

## GLOSSARY

- Acid igneous rock** - *Igneous* rock with relatively high *silica* content, typically in the form of quartz.
- Alluvium** - Sediment deposited by a modern river, including sand, silt and/or mud.
- Ammonoid** - An extinct relative of squids and octopi, typically with a coiled shell. Found in marine rocks of Devonian to Cretaceous age. Includes 'goniatites' and ammonites.
- Anticline / Antiform** - An arch-shaped fold, the former where the sedimentary layers can be demonstrated to be right way up (i.e. not turned upside down by tectonic processes).
- Aplite** - Fine to medium grained *acid igneous rock* with a similar mineral composition as *granite*. Also commonly known as 'microgranite'.
- Basalt** - Fine grained and dark-coloured *basic igneous rock* with a *volcanic* origin.
- Basic igneous rock** - *Igneous* rock with relatively low *silica* content and rich in iron and magnesium minerals.
- Bed/bedding** - A single, defined layer or band within a *sedimentary* rock or the collective layering of sedimentary rock strata.
- Bedding plane/surface** - The surface of a bed in a *sedimentary* rock.
- Breccia** - Rock formed of angular fragments of pre-existing rock; can be formed by sedimentary (e.g. from natural screes), tectonic (e.g. *faulting*) or igneous (e.g. *volcanic*) processes.
- Calcite** - Calcium carbonate (CaCO<sub>3</sub>) - the main component of limestone.
- Carboniferous** - Geological time period ranging from around about 365 to 290 million years ago - named because the most of the most important coal deposits in Europe are of this age.
- Chert** - Very fine-grained *sedimentary* deposit formed by the deposition of silica, which can be derived from plankton such as *radiolaria*, sponges or seepages from *volcanic* vents. Typically very hard, even glassy and can occur as thinly bedded deposits or as separated bands or *nodules*. Flint is a type of chert.
- Clast** - A fragment of rock derived from pre-existing rock.
- Clay minerals** - A group of typically extremely fine-grained platy minerals dominated by aluminium-rich *silicates*. Important constituents of many rocks (shales, slates, etc.).
- Cleavage** - Tendency for some rocks and minerals to split along distinct parallel weaknesses or 'cleavage planes' (e.g. *slate* and *mica*).
- Conglomerate** - A *sedimentary* rock formed of rounded pebbles of earlier rocks and usually with a sandy or silty infill.
- Conodonts** - Microscopic tooth-like fossils derived from a worm-like extinct marine animal. Conodonts range from the Cambrian to the end of the Triassic periods of geological time and are very important for dating rocks of Devonian and Carboniferous age.
- Country rock** - The characteristic bedrock of an area; usually used in the context of the rock into which an igneous rock or mineral vein has been intruded or injected.
- Cross bedding** - *Bedding planes* in a sedimentary rock which lie at a distinct angle to normal horizontal, recording the movement of ripples or dunes by water or air. Also known as current bedding.
- Cryoturbation** - Disturbance and contortion of layers and stones in recent sediments by freezing and thawing (typically under ice-age conditions).
- Deformation** - The geological process through which rocks are bent and folded by tectonic activity such as compression during mountain building activity (see *orogeny* below).
- Devonian** - Geological time period between about 395 to 365 million years ago. Named after Devon where the distinctive character of fossils in these rocks were first recognized.
- Dip** - The angle at which a *bedding plane* or any other geological surface is inclined below the horizontal.
- Dolerite** - A medium-grained *basic igneous rock* formed below ground.
- Dyke** - A steeply inclined or nearly vertical wall-like *intrusion* of *igneous* rock. A sill is similar but sheet-like with a horizontal or relative gently sloping surface.

**Exposure** – A visible outcrop of bedrock or an excavation or naturally eroded feature showing a geological deposit.

**Fault / Fault plane / Fault zone** - A *tectonic* fracture or zone of fracturing in rocks along which movement has taken place.

**Feldspar** - A typically white to pink coloured, opaque silicate mineral; one of the major constituents of granite.

**Fluvial** - River processes, including erosion, sediment transport and deposition.

**Fold** - Tectonically formed bends or folds in layered rocks.

**Foliation** - A distinct layered structure in rocks formed when platy minerals such as clays and micas line up under tectonic stresses.

**Formation** - A defined *sedimentary* geological unit with features distinct from adjacent units and which can usually be relatively readily traced by geological mapping. Frequently named after a locality where it is well displayed or where it was first recognised.

**Geodiversity** - The variety of rocks, minerals and landforms and the processes which have formed these features throughout geological time. Can also include geological materials in a cultural environment such as building stones and jewelry.

**Earth Heritage** - The inheritance of rocks, soils and landforms (active and relict) and the evidence they contain that enables the history of the earth to be unraveled. Also known as 'Geological heritage'.

