

FROM THE HISTORY OF ECOLOGY (NOTE I)**NEACȘU Petre, CIOBOIU Olivia**

Abstract. Ecology, during its development, knew many stages, starting with the empirical stage and ending with its establishment as a science. In the present work, we will deal with the stage of accumulation of unwritten data and the stage of the first written registrations of natural phenomena.

Keywords: history, ecological phenomenon, social life, ecological stage.

Rezumat. Din istoricul ecologiei (Nota I). Ecologia, în dezvoltarea sa, a trecut prin mai multe etape; de la etapa acumulărilor empirice până la etapa constituirii ecologiei ca știință. În nota de față vom trata etapa acumulărilor datelor nescrise și etapa primelor înregistrări scrise despre unele fenomene naturale.

Cuvinte cheie: istoric, fenomen ecologic, viață socială, etapă ecologică.

The development of ecology is closely linked to the needs of human economy, starting with the identification of food sources to knowledge about the influence of the greenhouse effect and ozone layer upon life on the Earth. During its evolution, ecology underwent the following stages:

- the stage of the accumulation of unwritten empirical data during the primitive commune;
- the stage of the first written registrations of ecological data, which includes the slavery epoch, the Middle Ages and the Renaissance (the end of the 17th century);
- the stage of the development of certain ecology chapters in the works from other scientific fields (the 18th – 19th centuries);
- the stage of the appearance of ecology as a science (the beginning of the 19th century).

In this work, we shall analyse the first two stages.

The stage of the accumulation of unwritten empirical data that belongs to the primitive commune. It is the longest stage, when people orally transmitted data about land cultivation, livestock, etc. The livelihood by means of hunting, fishing, gathering fruit, leaves, roots of wild plants was based on the acquisition of ecological knowledge as well.

Thus, in order to hunt an animal, the primitive people had to know what its habitat was, when it fed, what it ate, etc.; in order to pick up certain fruit, they had to know where the plant grew, when fruit became ripe, etc.

The stage of the first written registrations of ecological data includes the slavery epoch, the Middle Ages and the Renaissance (the end of the 17th century).

1500 BC Santorin volcano erupts (HEINRICH & HERGT, 1993).

610 – 546 BC Anaximander, a representative of the Milesian School, considers that the first animals appeared in the aquatic environment. Terrestrial animals come from aquatic animals as some of them left the sea and adapted to the new land conditions. The change of the living environment also brought to the change of the anatomic-physiological aspect. Anaximander made the first sundials and imagined the first geographic map of Ancient Greece (PÂRVU & ARDELEAN, 1996).

484 – 415 BC Herodotus of Halikarnis makes a plastic description of the populations from the Mediterranean, Caucasus and Scotland areas (LUCA, 1996).

460 – 375 BC, in the Ancient Greece, Hippocrates proves the role of environmental factors for human health (NEACȘU, 1974).

428 – 400 BC Anaxagoras, a Greek philosopher, born at Clazomene (Asia Minor), considers the world in a permanent movement. He issues the idea of the unity of the living world sustaining that plants and animals have common functions such as breathing (PÂRVU & ARDELEAN, 1996).

384 – 322 BC Aristotle makes a first ecological classification of animals (according to their behaviour, locomotion, living environment, etc.) (NEACȘU, 1974).

381 BC Aristotle makes the first observations regarding the influence of climate, soil and relief upon the distribution of plants (PĂTROESCU, 1996).

371 BC after studying plants, Theophrastus groups them in trees, shrubs, lianas and grass (NEACȘU, 1974).

135 – 51 BC Posidonius, a stoic savant, considers that peoples, as well as animal and plant populations, cannot thrive elsewhere but in their natural regions and, in new conditions, they lose their own characters and borrow those of the new environment (LUCA, 1996).

79 BC Vesuvius volcano erupts (HEINRICH & HERGT, 1993).

In the 1st century BC, Lucretius composed poems rendering knowledge about the agriculture in the Roman world of his times (NEACȘU, 1974).

In the 1st century AD, the biological fight is used in China for the first time; the lemon tree carnivorous ant (*Oecophylla murdina*) was used to fight against parasite insects of the mandarin tree (ELTON, 1946).

304 AD it appears the text *Plants and trees from the South* where it is described the sale of the lemon tree carnivorous ant in wicker baskets. This ant, bigger than the normal ant, does not harm the lemon tree but destroys the insects that attack the leaves of lemon and mandarin trees (ELTON, 1946).

