

Foreword

This article by Maupas (1900) is interesting for two reasons. First, it describes and names *Caenorhabditis elegans* as a new species – which then got much fame after it was chosen by Sydney Brenner in the late 1960s to become a model system in biology. Second, this study is of historical interest for the biological questions it addresses, namely the diversity and evolution of modes of reproduction.

The introduction (pp. 1-14) reviews previous work on modes of reproduction in nematodes, emphasizing that there has been a lack of recognition and acceptance of the hermaphroditic and parthenogenetic modes of reproduction in described species.

The article continues with a short method section on worm culture (pp. 14-16). This leads to an apology of nematodes as elementary research subjects to study biological questions regarding complex organisms, ciliates being the choice for studies of cellular phenomena (Maupas is actually best known for his work on ciliates).

The main part of the article (pp. 16-130) is then divided into 18 sections, each corresponding to a nematode species, either hermaphroditic or parthenogenetic. Because most of the species had not been described previously, most sections start with a precise species description that conforms to a constant scheme. Each section then continues with observations and experiments on the lifecycle, mode of reproduction, frequency of males, mating of males with hermaphrodites and successful propagation of selfing lines for several generations. The first and most detailed section concerns *C. elegans*. It is clear that it already constituted for Maupas a favorite species among nematodes.

The discussion (pp. 131-165) is divided into 16 subsections (their titles are given in the table of contents at the end), which place Maupas' observations in a broader context, for example by establishing a clear distinction between germ line and somatic sex determination or the equivalence of male and female gamete nuclei. It is a great piece to read.

The plate legends are on pp. 170-174, and the plates on pp. 175-185.

The table of contents is at the end, on p. 186.

Notes:

- *Rhabditis* is used here as genus name rather than *Caenorhabditis*, which came later (Osche, 1952). The definition of genera is somewhat arbitrary. Even now, *Caenorhabditis* is a subgenus name, one among many in the *Rhabditis* genus, and *C. elegans* should formally be called *Rhabditis (Caenorhabditis) elegans*.
- In zoological nomenclature, the name of the author who first describes a species is placed after the species name, as a reference. "mihi" after the new species' names refers to Maupas ("mine" in Latin).
- Maupas then lived in Algiers, Algeria (at that time under French administration). Bône is today called Annaba, in the Northeast of Algeria.
- The word "evolution" was used at that time to mean "development". For the sake of clarity for modern readers, I translated it as "development" when appropriate.
- "Lateral membranes" are alae.
- "Encysted" larvae are dauer larvae. Maupas had published the previous year (1899) an article on molts and dauers in nematodes, where the first historical mention of *R. elegans* is made.
- Although Maupas is clearly a great observer, I have some doubt on one point: the way he interprets degenerate oocytes/embryos that are laid by the mother as a definitive indicator of the absence of sperm in one or both gonadal arms of the mother (with consequences on the interpretation of crosses and of dissogony).

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