

**Victor Pop, Sr.  
(1903–1976)**



Victor Pop was born on April 24<sup>th</sup>, 1903 in Malutz, Cluj County, Romania. In 1925, he was appointed assistant at the Zoological Institute of the University of Cluj. In 1926, he graduated in natural sciences from the University of Cluj. He married Roza Graf in 1933 and produced two sons – Victor, Jr., and Emil. During 1939-1949, he was a teacher of natural science in high schools at Bistritza and Cluj. In 1945, he received his PhD degree from the University of Cluj. He rejoined the University of Cluj in 1946, as lecturer, then by degrees, professor at the Zoological Department (with lectures in the subjects of general biology, vertebrate zoology, histology and embryology); he also published several manuals on vertebrate zoology. In 1971, he receives the high title of Honoured University Professor, awarded by the State Council of Romania. He retired in 1973 as a consulting professor and PhD supervisor. On May 1<sup>st</sup>, 1976 Victor Pop Sr. died from a heart attack.

Professor Victor Pop has been considered one of the most appreciated teachers of the Cluj university city. He devoted himself to youth-teaching vocation and to nature protection activities. In parallel with the teaching activity, Prof. Victor Pop carried out a lifetime research on oligochaete worms, mainly on earthworms and, at the end of his life, on aquatic oligochaetes.

As a teacher and as a scientist, Victor Pop was a very careful author, trying to deal with and to explain biological phenomena in an as simple and understandable way as possible. Consequently, his lifetime contribution to the knowledge of oligochaete worms is concentrated in only 38 papers. However, many of them contain worthy data and ideas, belonging to taxonomic literature word wide cited. The inclination for synthetic thinking led him to act in the taxonomy of the worms as an almost extreme lumper zoologist.

The major part of Victor Pop's scientific activity was aimed at the study of earthworms in the family Lumbricidae (28 papers, of which 21 focused on faunistics and systematics, four on histology, and three on physiology). During the last 10 years of his life, Victor Pop worked mainly on aquatic oligochaetes (publishing nine faunistic and taxonomic papers).

In addition to his own large collection of oligochaetes from Romania, he studied the collections from the Natural History Museums from Budapest, and those collections of Prof. Wessely (Linz), Prof. P. Remy (Nancy), Prof. Racovitza (Speleological Institute in Cluj), and other smaller collections from Europe.

Victor Pop described several new species, lumbricids as well as aquatic oligochaetes, also contributing to the knowledge of their distribution in Romania, Hungary, Austria, France, Switzerland, and the Middle East.

The main contributions of Victor Pop to the knowledge of oligochaete worms are: (i) a reassessment of the variability of characters and a new ranking of their taxonomic significance in lumbricids; (ii) a new classification system for the lumbricids, (iii) an original hypothesis on the origin and geographical distribution of lumbricids; (iv) faunistics and description of many new taxa, (v) description of the ecological types of red pigmented earthworms that live and feed in the upper soil horizons, and the unpigmented or brownish deep-burrowing species that inhabit lower soil horizons; and (vi) faunistic and taxonomical studies on aquatic oligochaetes.

#### **VARIABILITY OF MORPHOLOGIC AND ANATOMIC CHARACTERS AND THEIR TAXONOMIC VALUE IN LUMBRICIDS**

Pop showed that characters vary between larger or smaller limits, and – as a rule – these variations are independent from each other. Taking into account their phylogenetic significance, Pop proposed the following ranking of their taxonomic value: (i) body pigmentation, (ii) setal distances, (iii) structure of the muscular body wall, (iv) position of clitellar organs, (v) body dimensions and segment number, (vi) type of prostomium, (vii) position of the first dorsal pore, (viii) presence or absence of glandular areas around male pores, (ix) genital markings with genital setae, (x) thickened anterior dissepiments, (xi) position and form of calciferous glands, (xii) number of seminal vesicles and spermatheca, (xiii) relative position of spermathecal pores versus setal lines, and (xiv) extent of gizzard. The first three are generic characters, which combine with the other species-specific characters in defining evolutionary lineages.

