

FREELIVING NEMATODES

BY

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The obtained results are of special value because all habitats are well defined regarding locality, ecological factors and other faunistic elements. Though undoubtedly the species found are representing only a certain sector of the total nematode fauna inhabiting the Tanganyika lake, the yield of these investigations is of highest value not only as to taxonomy but also with regard to ecology and zoogeography of African freshwater nematodes.

Samples and habitats.

No. (1)	Date of sample taken	Locality	Species found
33	23.XII.1946	Edith-Bay, from the river, the small pond and the rocks of the cape	1 ♀ <i>Actinolaimus schuurmans-stekhoveni</i> n. sp.
103	3.II.1947	1 km from the beach between Albertville and Camp Jaques	1 ♀ <i>Trilobus graciloides</i> aff. DADAY, 1 ♀ <i>Dorylaimus stagnalis</i> DUJARDIN, 2 ♀♀, 1 ♂ <i>Metactinolaimus leloupi</i> n. g. n. sp.
—	12.II.1947	Tembwe pond	1 ♀ <i>Plectus samesii</i> MICOLETZKY, 1 ♀ <i>Monachromadora monhysteroides</i> W. SCHNEIDER, 1 ♀, 1 ♂ <i>Actinolaimus tenuis</i> W. SCHNEIDER
121	14.II.1947	Edith-Bay, tower of the bay.	1 ♀ <i>Actinolaimus taylori</i> n. sp.

No. (1)	Date of sample taken	Locality	Species found
—	16.II.1947	Karema, Ifume-river	1 ♀, 4 ♂♂, 7 juv. <i>Actinolaimus straeleni</i> n. sp., 1 ♀ <i>Actinolaimus tenuis</i> var. <i>brevicaudatus</i> W. SCHNEIDER
—	27.III.1947	Mpulungu, swamp at the bay	1 ♀ <i>Dorylaimus acris</i> THORNE
—	3.IV.1947	Mwerazi-river, from the waterfall	2 ♀♀ <i>Monhystera mwerazii</i> n. sp.
—	9.IV.1947	Rumonge, Mtossi river	1 ♀ <i>Dorylaimus stagnalis</i> DUJARDIN
260	24.IV.1947	Bangwe, border of the pond between Kigoma and Ujiji	1 ♀ <i>Mononchus allgéni</i> n. sp., 4 ♀♀ <i>Dorylaimus flavomaculatus</i> v. LINSTOW, 3 ♀♀, 2 ♂♂ <i>Actinolaimus tenuis</i> W. SCHNEIDER
—	10.V.1947	Bottom of Burton-Bay	1 ♀ <i>Actinolaimus omer-cooperi</i> aff. FILIPJEV
507	22.VI.1947	Katana, Fomulac-parc, boggy entrance of harbour	41 ♀♀, 25 ♂♂, 60 juv. <i>Chrysonema luetichau</i> n. sp.
508	22.VI.1947	Mayuza, 5 km south of Katana, thermal spring	1 ♀, 1 juv. <i>Chrysonema luetichau</i> n. sp., 3 ♀♀, 2 ♂♂, 2 juv. <i>Dorylaimus conurus</i> THORNE
—	17.VII.1947	Camp Jaques, swamp	1 ♀, 1 ♂, 1 juv. <i>Actinolaimus tenuis</i> W. SCHNEIDER
340	14.VIII.1947	Kibumbu river	14 ♀♀, 28 ♀, 13 ♂♂, 15 ♂, 105 juv. <i>Actinolaimus straeleni</i> n. sp., 109 ♀♀, 26 ♀, 52 ♂♂, 21 ♂, 260 juv. <i>Actinolaimus tenuis</i> W. SCHNEIDER
—	16.VIII.1947	Kioko Nyumbah, boggy pond	1 ♂, 2 juv. <i>Actinolaimus straeleni</i> n. sp.
—	17.VIII.1947	Kioko Nyumbah, boggy pond	2 ♀♀, 3 juv. <i>Ironus macramphis</i> SCHUURMANS STEKHOVEN and TEUNISSEN, 3 ♂♂, 17 juv. <i>Actinolaimus straeleni</i> n. sp.
345	17.VIII.1947	Boggy pond at Kioko Nymbah, called « Lüdjingi »	15 ♀♀, 18 ♂♂, 20 ♂, 61 juv. <i>Actinolaimus straeleni</i> n. sp.
—	23.XI.1947	Lambo Kilela, thermal spring	1 ♂ <i>Dorylaimus stagnalis</i> DUJARDIN

