

The history of the Cambrian period history essay



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The Cambrian is a rock period which was the first formed during the Palaeozoic Era, its formation period started about 543 millions of years ago having a duration period of 55 million years ago making up a vital period on the earth's evolutionary history and life. It is also a rock period after Proterozoic and before Ordovician having three major stages namely; the lower, middle and upper boundary. The Cambrian rock period is made up with sedimentary rocks and some examples of these are the conglomerates, shale (red), sandstones (green and purple), and limestone. It was the first period to show the sudden appearance of animals in fossil which were majorly phylum. Phylum is a group of multicellular and unicellular organisms consisting of both vertebrates and invertebrates which crawled and burrowed their way into Cambrian creating very visible trails of their feeding and existence. This effect has come to be known as the "Cambrian explosion" and given Cambrian an extinct place in the minds of generations of palaeontologist. Evidence of exposures and formation of Cambrian can be found in Parts of Britain such as; North Wales, South Wales (NW Pembrokeshire and Wrekin area), NW Scotland and Spain (GOV. no date). This essay discusses the Stratigraphy, Paleogeography and Paleontology of Cambrian rock period in Britain and concludes with a summary of all events in the Cambrian period.

Background

Cambrian is word derived from "Cambria" which is the Latin name of Wales where its presence was most found in Britain (Sedgwick 1856). It was first named by Adam Sedgwick who at that time was studying the lower part of Cambrian detecting some strong folding and faults in the rocks having some

fossiliferous (Stirton 1967) alongside Roderick Merchison who was studying the upper part of the Cambrian period. In this study, Roderick Merchison found the Silurian period which according to him, was overlapping the Cambrian period. It was not until later, that Roderick concluded that there was an overlap in the original findings, including that of Adam Sedgwick making a claim that the Cambrian is a part of the Silurian period (Gov. no date). This brought about various controversies as to who was in fact right, not until a comprehensive study was done in 1897 by Charles Lapworth who introduced the name Ordovician in 1879 that the Cambrian and Silurian was accepted and is now been used and studied in all the world continent. (Lamer 2003). Showing that at this time the study of Cambrian was a necessity and its verifying was needed. The lower Cambrian suggested the first trails in the appearance of animals in fossil having class arthropod as the most extinct group with trilobites as the most extinct animal apart from bacteria beginning from the lower boundary, through the middle boundary to the upper boundary and ever since then, there has been records of advance and deep study which was largely facilitated by the international geological congress (IGC) and some group of people answering question on the Cambrian stratigraphy (Lemer 2003). According to the further study of Cambrian, the fossil records continued to show the fast growth of animal's majorly new animal groups and they took place during an the burgess stage in the Cambrian. At this time, the class of first major animals found in fossils were annelid, echinoderms, eldoniaoida, chordate, arthropoda, hyolitha which were all phylum having different types of animals in each class. (Meyer, et al no date). This simply shows that the Cambrian explosion lasted for about 5 million years representing a very important period in the earth's

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history but a small percentage of the Cambrian period. The class phylum arthropoda contained the largest animal trials in the Cambrian having different lengths and sizes for each of the animal species. It is said to have appeared in the burgess shale having about 20, 000 species with all sharing about the same body basic structures (Montgomery 2009). They were all generally marine habitat animals which tried to occupy as many places as possible. It possesses a hard exoskeleton due to the clear trails of its feeding and burring found in Cambrian today. Some other animals present in the Cambrian were class anomalcarida which was very complex comprising of three sections with a length of about six feet long. It was also a big predator having a complex food web. It also consisted of class vertebrate and eldonia eumorpha (Meyer, et al no date) found at different boundaries in the Cambrian period. The one thing here is that these trilobite species didn't exist pass the Ordovician and even at that period was not extinct as in Cambrian, making a question of what led to its large number in the Cambrian and why it died on reaching other period. It is seen that the climatic condition in Cambrian was very favourable to them and the marine habitat was not as it is today (there were no sea life's such as fishes) making its competitions for food and space less. Showing a clear evidence of how it found its up into the Cambrian with a large rate of number.

Result

During the Cambrian period formation there were series of major tectonic events which took place making an impact on the Cambrian rock formation. Cambrian was formed at the time when the continents had joined together producing a supercontinent which was called the Rodinia. It was during the

age of the Precambrian era and it is a process known as the Grenville Orogeny which was formed million years ago (Rogers, 1996). As Cambrian formation began the Rodinia started breaking into smaller continent leaving smaller continents to exist on its own that included Asia, Baltica and Laurentia (Lemer 2003). Making them the three main parts of the block breaking. During this breaking there was collision with the south end and this led to the crustal deformation and mountain buildings living them to stand out clearly. The climatic condition at this time was generally warm, wet and milder than today as there were no glaciations at this time. Implying that the Cambrian period was generally mild and good for the growth of specific species of lives. The landmass was majorly scattered due to the location enabling easy access to ocean currents to freely circulate. This led to the formation of Cambrian in a marine shallow water environment which also affected the biotic factor that duly had an impact on the type of rock and life found. At this point there was a rise in sea level continuously, to the Ordovician where there was a drop in sea level indicating the formation of ice at the end (Gov. no date) bring about the vast existence of animals in Cambrian. Cambrian had some volcanic events in Spain and it involved four major stages. This volcanic event led to the deposition of volcanic magma on the middle and lower Cambrian, leaving paths of lava flows down the mountain to the rocks and forming pillow-lavas and planar lava flow and pyroclastic deposits (Extebarria et al 2006). Some affected layers of the rocks here, are clearly evidence after the cooling of the magma which was seen to have created some mineral formation with presences of glassy fractures from the deposition. It also affected the texture in rhyolitic sills, having a metamorphosed surface which was due to the surge deposits with a

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measurement of 2mm each. There are also clear locations of large varieties of clasts in the rock and also having formation of volcanic rock, volcanic rock breccias and intrusions. This clearly shows that the volcanic deposition event led to the formation of some unexpected layers on the rock period leading to an unconformity on the rock sediments.

Conclusion

The Cambrian was a period with a wide range of happenings in it holding a most remarkable history in the life's of the earth. Its sudden appearance of animals in fossils has led to an extinguished name for it known as the "Cambrian explosion" also known as the big bang having phyla as the main animal present and class arthropoda as the extinct class and trilobite species as the most common. Its climatic condition was of a good and favourable condition especially for the life present at that time. The crustal breaking and formation during the Cambrian shaped the formation process of it making it a marine sedimentary rock with fossils in it. Its volcanic events also created some more events in it, giving it some mineral, new formations and texture.