

EVOLUTION

The article deals with a very large amount of evidence of evolution - evidence of geology, geographic distribution, comparative morphology and experiments.

Key word: *Evolution, Geological Evidence, Geographical Distribution, Morphological Evidence, Physiological Evidence, Experimental Evidence.*

У статті йдеться про величезний обсяг доказів еволюції - свідчення геології, географічного розповсюдження, порівняльної морфології та експериментів.

Ключові слова: *еволюція, Геологічні дані, географічне поширення, морфологічні дані, фізіологічні дані, експериментальні докази.*

Plants and animals come in a myriad of forms, ranging in size from submicroscopic bacteria to giant redwoods, from minute protozoa to elephants. Indeed, about 340,000 different species of plants and 1,000,000 species of animals have already been described.

For many years the diversity and adaptiveness of living things was explained as an act of creation – special creation by God, who made each species to fit in a predestined place in nature. The doctrine of special creation was formulated long ago when knowledge of living organism was decidedly limited. For many centuries this idea seemed the most reasonable explanation possible.

At theory the concept of special creation has been replaced by the theory that present-day organisms have come from unlike progenitors which usually were less complex. (Occasionally, relatively simple organisms have evolved from those of greater complexity.) The theory which states that species are and have been continually subject to change, which a consequent production of new living forms, is known as the theory of evolution. This theory implies that all life is a continuum in time and that all living things are related by descent. The fossil remains of organism of the past demonstrate that species once in existence are no longer present. In recent times a few forms have become extinct, for instance the Dodo bird in 1681, and the heath hen about 1930. Other forms are threatened, if we could project ourselves into the future, we would see organism which do not now exist.

EVISENCES OF EVOLUTION

A great volume of evidence has been accumulated which demonstrates the reality of evolution – evidence from geology, geographical distribution, comparative morphology, and experimentation.

Geological Evidence. Armored fishes, dinosaurs, flying reptiles, lepidodendrons, and seed ferns at one time abounded on earth, but they are now extinct. The changing life in past ages may be inferred from fossils found in layers of sandstone, limestone, and shale.

Fossils are relics of plants and animals long since dead. In certain instances the actual remains are preserved, as when plant parts become embedded in amber. Frequently a plant part becomes petrified, that is, the tissue becomes infiltrated with calcium, silica, or other mineral. Silicified wood is an example, and when this is sectioned an examined

with a microscope, fine anatomical details are evident. More commonly the fossil is an impression of plant part which was made in clay that later hardened into rock: here the actual parts is gone. From the fossil record it is not only possible to learn what organisms existed in the past, but also to estimate when they were on earth and the sequence in which they appeared. Fossils can be dated because the layers of rock were formed one above the other. The deeper the layer of sedimentary rock, the older it is.

The fossil record demonstrates that each group of organism had a period of maximum abundance and that in a prior period they did not exist, but only later evolved from some other form. Some groups of organisms perished after their period of abundance because they did not have a supply of mutants which could survive in a changing environment. As we go up the time scale, the organisms in general become increasingly complex.

No fossil have been found from the Archeozoic Era. In Proterozoic rocks remnants of certain algae have been discovered, but in these rocks very few fossils are found. The dearth of recognizable fossils results because organisms then living, bacteria and algae, had soft bodies which were readily decayed before they could be preserved in sediments. Furthermore, Proterozoic rocks have undergone deformation and may have been melted by volcanic action, factors unfavorable to the preservation of plant remains. In the Paleozoic Era, clubmosses, horsetails, ferns, seed ferns, and gymnosperms made their appearance. In the Mesozoic Era, angiosperms appear and become increasingly important as we go up the scale though the Cenozoic Era. As angiosperms more prevalent, the gymnosperms dwindle.