**Fossil**: The preserved remains or traces of once-living animals and plants.

**Geology** - "*Geology is the science which investigates the successive changes that have taken place in the organic and inorganic kingdoms of nature; it enquires into the courses of these changes, and the influence they have exerted in modifying the surface and external structure of our world*" (Charles Lyell, 1830).

**Geomorphology** - Study of the form of the Earth's surface and processes that shape it.

**Glacial** - Associated with ice sheets and glaciers and often referring to cold periods in Earth history when ice sheets advanced from polar regions to cover lower latitudes.

**Glaciation** - A cold event in Earth history when glaciers and ice sheets covered large areas beyond contemporary polar regions.

**Granite** - Coarse-grained *acid igneous rock* containing clear *quartz* and *feldspar* as major constituents in association with mica.

**Head** - Surface deposit consisting of rock fragments typically in a sandy and silty matrix and formed by seasonal downslope movement of surface soil under *periglacial* conditions. .

**Holocene** - The last 10,000 years. Sometimes known as the 'Recent'. Forms the younger part of the Quaternary time period.

**Hornfels** - General name for a dominantly fine-grained rock baked and hardened by the intense heat close to a large *igneous* intrusion.

**Igneous Rock** - Formed by crystallisation or solidification from a molten *magma*.

**Intrusion** - A discrete body of *igneous* rock which has been forced when molten *magma* intrudes into pre-existing rocks.

**Joint/Jointing** – Fractures in a rock, typically formed due to expansion as pressure on the rock is released as it reaches the Earth's surface. Unlike faults, joints do not demonstrate any movement.

**Lava** - Molten rock material erupted at the surface of the Earth by volcanoes.

**Limestone** - A rock composed almost entirely of calcium carbonate and typically formed from the accumulated remains of plankton with lime-rich structures or shells.

**Lithology** - A description of the character of (typically) a sedimentary rock, based on a systematic description of it's mineralogy and texture.

**Magma** - Molten rock, typically 'wet' with mineralogical components dissolved in superheated water.

**Massive** - Having great bulk or having homogenous structure or texture.

**Matrix** - Fine grained material either infilling holes between larger components of a rock or forming a ground

- mass within such grains or *clasts* are embedded.
- Megacryst** – Exceptionally large crystals in an igneous rock which is very large compared with other components, e.g. large white feldspar crystals in some Dartmoor Granite.
- Metamorphic rocks** - Rocks which have been changed in essentially a solid state by heat and/or pressure without complete melting. They may originally have been *igneous* or *sedimentary* rocks or pre-existing metamorphic rocks. Includes *slate*, *hornfels* and some *quartzites*.
- Metamorphism** - Processes involving heat and/or pressure result in the formation of a *metamorphic* rock.
- Mica** - A group of platy minerals with a flexible very finely layered structure which gives them a very perfect cleavage and a smooth shining surface.
- Micaceous** - Containing or resembling mica.
- Mineral** - A naturally occurring chemical compound or element, typically a crystalline solid with a definable chemical composition and a characteristic crystal structure. Can also included rocks or soft sediment deposits (e.g. sand and clay) if they have an economic value as “Bulk Minerals”.
- Mineralogy**– The study of minerals.
- Mud** - Very fine-grained sediment of any mineral composition including clays and silt.
- Mudstone / Mudrock** - A *sedimentary* rock composed of very fine grained particles.
- Mylonite** - A fine-grained and often banded rock formed by the pulverisation of pre-existing rocks under extreme *tectonic* conditions often related to *thrusting* and *nappe* formation.
- Nappe** - A very large sub-horizontal fold or thrust block which has been moved by tectonic processes on a scale of kilometers. Formed during continental collision and mountain building (see also Orogeny).
- Orogeny** - A major phase of *deformation*, *folding* and *metamorphism* of the Earth’s crust associated with continental collision, formation of mountains and igneous activity. A consequence of plate tectonic activity.
- Outcrop** - The presence of a rock unit at the Earth’s surface or immediate below (i.e. below sub-subsoil) but generally not visible due to a cover of soil, vegetation or other recent geological deposits.
- Palaeontology** - The study of fossils, and other traces of ancient life and biological evolution (including chemical and genetic evidence), and their morphology, ecology, evolution, sedimentology, chronology and distribution in time and space.
- Pegmatite** – Typically an exceptionally coarsely crystalline *igneous* rock. Can also includes bands or veins of larger crystals in a finer grained igneous body with an unusual mineralogy.
- Period** - A major subdivision of geological time measured on a scale of several 10s of millions of years.
- Permian** – The geological time period from around 290 to 255 million years ago and which follows the Carboniferous. Characterised by desert conditions across most of Britain.
- Periglacial** – Areas marginal to glaciated areas and also at high latitudes and altitudes where the ground is permanently frozen and ‘permafrost’ is developed.
- Petrology** - The branch of geology that deals with the occurrence, origin, and history of rocks, primarily from a mineralogical perspective.
- Plate tectonics** - A special branch of tectonics, derived from a synthesis of geological and geophysical observations that deals with the processes and consequences of the movement of the Earth’s crust as a series of large rigid plates moving relative to each other. These plates interact with each other along relatively narrow zones of volcanic and seismic activity.
- Pleistocene** - Geological time division from around 2.5 million to 10,000 years ago. Forms the older part of the Quaternary time period.
- Pyroclastic** - Fragmental rock materials formed by explosive *volcanic* activity. Includes volcanic ash.
- Quaternary** – The most recent geological time period which started around 2.5 million years ago and encompasses the *Pleistocene* and the *Holocene* ‘epochs’.
- Quartz** - Crystalline silica (SiO<sub>2</sub>), typically a hard clear, translucent or white mineral. A key component of granite and most sandstones and siltstones.

