Results from some fifty studies on post-embryonic growth and variability were used to compare oesophageal length, stylet length and body width in relation to body length during development and maturation.

Oesophageal length follows closely body length; growth in volume of the median bulb depends on the widening of the female. The position of the median bulb determines the maximal stylet length and, to some extent also, the development of the median bulb.

Between the Criconematoidea and the Tylenchoidea some differences were noticed in stylet structure (constant shaft length in Criconematoidea), in stylet length (more dependent on body length in Criconematoidea), in body shape during growth (during the later stage of the post-embryonic period Criconematids show an increase in the "a"-value and Tylenchids show a decrease in the "a"-value), in body shape during maturation (Criconematids with large annules and no lateral field become longer and relatively thinner, Tylenchids with lateral field become less long and relatively thicker). A lateral field is needed to realize in every circumstance a close contact between body wall and egg so that the somatic musculature can help with egg-laying. When in older females the elasticity of the lateral field (and of the rest of the cuticle) diminishes, eggs have to develop within their mother's body; this process is known as endotokia matricida.

To know more about the basic morphology in Nematodes I started some research on changes in morphometrics during post-embryonic growth. Some fifty studies on post-embryonic growth and variability (see Table I) were used to discover prevailing growth patterns in the Tylenchida (in other articles the remaining Nematodes will be treated). The growth patterns that are reported here concern the changes in body shape (for which length is compared to width) and oesophagus length (compared to body length). The measurements that were found in the literature (Table I) were, if necessary, transformed so that I obtained numbers representing the mean of each juvenile (or larval) stage for body length, oesophagus length, stylet length and body width. Because of these transformations the measurements that were obtained and figured in the diagrams (Figs. 1-9) are mathematically not always quite correct; these measurements represent only approximations of the real (unknown) values. Moreover, in a few cases, the authors who studied the post-embryonic growth referred to another publication for the adult measurements. For these reasons the measurements for most species, taken each one in particular, are not always that reliable. Fortunately several related species could be compared so that conclusions have never to be based on results from only one or two species.
Table I

Studies on post-embryonic growth and variability in Tylenchida, used in this work

<table>
<thead>
<tr>
<th>Species</th>
<th>Author</th>
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<tbody>
<tr>
<td><em>Aphelenchus avenae</em> Bastian, 1865</td>
<td>Fisher (1970)</td>
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<td></td>
<td>Goodey &amp; Hooper (1965)</td>
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<td></td>
<td>Hechler (1962)</td>
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<td>Jairajpuri (1968)</td>
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<td>Kline (1976)</td>
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<td><em>Ditylenchus destructor</em> Thorne, 1945</td>
<td>Geraert (1968)</td>
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<tr>
<td><em>D. dipsaci</em> (Kühn, 1857) Filipjev, 1936</td>
<td>Wu (1960)</td>
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<tr>
<td><em>D. myceliophagus</em> J. B. Goodey, 1958</td>
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<td><em>Helicotylenchus multicinctus</em> (Cobb, 1893)</td>
<td>Geraert (1968)</td>
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<td>Barracough &amp; Blackith (1962)</td>
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<td>Geraert (1968)</td>
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<td>Cayrol &amp; Legay (1967)</td>
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<td></td>
<td>Zuckerman &amp; Strich-Harari (1964)</td>
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<td><em>H. vulgaris</em> Yuen, 1964</td>
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<td><em>Hemrivicrenemoides chitwoodi</em> Esser, 1960</td>
<td>Fassuliotis (1962)</td>
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<td><em>Hemivicyclpobora arenaria</em> Raski, 1958</td>
<td>Van Gundy (1958)</td>
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<td>*H. engiemia Khan &amp; Basir, 1963</td>
<td>Khan &amp; Basir (1965)</td>
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<tr>
<td>*H. zuekermani Brzeski, 1963</td>
<td>Brzeski &amp; Zuckerman (1965)</td>
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<td><em>Heterodera sajani</em> Koshy, 1967</td>
<td>Koshy &amp; Sarup (1971)</td>
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<td><em>H. carotae</em> Jones, 1950</td>
<td>Ambrogioni (1971)</td>
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<td>*H. schabtii Schmidt, 1871</td>
<td>Raski (1950)</td>
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<td><em>Hirschmanniella oryzae</em> (van Breda de Haan, 1902)</td>
<td>Mathur &amp; Prasad (1974)</td>
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<td>Gupta &amp; Atwal (1971)</td>
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<td></td>
<td>Seshadri (1965); Raski (1952)</td>
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<td>Thomas (1959)</td>
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<td>Hirschmann &amp; Triantaphyllou (1973)</td>
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<td><em>Macroposthonia xenoplax</em> (Raski, 1952)</td>
<td>Norgren, Zuckerman &amp; MacDonald (1968); Clark (1967) Franklin (1959)</td>
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<td>de Grisse &amp; Loof, 1965</td>
<td>Fisher (1965)</td>
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<td><em>Meloidogyne</em> nasi Franklin, 1965</td>
<td>Hechler (1962)</td>
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<td><em>Nacobbus serendipiticus</em> Franklin, 1959</td>
<td>Dasgupta &amp; Raski (1968)</td>
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<td><em>Paratylenchus nanus</em> Cobb, 1923</td>
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<td><em>P. projectus</em> Jenkins, 1956</td>
<td>Hechler &amp; Taylor (1966)</td>
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<td><em>Jair. &amp; S., 1969</em></td>
<td>Sivakumar &amp; Seshadri (1972)</td>
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<td><em>Radopholus similis</em> Cobb, 1893 Thorne, 1949</td>
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<td><em>Seinura celeris</em> Hechler &amp; Taylor, 1966</td>
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<td><em>S. demani</em> (Goodey, 1928) J. B. Goodey, 1960</td>
<td>Hechler &amp; Taylor (1966)</td>
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<td><em>S. steineri</em> Hechler &amp; Taylor, 1966</td>
<td>Hechler (1963)</td>
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<td><em>T. dubius</em> (Bütschli, 1873) Filipjev, 1936</td>
<td>Sharma (1971)</td>
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<td><em>Tylenchulus semipenetrans</em> Cobb, 1913</td>
<td>Van Gundy (1958)</td>
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