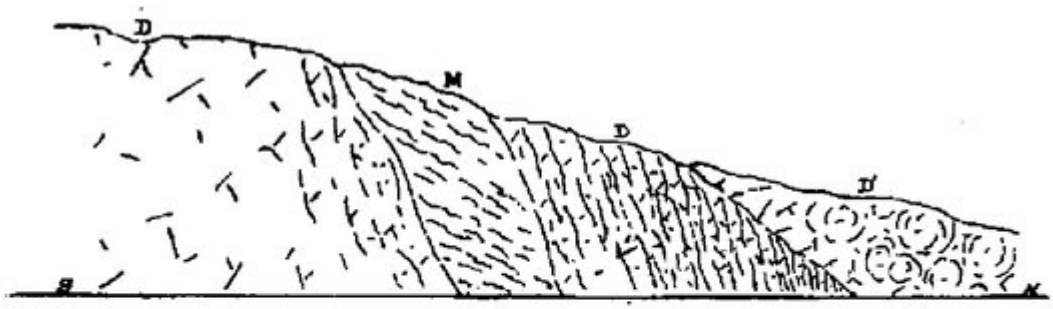


FIG. 306.—JUNCTION OF A PALÆOZOIC AND A LATER DYKE NEAR GAERWEN.

Scale: One inch = about 15 feet.

M = Penmynydd Mica-schist. D = Palæozoic Dyke.
D′ = Later Dyke.

(Figure 306) Junction of a Palaeozoic and a later dyke near Gaerwen. Scale: one inch = about 15 feet. M = Penmynydd mica-schist. D = Palaeozoic dyke. D■= later dyke.

(Plate 22) Lenticular quartzites in Autoclastic Mélange, with late basic dyke. Porth Wnol.

(Plate 42) Late olivine-dolerite Dyke. Henborth, Holy Isle.