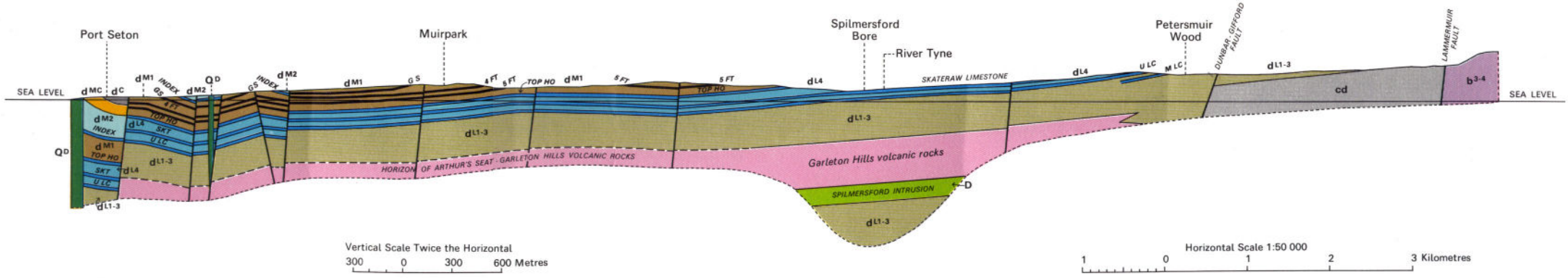

SEDIMENTARY ROCKS

CARBONIFEROUS

Westphalian : Coal Measures

Undivided: Confined to a small area at Port Seton, where there is a cyclic sequence of sandstones, siltstones, mudstones, and coals and seatclays about 47 m thick. Locally the strata are reddened. The mudstones overlying at least one of the coal seams contain a fauna of non-marine bivalves

Namurian : Millstone Grit Series

Passage Group: A sequence about 120 m thick of sandstones, pebbly in places, with siltstones, mudstones, seatclays and a few thin coal seams; thin conglomerates are present in places and at some localities the strata are reddened. Two Marine shell-beds occur. The lower part is Namurian but the upper part may be Westphalian

Upper Limestone Group: Cyclic sequence of sandstones, siltstones, mudstones and marine limestones, with seatclays and several thin coals, totalling about 145 m

Limestone Coal Group: Cyclic sequence of sandstones, siltstones, mudstones, coals and seatclays, with two marine-bands and several *Lingula* bands, totalling about 160 m. Several of the coals have been extensively worked, including undersea workings west and north-west of Cockenzie and Port Seton. A blackband ironstone was formerly mined in the Macmerry-Penston vicinity, about 3 km south east of Tranent

Dinantian : Carboniferous Limestone Series

Lower Limestone Group: Cyclic sequence of sandstones, siltstones, mudstones and marine limestones, about 80 m thick. Several thin coals are present, at least one of which has been worked locally. Three persistent limestones are present in the lower part of the Group, and two of these, the Skateraw and the Upper Longcraig limestones, have been fairly extensively worked; the succession in the upper part of the Group is not known in detail

Calciferous Sandstone Measures: About 780 m of strata, composed of an upper, predominantly sandy subdivision, and a lower sandstone, shale and cementstone subdivision, separated by the Garleton Hills Volcanic Rocks. The upper sub-division is relatively thin in the area east of Longniddry, and thickens somewhat to the north and more markedly to the south. A persistent limestone is present in the upper part, and several marine shell-beds occur lower in the sequence. A number of coal seams is also present, one or two of which have been worked locally. The Garleton Hills Volcanic Rocks, composed of lavas, tuffs and agglomerates, are about 520 m thick in the North Berwick-Garleton Hills area, and thin southwards

DEVONO - CARBONIFEROUS

Upper Old Red Sandstone: Red, purple, brown and green sandstones, with beds of siltstone and mudstone; bands of cornstone in the upper part, and pebbly and conglomeratic bands in the lower part

Conglomerate, mainly greywacke pebbles and cobbles

DEVONIAN

Lower

Conglomerate, mainly greywacke pebbles and cobbles with a few igneous pebbles

SILURIAN

Llandovery

Greywacke, siltstone, shale and mudstone

ORDOVICIAN

Caradoc - Ashgill

Greywacke with conglomeratic bands in places, siltstone, shale and mudstone, with beds of chert and graptolite shale; a thin flow of felsic acid lava occurs in the Linn Dean Water east-north-east of Soutra Hill, a thin silicified tuff crops out north-east of Kelphope Hill, and the chert beds are associated with thin tuffaceous bands