(1) The numbers, if indicated, refer to : LELOUP, E., 1949, *Exploration Hydrobiologique du lac Tanganyika (1946-1947). Résultats scientifiques. Relevé des stations*, vol. II, fasc. 1.

CLASSIFICATION OF THE FOUND SPECIES.

- Subclass **APHASMIDIA** CHITWOOD and CHITWOOD, 1933.
Order **CHROMADORIDA** CHITWOOD, 1933.
Suborder **MONHYSTERINA** (FILIPJEV, 1929), CHITWOOD and CHITWOOD, 1937.
Superfamily **PLECTOIDEA** CHITWOOD and CHITWOOD, 1937.
Family **PLECTIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **PLECTUS** BASTIAN, 1865.
Plectus sambesii MICOLETZKY, 1916.
- Superfamily **MONHYSTEROIDEA** CHITWOOD and CHITWOOD, 1937.
Family **MONHYSTERIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **MONHYSTERA** BASTIAN, 1865.
Monhyстера mwerazii n. sp.
- Suborder **CHROMADORINAE** (FILIPJEV, 1929), CHITWOOD and CHITWOOD, 1937.
Superfamily **CHROMADOROIDEA** CHITWOOD and CHITWOOD, 1937.
Family **CYATHOLAIMIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **MONACHROMADORA** W. SCHNEIDER, 1937.
Monachromadora monhysteroides W. SCHNEIDER, 1937.
- Order **ENOPLIDA** CHITWOOD, 1933.
Suborder **ENOPLINA** CHITWOOD and CHITWOOD, 1937.
Superfamily **ENOPLOIDEA** CHITWOOD and CHITWOOD, 1937.
Family **IRONIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **IRONUS** BASTIAN, 1865.
Ironus macramphis SCHUURMANS STEKHOVEN and TEUNISSEN, 1938.
- Superfamily **TRIPYLOIDEA** CHITWOOD and CHITWOOD, 1937.
Family **TRIPYLIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **TRILOBUS** BASTIAN, 1865.
Trilobus graciloides aff. DADAY, 1916.
- Family **MONONCHIDAE** CHITWOOD and CHITWOOD, 1937.
Genus **MONONCHUS** BASTIAN, 1865.
Mononchus allgéni n. sp.
- Suborder **DORYLAIMINA** (CHITWOOD, 1933), CHITWOOD and CHITWOOD, 1937.
Superfamily **DORYLAIMOIDEA** THORNE, 1934.
Family **DORYLAIMIDAE** DE MAN, 1876.
Subfamily **DORYLAIMINAE** FILIPJEV, 1918.
Genus **CHRYSONEMA** THORNE, 1929.
Chrysonema luettichau n. sp.

Genus DORYLAIMUS DUJARDIN, 1845.

Dorylaimus acris THORNE, 1939.

Dorylaimus conurus THORNE, 1939.

Dorylaimus flavomaculatus VON LINSTOW, 1876.

Dorylaimus stagnalis DUJARDIN, 1845.

Subfamily **ACTINOLAIMINAE** THORNE, 1939.

Genus ACTINOLAIMUS COBB, 1913.

Actinolaimus omer-cooperi aff. FILIPJEV, 1931.

Actinolaimus schuurmans-stekhoveni n. sp.

Actinolaimus straeleni n. sp.

Actinolaimus taylori n. sp.

Actinolaimus tenuis W. SCHNEIDER, 1935.

Actinolaimus tenuis var. *brevicaudatus* W. SCHNEIDER, 1935.

Genus METACTINOLAIMUS n. g.