The numerical reduction of different male genital organs and/or the forward or backward shifting of their position, observed in different lineages, are considered by Pop as stages in their evolution, therefore not having generic discriminatory value. This is in accordance with the phylogenetic and taxonomic principle that all derivate descendants should be placed in the same unity with the ancestor. Pop (1941) introduced in the phylogeny of earthworms the concept of evolutionary series or lineages. The structure of the muscular body wall was used for the first time by Pop as a key character in establishing the evolutionary lineages.

#### **THE POP SYSTEM OF LUMBRICIDAE CLASSIFICATION**

Based on the above showed principles and ranking of characters, Pop modified the content of several genera of the former Rosa-Michaelsen classification, working out a new generic system of Lumbricidae family. For this, he changed the description of many taxa, put in synonymy, transferred and regrouped species in only seven genera considered as having morphological and phylogenetic unity.

Thus, he rejected the genera *Eophila* (*Helodrilus*) and *Bimastus* and transferred their species to *Allolobophora*, *Dendrobaena* and *Eisenia*, three rather heterogeneous but easy to determine genera. Changing their diagnoses, Pop regarded them as temporary, collective genera which include the closely related species presumed to derive from a common ancestor, regardless of the number of seminal vesicles they maintained during their evolution, or the changes in the number of spermatheca and the position of their pores to the setal lines.

The majority of earthworm scientists accepted Pop's system, entirely or partly, for a considerably long period. His 1941 work, «Zur Phylogenie und Systematik der Lumbriciden» is still considered as a milestone of the modern taxonomy of this group of earthworms. Støp Bovitz (1969:174) synthesized Pop's achievements as follows: «The system of Pop permits us to give much more clear generic diagnoses, without the many exceptions and reservations which Michaelsen little by little had to introduce. Even if some of the genera are still obviously polyphyletic (*Allolobophora*, *Eisenia*, *Dendrobaena*), the system of Pop enables us to see some evolutionary features which were formerly difficult to detect. It is therefore natural that recent authors have begun to adopt the classification proposed by Pop, which will also be used in this paper» .....«I find the system proposed by Pop more convincing, more simple and more lucid.»

This simple system was built up for the species described before 1941, but it can include many of the subsequently described species. Nevertheless, this system had its unavoidable shortcomings and in time became too narrow for the large number of newly described taxa. Pop had foreseen this and repeatedly affirmed that the collective genera have to be divided in smaller homogenous genera according to lineages, which exist or can be detected among them. Pop intended to develop the system and split the collective genera. But for this attempt he needed a careful examination of much more earthworm species, especially from the Western Europe and the Balkans. Unfortunately, World War II and the subsequent political policy of his country did not allow Pop to travel abroad to sample new material, or to study museum collections. This is why Pop was ethically forced to abandon the further study of the Lumbricidae family and turned his attention to the aquatic oligochaetes, incipiently researched in Romania in that time.

#### **ORIGIN AND GEOGRAPHICAL DISTRIBUTION OF THE LUMBRICIDS**

According to Pop's hypothesis (1941, 1948), lumbricids originate from aquatic ancestors adapted to terrestrial life along the vast area of the Alpin-Carpatho-Himalayan mountain system, and not in a few restricted cradles as proposed by Michaelsen. The great majority of endemic species are confined to mountain regions, which suggests that lumbricids originate at high altitudes; evolutionary lineages with wider ecological valences conquer afterwards hilly and plain regions.

The object of Pop's works on faunistics, descriptions of new species, revision of the genus *Eiseniella*, studies on the muscular body wall, and on the calciferous glands and biochemistry of earthworms, and the results of these studies, were published in numerous papers; citations for those publications are presented in the Bibliography, below.

#### **STUDIES ON AQUATIC OLGOCHAETA**

In order to compile a volume on oligochaete fauna of Romania, Pop carried out faunistic researches on the families Aeolosomatidae, Branchiobdellidae, Criodrilidae, Enchytraeidae, Haplotaxidae, Lumbriculidae, Lumbricidae, Naididae, and Tubificidae. He described several new species of Naididae and Tubificidae and published a revision of the Branchiobdellidae family. Unfortunately his sudden death left his manuscript unfinished. After a long period, this material has been organized; the present author (Victor Pop, Jr.) will finish the volume on the Oligochaeta of Romanian Fauna.

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