Geographical Distribution. Man and his dog are found in practically all parts of the earth, but they are exceptions. Few other species are so universal in their distribution. Generally each species has a definite range, found here, but not there. The flora of islands is sometimes different from that on the nearest mainland. At one time an island may have been connected to the mainland by a land bridge and at that time the area may have had a uniform flora. When the land bridge was submerged, the island became isolated. The course of evolution on the island may have led to the development of species unlike those on the mainland. Madagascar (off the coast of Africa) and the islands of Australia and New Zealand (which have been cut off from Asia for millions of years) have a number of species which are not found anywhere else. This restricted distribution is not due to soil, climate, or biotic factors, because many island species thrive when introduced to the mainland, and conversely. The most reasonable explanation is that species have undergone evolutionary change while isolated from closely related forms with which they might have hybridized. Species may become isolated by agents other than large bodies of water and in such remote places evolve into distinct species. Mountain tops and also valleys surrounded by mountains often have species which are limited to such areas.

Morphological Evidence. The study of structure (morphology) supports the theory of evolution. Decided similarity of structure indicates close relationship, whereas less marked similarity suggests more distant relationship. Sweet peas, beans, and peas are closely similar in floral structure. Such likeness in structure indicates that they are closely related and that they have evolved from a common ancestor. Some lines of descent led to sweet peas, others to beans, and so on. The fact that man can group organisms into families and subdivide families into genera and genera into species is strong evidence for evolution.

Physiological Evidence. Physiological similarities of organisms furnish information concerning relationships and ancestry. Members of some groups of plants

produce characteristic chemical substances. For example, species of the mint family have aromatic volatile oils, and members of the pine family, pitch. Plants producing similar substances appear to be related by descent. The most characteristic compounds of protoplasm are the proteins. The protoplasmic proteins of one species are unlike those of any other species. The more closely related two species are, the greater the similarity of their proteins. From comparative studies of proteins from a great number of species it has been possible to construct a family tree which is in essential agreement with one constructed from studies of comparative morphology.

Experimental Evidence. Evolutions is such a slow process that during the few centuries of recorder observations man has noted only a few evolutionary changes in wild species. In domesticated animals and plants numerous mutations have been noted, and as a consequence man has directed the development of many varieties of horses, dogs, pigeons, sweet peas, snapdragons, chrysanthemums, sequence of gene mutations and chromosomal alterations, do occur. The Accumulations of such variations could in time lead to the development of new species.

Література:

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ОСОБЛИВОСТІ ПРОВЕДЕННЯ ЗАНЯТЬ З ФІЗИЧНОГО ВИХОВАННЯ В АГРАРНОМУ УНІВЕРСИТЕТІ

Анотація в статті розкрито особливістю підготовки студентів аграрного університету, залучення їх до здорового способу життя, мотивація щодо професійної діяльності в контексті забезпечення здоров'я людини через застосування здоров'язберезувальних технологій в аграрній галузі.

Ключові слова: аграрні заклади вищої освіти, фізичне виховання, професійна діяльність, здоров'я людини, здоров'язберезувальна діяльність викладачів фізичного виховання, здоров'язберезувальних технологій

Професійну підготовку фахівців аграрної галузі в Україні здійснюють у закладах вищої освіти, серед них особливе місце займають аграрні заклади вищої освіти, які випускають фахівців аграрного профілю, головними завданнями яких є підготовка кваліфікованих кадрів з високим рівнем сформованості фахових знань, умінь і навичок, творчого мислення, життєвих цінностей. Саме професійні кваліфікаційні вимоги щодо випускників аграрних закладів вищої освіти визначаються галузевими стандартами вищої освіти України як перелік умінь і навичок розв'язання завдань професійної діяльності [5, с. 5].

Аграрна освіта завжди орієнтується на товаровиробника, саме тому при дослідженні проблеми аграрної освіти приділяється значна увага щодо потреби у фахівцях певних напрямів і спеціальностей, вимоги до змісту освітніх програм, знань і умінь конкретних фахівців, їх практичної підготовленості до виконання посадових обов'язків [6].