Metactinolaimus leloupi n. sp.

TAXONOMY AND ECOLOGY OF THE FOUND NEMATODES

Plectus sambesii MICOLETZKY, 1916.

(Plate I, Fig. 1, 2.)

1 ♀ : L = 0,468 mm; a = 20,0; b = 4,0; c = 6,5; V = 43,9 %.

This species seems to be closely related to *Plectus rhizophilus* DE MAN, 1880, differing from it in the more posterior located amphids and in the slightly longer mouth cavity. Since the single female found corresponds exactly with the descriptions by H. MICOLETZKY, 1916 (pp. 157-158, t. III, fig. 4, a-b) and L. A. DE CONINCK, 1935 (pp. 257-259, figs. 8-10) I do not hesitate to identify my specimen with *P. sambesii*.

Locality. — Tembwe pond, 12.II.1947 together with *Monachromadora monhysteroides* W. SCHNEIDER, 1937 and *Actinolaimus tenuis* W. SCHNEIDER, 1935.

This species is already known from the Sambesi-falls and from thermal springs, Belgian Congo. All *Plectus*-species are probably feeding on bacteria and small protozoans. They occur in soil as well as in fresh-water sites.

Monhystera mwerazii n. sp.

(Plate I, Fig. 3, 4.)

♀ (type) : L = 0,56 mm; a = 31,0; b = 4,3; c = 5,1; V = 67,0 %.

Type locality. — Mwerazi river, from the waterfall.

♀ (paratype) : L = 0,53 mm; a = 24,0; b = 4,0; c = 5,3; V = 68,0 %.

Not without doubt this *Monhystera* is quoted as a new species. Since we do not know very much about the variability of the common diagnostic characters within that genus, — such as absolute length, relative measurements, length of cephalic bristles, location of amphids and vulva, — it must remain uncertain if all hitherto described species can be considered as valid ones. Those difficulties are increased by the frequent lack of males with this genus

and the scarcely prominent characters of the females. A revision of *Monhystera* will become a hard work because of the lacking exactness of former descriptions and figures. Studies on an extensive and homogenous material of the closely related genus *Theristus* gave evidence to the fact that the variability within this group must be greater than we usually believe.

Body evenly tapering in front so that the lip width at level of cephalic setae is 65 % of the body diameter at the end of the esophagus. From the level of the cardia the body width is increasing to the greatest body diameter in the middle, there measuring $2\frac{1}{2}$ times the width of the lip region. At level of the vulva the body is only somewhat less broad than at the cardia and the anal width occupies only the diameter of the lip region. Cuticle with its outer layer smooth, the inner layer rather coarsely striated, especially on the tail. Series of submedian rather long setae are scattered from the head end to the tail. Head rounded, lips amalgamated, lip-papillae obscure. The head is armed with ten setae, the longer ones reaching almost half the corresponding width. Walls of vestibule not cuticularized. The circular amphids are located at a distance of $1\frac{1}{3}$ lip widths posterior to the front end. The diameter of the amphids is about $\frac{1}{3}$ the corresponding body width. Esophagus without peculiarities, almost cylindrical, slightly swollen at its end, there measuring 57 % of the body width. Cardia heart-shaped. Gonad outstretched, posterior branch absent, without a rudimentary receptacle seminis. Intestine light with few brownish granules, rectum short. Tail uniformly tapering to the slightly swollen end, which is about 35 % the anal body diameter broad. The tip is formed by a short excretory tube being in connection with the tail glands. No eggs and sperms observed.

Diagnosis. — A species of the genus *Monhystera* BASTIAN, 1865, most closely related to *M. agilis* DE MAN, 1880, but differing in (1) absolute length (0,9-1,2 mm against 0,5-0,6), (2) length of cephalic setae (3) shape of tail (*M. agilis* possesses no swollen tail end). Also closely related to *M. villosa* BÜTSCHLI, 1873, with the following differences: (1) absolute length, (2) position of vulva, (3) width of amphids, (4) length of cephalic setae.

Locality. — See type-locality.

Monhystera-species feed on bacteria and diatomeae and are living in soil as well as in freshwater and marine habitats.