- Quartzite** - A sedimentary or metamorphic rock consisting primarily of quartz grains.
- Radiolaria** – A group of single-celled planktonic organisms with a *silica* internal skeleton. These shells can be a major source of the *silica* of *chert* deposits.
- Rock** – Typically an aggregate of crystals, grains or clasts of one or more minerals or preexisting rocks.
- Sand** - Mineral or rock particles which a grain size in the range from 0.06 to 2mm (4mm commercially).
- Sandstone** - A sedimentary rock dominantly composed of sand-sized grains.
- Sediment** - Solid material that has settled from suspension in water.
- Sedimentary rocks** - Formed from the compaction and/ or lithification (cementation) of sediment. Sedimentary rocks may be composed of mineral or rock particles (clasts) (e.g. conglomerates, sandstones and shales) or be of biological origin (e.g. limestones, coals and some cherts) or formed by chemical precipitation (e.g. gypsum or salt).
- Sedimentology** - The scientific study of *sedimentary* rocks and processes responsible for their formation.
- Shale** - Fine grained sedimentary rock, often with fine layering and formed by the compaction of mud, clay and/or silt.
- Silica** - Silicon dioxide (SiO<sub>2</sub>), often occurring as the mineral quartz, but also as a chemical constituent of silicate minerals.
- Silicate** – A very large and often rock-forming group of minerals. Often chemically complex but always containing silicon and oxygen.
- Silt** - Fine sediment with a particle size between sand and mud.
- Slate** -A fine-grained metamorphic rock typically formed from shale or mudstone by realignment of clay minerals at a microscopic level to form a well developed ‘*slaty cleavage*’ or *foliation*.
- Solifluction** - Downhill movement of soil or scree cover during the seasonal freezing and thawing activity of periglacial areas.
- Stratigraphy** - The study and classification of rock strata and other geological deposits and their distribution in space and time.
- Syncline / synform** - A U-shaped fold.
- Synclinalorium** - A large compound syncline composed of numerous minor folds.
- Tectonic** - Relating to major Earth forces and movements producing large scale geological structures (including folding, faulting, earthquakes, etc).
- ‘Tertiary’** - A geological time period of time from 65 million years to about 2.5 million years ago.
- Thrust / thrust Fault** - A low-angle fault which can be on a very large scale leading to the lateral displacement of large rocks bodies, some 10s of kilometers across. Such bodies are known as *nappes*. Typically associated with the intense compression resulting from continental collision and the resultant *orogeny*.
- Tuff** - Rock composed mainly of *volcanic* ash.
- Turbidite / turbidity current** - Sedimentary rock formed from turbidity currents, caused by the slumping of unstable *sediments* on a slope which then become suspended in the water. Such turbidites can then flow for many kilometers downslope before slowing down and depositing their lode. ‘Fossil’ turbidites are typically well bedded *sandstones* with *shales* between, representing quieter conditions of mud deposition between flows.
- Unconformity** - A break in a sequence of strata representing a significant time gap.
- Variscan Orogeny** - The major period of Earth movements which formed a major mountain belt across central Europe to SW England and beyond to the eastern USA. In England the *orogeny* commenced during the early *Carboniferous* time period and climaxed with the intrusion of the Dartmoor *granite* at the end of the *Carboniferous*.
- Vein** - A sheet-like body of one or more minerals formed by infilling of a fracture within a rock.
- Volcanic** - Relating to a volcano, a vent in the Earth’s surface by which *magma*, fluids and gases are erupted.
- Xenolith** – A fragment of a preexisting rock incorporated within an *igneous* rock and often altered by the heat.