IGNEOUS ROCKS

EXTRUSIVE

Carboniferous

T Trachyte: Pale buff and pink fine-grained rock composed of orthoclase with some augite and iron ore. May have phenocry of feldspar
N Quartz-banakite (quartz-bearing trachyandesite): Greenish-grey fine-grained rock containing phenocrysts of plagioclase, potash feldspar and olivine in a matrix of potash feldspar, augite, iron ore and some quartz

hW Leucite - Kulaite (hornblende-trachybasalt): fine-grained porphyritic rock composed of oligoclase, subordinate orthoclase, hornblende, augite, iron ore, olivine and altered leucite
W^M Mugearite: Fine-grained rock, composed of oligoclase, with some alkali feldspar, olivine, augite, biotite and iron ore
fW^M: Mugearite with phenocrysts of feldspar

Basalt: Dark coloured fine-grained rock, composed of calcic plagioclase, pyroxene, olivine and iron ore
B^M Basalt of Markle type, containing many large phenocrysts of plagioclase and some olivine
B^Du Basalt of Dunsapie type, containing many large phenocrysts of plagioclase, olivine and augite
B^Ck Basalt of Craiglockhart type, containing many large phenocrysts of olivine and augite
Transitional types are shown by combination of symbols eg, **B^M/Du**

Tuff: Consolidated volcanic ash
Trachytic tuff: Consolidated volcanic ash with fragments of trachyte

Basaltic tuff: Consolidated volcanic ash with fragments of basalt

Ordovician

Felsic acid lava (unclassed): Red, purple and grey

Tuff (felsic acid): Consolidated volcanic ash, reddish-brown and purple-grey

INTRUSIVE

Agglomerate: Consolidated volcanic ash infilling volcanic necks and vents, commonly with large blocks

Dark coloured rocks, mainly **basalt** or **dolerite**, not classed precisely, generally altered

? Tertiary

Tholeiitic olivine-basalt: Dark coloured fine-grained rock containing calcic plagioclase, augite, olivine, iron ore and intersertal glass

Late Carboniferous - ? Permian

Quartz-dolerite: Dark coloured medium-grained rock composed of calcic plagioclase, augite, quartz (or micropegmatite) and iron ore. Tholeiitic varieties with intersertal glass occur

Carboniferous

Trachyte
O^P Phonolite and **phonolitic trachyte**: Trachytic rock containing sodic plagioclase and alkali feldspar, with augite, olivine, iron ore, nepheline and analcime

Trachybasalt: Pale grey fine-grained rock, containing phenocrysts of potash feldspar, plagioclase and olivine, in a basaltic matrix

Dolerite, basalt or **tholeiite**

Olivine-basalt or **dolerite**: Fine-to medium-grained dark rocks composed of calcic plagioclase, pyroxene, olivine and iron ore; many are highly altered
D^Du Basalt of Dunsapie type
D^D Basalt of Dalmeny type, containing many small phenocrysts of olivine
D^H Basalt of Hillhouse type
D^T Teschenite: Contains less olivine and normally with much analcime
D^E Essexite: Fine-grained rock, containing in addition orthoclase and analcime

Monchiquite, allied Basalts and **Basanite**: Dark coloured, fine-grained basaltic rocks
C^M Monchiquite: Pyroxene-rich basaltic rock, characterised by analcime and sparse feldspar
C^B Basanite: Basaltic rock containing much analcime in addition to feldspar

Lower Devonian

Felsic or semi-felsic minor intrusion: Highly altered, pale coloured, fine-to medium-grained feldspathic rocks

Felsite: Pale, commonly pink, fine-grained compact rock, composed of alkali feldspar, quartz and sparse iron ore
qF^P Quartz-porphyry: Phenocrysts of quartz, biotite and feldspar in fine-grained quartzo-feldspathic groundmass
F^Pt Acid porphyrite: Slightly darker coloured with phenocrysts of acid plagioclase in groundmass of alkali and sodic feldspar, sparse ferromagnesian minerals and quartz, usually very altered
F^Md Microgranodiorite minor intrusion: Pale coloured, medium-grained rock containing plagioclase, orthoclase, quartz and biotite. Phenocrysts of plagioclase and biotite occur

Lamprophyre: Red or grey fine-grained rock containing many well-shaped crystals of biotite or hornblende, and, in some instances pyroxene, with feldspar and iron ore

Porphyrite: Compact fine-grained reddish or brown rock containing phenocrysts of intermediate plagioclase (often albitised), hornblende, pyroxene or biotite in a matrix of these minerals, and some iron ore. Usually altered
p^M Quartz-microdiorite: Medium-grained rock, containing altered plagioclase, hornblende and possibly pyroxene, with iron ore and some quartz and alkali feldspar
P^P Plagiophyre: Highly altered sparsely porphyritic rock

Granitic rocks (unclassed): Pale coloured coarse-grained rock, containing plagioclase orthoclase, biotite and quartz. Some are sericitised