***Monachromadora monhysteroides* W. SCHNEIDER, 1937.**

(Plate I, Fig. 5, 6.)

1 ♀ : L=0,325 mm; a=20,0; b=6,6; c=3,2; V=51,2 %.

Though there is only a single female available belonging beyond doubt to the peculiar genus *Monachromadora* and probably to the species *monhysteroides*, I found some differences regarding the type-description by

W. SCHNEIDER (1937, p. 69, figs. 18, *a-c*). Head at level of dorsal tooth $6,5\mu$ broad that is 38% of the body width at the end of the esophagus. Lips could not be observed but very minute papillae seem to be present. The mouth cavity resembles that of the type, but in addition to the dorsal and subventral small teeth in front, another most delicate toothlike projection arises midway the parallel walled mouth cavity on the subdorsal side. Also by use of the highest oil immersion objective no amphid-like structure could be observed. The cuticle is absolutely smooth and lateral fields seem to be absent. Besides the mentioned third tooth my specimen differs in the structure of the bulb, since rather small but well differentiated valves could be seen which are absent with the type of W. SCHNEIDER. Finally the esophagus is shorter in the original specimen ($b=6,6$ against $5-5,9$); therefore the bulb of my female found occupies almost one fourth of the entire neck length.

Locality. — Tembwe pond, 12.II.1947.

Monachromadora monhysteroides is new for Africa. W. SCHNEIDER found the original form in Sumatra and Java (Indonesia) from freshwater sites.

***Ironus macramphis* SCHUURMANS STEKHOVEN and TEUNISSEN, 1938.**

(Plate II, Fig. 7, 8, 9.)

♀ ♀ : L = 1,8-2,2 mm; a = 73-78; b = 5,0-5,6; c = 9,0-9,4; V = 46,7-47,7 % (n=3); Egg = 130 μ ; 20 μ .

The original diagnosis by J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN (1938, pp. 96-97, fig. 52, *a-e*) is based on the width of the amphid opening (55% of the corresp. diameter) and on the teeth being stronger developed than commonly. Though I am rather doubtful if those differences are of such great a value to separate that form from most closely related known species (which have been certainly confused by many authors due to the apparently great variability of the tail-length!), I made up my mind to identify the females found with *Ironus macramphis*. The found specimens seem to be at least identical with J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN's form. Unfortunately these authors did not figure the shape of the tail. With my specimens the latter differs from *Ironus ignavus* and other closely related species in being uniformly conical to $\frac{3}{4}$ of its total length (see fig. 9). Its relative length occupies 13-14 times the anal body diameter. Gonad paired and reflexed ($G_1 = 13-15\%$, $G_2 = 13-14\%$ of total body length), nerve ring at 35%, amphid 62% of corresponding width. Lip region to body width at end of esophagus = 1 : 2,5.

Locality. — Kioko Nyumba, boggy pond, 17.VIII.1947.

I. macramphis was found by J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN in forest soil from the National Parc Albert. *Ironus*-species prefer habitats of high moisture and their food-habits are probably carnivorous.

***Trilobus graciloides* aff. DADAY, 1910.**

(Plate I, Fig. 10; Plate II, Fig. 11.)

1 ♀ : L=1,39 mm; a=31,5; b=5,0; c=9,5; V=49,0 %; G₁ and G₂ = 15 %.

Since it is not absolutely certain that the single female found really belongs to the species *T. graciloides*, some figures may be given and the most important characters quoted.

Cuticle minutely annulated but lacking longitudinal striae; with series of fine sublateral setae beginning at level of amphids to almost end of tail. The proper tip of the tail without setae. Head bearing ten short cephalic setae, the longer ones measuring about one fourth of the body width at that region. Amphids pocket-like, small, located at the end of the buccale capsule. The latter with heavily cuticularized walls. The location of the small teeth of the postbuccal pockets is typical and corresponds with I. N. FILIPJEV's figure of that species (1931, p. 433, fig. 1, a-d). The specimen found differs, however, from the type in (1) possessing obvious sublateral series of setae (J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN, 1938, p. 77 indicate in their fig. 40 c that those setae are present!) and in (2) the slightly other shape of the tail (the posterior part of the tail with the type species is more or less flagellum-like). Nevertheless there seems to be no good reason to deny the identity with *Trilobus graciloides* E. DADAY, 1910.