1130, the biological fight against insects was systematically used in China for the first time. A document from this period indicates that small-sized insects provoked important damage to the mandarin and orange tree plantations in Canton province. The author of this document explains the fact that *there are numerous carnivorous ants that still live and contributed to the destruction of the pest*. These biological fight techniques were to be rediscovered in the Occident, much later (DELAGÉ, 1991).

1529, king Sigismund of Poland imposes measures meant to protect the beaver as it was excessively hunted (GÂRLEA, 1996).

1556 in China, there occurred an earthquake, which caused the death of more than 180,000 persons (CIOBOIU, 2005).

1558, O. Magnus describes the migration of the lemming from Norway (*Lemmus* sp.); he shows that these predators migrate from time to time in huge flocks, which once in the proximity of water bodies throw themselves and die (CIOBOIU, 2005).

1560, Gesner emphasizes the vertical zonation of the vegetation in the Alps (NEDELICU, 1996).

1561, Francis Bacon – an English savant and philosopher, glorifies the mankind kingdom that has to be made up of scientists. He is against scholastics and a partisan of experimental methods (BOTNARIUC, 1961).

In 1600, one species disappeared every year; in 1900 – 4 species per year; 1985 – 1,000 species per year; 2010 – 15,000 species per year (FILIPPO, 2011).

1627 the aurochs (*Bos primigenius*) disappears; it is the ancestor of all domestic cattle from Asia Minor, North Africa and Europe (NEACȘU, 1996).

1628 – 1703, John Ray, a diplomat from Oxford, is considered the greatest English naturalist before Charles Darwin. He recognizes the existence of a set and durable order in nature without rejecting the obvious achievements of change (BOTNARIUC, 1961).

1654 in Paris, it is published the work of the French traveller Jaques Gaffarel, entitled *The underground world*, which describes, from the historical and philosophical point of view, the most beautiful and rare grottoes of the Earth, caves, hollows, cellars, hidden corners and burrows, used by different animals and unknown peoples, precipices, gorges and wonderful cracks from the mountains, memorable holes and famous mines, underground cities, crypts, well-known fountains, water tanks and baths, in other words, the most famous and curious caverns and hollows (NEGREA, 1996).

1661 in London, it is presented the first written mention about the noxious consequences and the control measures against the contamination of the air with smoke, as well as certain proposed remedies, in Evelin's work – *Soot or the inconvenience of the air and smoke spread in London* (NEACȘU, 1996).

1664, John Evelin publishes the work *Silva* or treaty on the forest trees, where the rational management of forests is recommended (BOTNARIUC, 1961).

1665 in Amsterdam, it appears the work *Mundus subteraneus* written by the German Jesuit, Franciscan doctor Athanasus Kircher. In the two volumes, there are gathered all the legends and known facts about caves, including the ones mentioned by Gaffarel. Rare animals, fabulous or not, are described and drawn, most often with much fantasy (NEGREA, 1996).

1670, Menzel creates the term of *Plant Geography* (NEDELICU, 1996).

1671 the Danish king Christian the 2nd forbids the exploitation of forests from southern Denmark (GÂRLEA, 1996).

1672, in the work *De Draconum Carpathicorum cavernis*, there are mentioned caves from Romania with *dragon* bones, which, in fact, are bones of the cave bear (NEGREA, 1996).

1683 – 1757, Reaumur makes observations referring to the role of certain abiotic factors upon organisms (BOTNARIUC, 1961).

1686, a postmaster discovers in an intermittent karst spring located between Postojna and Ljubljana (former Yugoslavia), the first aquatic cave animal, a blind amphibian called **olm**, which will be described much later, in 1768, by Laurenti under the name *Proteus anguinus* (NEGREA, 1996).

CONCLUSIONS

In the ecological stage belonging to the primitive commune, humankind tried to ensure survival by knowing the food sources and the way of life of plants and animals, water sources and shelters, etc. The gathered knowledge is transmitted orally from one generation to the other.

The second stage of the ecological knowledge included the slavery epoch, the Middle Ages and the Renaissance (the end of the 17th century). It is the period when different persons deal with sciences, even certain ecological knowledge, emphasizing that plants, animals, certain physical, chemical and biological phenomena do not occur randomly, but are conditioned and modified positively or negatively during time. These studies were written down for future generations.

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