

Evolution, Parallel Encyclopedia Article

Evolution, Parallel

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Evolution, Parallel

Parallel evolution is a system whereby different populations can, even though they are in widely different areas, follow the same course of evolution to produce the same organisms at the end of the process. As evolution is based on random changes of genetic material interacting with the environment, the idea of two identical species evolving in two separate areas is clearly remote. Parallel evolution is more commonly observed between structures. For example, a large number of organisms from different evolutionary backgrounds that now live in the same environment have the same structures. The sea is an example of just such an environment, and when one studies the animals present within the sea, there are many similarities. Fish and mammals living in the sea both use their tails for propulsion. This is actually an example of convergent evolution. Examining fish alone, it can be seen that in different areas of the world they have independently moved into very deep water habitats. Due to the initial starting stock being similar, and the evolutionary pressures the same, adaptations such as loss of eyes and coloration have occurred independently in many locations. This is parallel evolution. Similar examples can be found among all living organisms, for example, among plants that develop the same types of structures to attract pollinators and indeed among the pollinators themselves. Without knowing something of the history of the organisms under study, observers have difficulty distinguishing between parallel and convergent evolution.