Locality. — 1 km from the coast between Albertville and Camp Jaques among *Dorylaimus stagnalis* and *Metactinolaimus leloupi*.

Trilobus graciloides was originally found by E. DADAY in East-Africa, then by I. N. FILIPJEV (1931) in Abyssinian freshwater sites. W. SCHNEIDER (1935) described it from the Sudan (supplement, p. 18), J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN (1938) from the National Albert Parc and recently C. ALLGÉN (1952) from Teleki Tarn (British East Africa). It seems to be as widespread in Africa as *T. gracilis* BASTIAN, 1865 in Europe. *Trilobus*-species are predacious nematodes.

***Mononchus (Mononchus) allgénii* n. sp.**? Syn. *Mononchus* sp. ALLGÉN, 1933.

(Plate II, Fig. 12, 13, 14.)

1 ♀ (type) : L=2,02 mm; a=38,8; b=5,3; c=12,9; V=54,9 %.

Type locality. — Bangwe, border of the pond between Kigoma and Ujiji.

C. ALLGÉN described 1933 (p. 312, fig. 1) a juvenile *Mononchus* sp. from sedge roots near Boma (Congo district) which seems to be identical with the adult female of sample No. 260 (see type locality), though the very meagre description of that author and the lack of a figure of the specimen's head makes

the identification somewhat doubtful. On the other hand the proportions of the mouth cavity as given by ALLGÉN and the shape of the tail of both species are similar.

Body only slightly tapering in front. Lip-width occupying exactly one half of the greatest body diameter. Cuticle absolutely smooth. Lips not so prominent as in other related species, offset by a faint depression. Mouth cavity three times as long as broad with moderately cuticularized walls. The big dorsal tooth is arising at the end of the anterior third of the mouth cavity. In addition to this dorsal tooth two very small and blunt subdorsal projections are located almost on the bottom of the mouth cavity. Amphid at level of the tip of the big dorsal tooth. Esophagus without peculiarities, the nerve ring at about 30%. Rectum $1\frac{1}{2}$ anal body diameter long. Gonad paired, symmetrical ($G_1 = 14,4\%$, $G_2 = 13,8\%$), each branch to about 50-60% reflexed. Egg = $117\mu : 39\mu$. The anterior $\frac{2}{3}$ of the tail is uniformly tapering, the last $\frac{1}{3}$ cylindrical. End of tail with excretory pore located in the middle of the rounded end of the tail. Glands in tandem-position. The whole tail measures 5 anal body widths.

Diagnosis. — *Mononchus allgéni* n. sp. is closely related to *M. radiatus* COBB, 1917, but differing from that species in the longer tail ($c = 12,9$ against $c = 20$ of a juvenile specimen. Young long-tailed nematodes, however, always possess longer tails than adults). Also related to *M. teres* COBB, 1917, but with differences in the shape of the mouth cavity and length of tail.

Locality. — See type locality. Sample No. 260, among *Dorylaimus flavomaculatus* VON LINSTOW, 1876 and *Actinolaimus tenuis* W. SCHNEIDER, 1935.

M. allgéni might be considered as a genuine African species.

The specific name is given in honour of Dr. C. ALLGÉN, Eslöv, Sweden, who found that most closely related *Mononchus* sp. All *Mononchus*-species are predacious, feeding mostly on small nematodes.

Chrysonema luettichau n. sp.

(Plate II, Fig. 15; Plate III, Fig. 16, 17, 18, 19, 21, 22; Plate IV, Fig. 20.)

♀ ♀ ($n=20$): $L=3,0-3,5$ mm; $a=67-86$; $b=6,5-8,0$; $c=21,0-29$; $V=32-40\%$.

Type ♀. — $L=3,14$ mm; $a=73,3$; $b=6,7$; $c=21,0$; $V=38,1\%$; $G_1=13,6\%$; $G_2=15,0\%$; Egg = $100 : 26\mu$.

Type locality. — Katana, Fomulac Garden, swampy soil near harbour entrance. Sample No. 507.

♂ ♂ ($n=15$): $L=2,7-3,2$ mm; $a=68-82$; $b=6,3-7,3$; $c=140-175$.

Type ♂. — $L=2,99$ mm; $a=71,8$; $b=6,6$; $c=164,3$; 21 supplements.

Type locality. — See type ♀.

Body tapering uniformly in front, the lip width at level of inner circlet of head papillae being $\frac{1}{3}$ as broad as the body diameter at the end of the esophagus. Body widest at vulva. Cuticle very thin without longitudinal striae (at both sides of the lateral field the delicate marks of eight muscular attachments can be observed) but bearing extremely delicate transverse striae especially at level of spear. Head continuous with neck contour, lips being even in front not conspicuous. Inner circlet of cephalic papillae closely approximated to the outer circlet. A circular muscle ring surrounds the entrance to the vestibule widening the pharynx to a well visible space reaching to the double guiding ring. Amphids stirrup-shaped with their sensilla-pouches directly posterior to them. Amphid-apertures being one half as broad as the lip width at level of inner circlet of head papillae. Spear in both sexes 21-22 μ long i.e. about 1.5 times the lip region width, its aperture occupying scarcely more than $\frac{1}{3}$ of total length (36-37 %). The spear is $\frac{1}{4}$ of the lip width broad and possesses a double guiding ring. Spear extensions about the length from head end to the end of the spear (retracted), surrounded by spindle-shaped muscle-bundle which is offset from the esophagus proper by a deep constriction. Esophagus in its anterior half moderately wide, at its beginning about 10 μ broad, expanding to 15-16 μ only at level of nerve ring (encircling the esophagus at 26-28 % of total esophageal length from head end) narrowed to 11 μ . Posterior to the nerve ring the esophagus widens to about 20 μ . There is no distinctive point where the proper expansion begins but at about 53-55 % of total length a break in the musculature and a thickening in the lining of the esophageal tube. The last third of the esophagus is almost uniformly thick (30 μ). Cardia heart-shaped, slightly longer than broad. The intestine is filled with golden coloured granules. Female gonads approximately symmetrical, opposed, and mostly to 40 % reflexed. The posterior branch is always a little longer than the anterior one. Vulva transverse. All adult females contained sperms. Eggs 92-109 μ : 26-30 μ , no more than 2 eggs in the uterus. Prerectum distinctly offset from intestine, 5.2 to 6.2 times as long as the rectum. The latter occupying twice the anal body diameter. Female tail 6-7 anal widths long, uniformly tapering to the rounded end. A little posterior to the anal opening two papillae are located. Male similar to female in structure of head and neck. Testes paired, opposed. With several specimens the anterior branch was found reflexed to 1.3 % total body length. Sperms spindle-shaped, 10-11 μ long. Male tail bearing 20-22 ventromedian, contiguous, flattish supplements, the series beginning at about two spicula lengths anterior to anal opening. 12-14 subventral papillae are present, 3 between adanal pair of papillae and beginning of supplement series, 5-6 in height of supplements, the others located almost on to the end of the prerectum, which is 13 anal body widths (=10 corresponding body diameters) long. The extension of the supplement series occupies about 95-100 μ . Spicules slender, arcuate, 40-44 μ long with very short and delicate lateral guiding pieces. Male tail bluntly conoid to hemispherically rounded with six rather obvious postanal papillae.

Diagnosis. — A new species of the genus *Chrysonema* THORNE, 1929, with the above mentioned characters, differing from *Chr. aurum* THORNE, 1929, in (1) shape of tail, (2) total length, (3) structure of spear, (4) sexuality (*Chr. aurum* seems to be a parthenogenetic form). From *Chr. thorni* FILIPJEV, 1931, in (1) length, (2) amphid, (3) male supplements, (4) shape of tail, from *Chr. abyssinica* FILIPJEV, 1931, in (1) total length, (2) length and shape of esophagus (b=12,3), (3) structure of spear, etc.

Locality. — (1) see type locality, (2) Mayuza, 5 km south of Katana, thermal springs.

Species of this genus have been reported from soil about roots of alpine plants, Colorado, U.S.A., by G. THORNE (1929) and from freshwater sites in Abyssinia by I. N. FILIPJEV (1931). Probably *Chrysonema*-species are feeding on plant roots or algae, perhaps on diatomeans, what might be concluded from the golden coloured contents of the intestine. It also seems that this genus is widespread in Africa though it will not be restricted to that continent.

The specific name is given in honor of my best friend CHARLES VICTOR VON LUETTICHAU, M. A., Alexandria (Va.), U.S.A.

***Dorylaimus acris* THORNE, 1939.**

(Plate III, Fig. 23; Plate IV, Fig. 24.)

1 ♀ : L=1,79 mm; a=34,0; b=4,9; c=5,6; V=^{15,5} 46,0¹⁴.

Though only a single specimen was found there is no doubt that it belongs to THORNE's species *D. acris* (1939, p. 30, Pl. III, fig. 15). The lip region measures almost $\frac{1}{2}$ of the body width at the end of the esophagus and the lips are completely amalgamated. The head is set off from the neck by a slight depression. Amphids $\frac{1}{2}$ of the lip width, cup-shaped. Spear 1,5 lip widths long and $\frac{1}{4}$ as broad, its aperture 40 % of the total spear length, with a double guiding ring. Rectum 1,5 anal body diameters, prerectum 2 rectum-lengths long. Tail typical: in its anterior $\frac{1}{8}$ conical, then more uniformly tapering to the filiform end. Esophagus near 50 % gradually expanded. Cardia 1,5 times longer than broad. Eggs twice their width long. No sperms observed.

Locality. — Mpulunga, swamp near the bay.

This species was hitherto found only by G. THORNE (1939) near the edge of the Bread Run-river, Leesburg, Virginia, U.S.A. It is new for Africa. Food habits unknown, probably feeding on plant roots and algae.

***Dorylaimus conurus* THORNE, 1939.**

(Plate IV, Fig. 25, 26, 27.)

♀ ♀ (n=3) : L=1,66-1,87 mm; a=40-45; b=4,4-4,9; c=6,3-6,6; V=45 %; G₁=15-17 %; G₂=16-20 %.

♀ ♀ (n=2) : L=1,4, 1,6 mm; a=40; b=4,0; c=78.

The specimens found correspond in all details with G. THORNE's type (1939, p. 29, Pl. II, figs. 12-12 b) except for the length of the female tail which is somewhat shorter with G. THORNE's specimens from Potomac River, U.S.A. As to the difference of « c » ♂ (78 against 125) the relative length of the male tail of the Tanganyika specimens occupies about $\frac{2}{3}$ anal body diameters and the location of the postanal papillae is the same. There seems to be little doubt that also W. SCHNEIDER (1935, pp. 7-9, figures lacking) had found this species from the collection of P. A. CHAPPUIS, though he stated that the cuticle bears longitudinal striae which might have been confused with internal striae due to the muscle attachments. However, it was already suggested by W. SCHNEIDER himself that the extreme variability of the found specimens indicates several varieties. Only the study of the spear-structure, length of prerectum and rectum supplies good diagnostic characters. Therefore I think it necessary to give an abbreviated description of the Tanganyika specimens :

Cuticle smooth. Lip region twice as high as broad, set off by slight depression and occupying $\frac{1}{4}$ of the width of body at level of cardia. Cephalic papillae moderately prominent. Amphid-aperture half of the lip width broad. Spear twice the lip region width long and $\frac{1}{4}$ as broad, the aperture being a bit more than $\frac{1}{3}$ (35 %) of the total spear length. Gonads paired and reflexed. Rectum two anal body diameters long, prerectum twice the rectum length. Esophagus widened by gradual expansion posterior to 50 %. Female tail uniformly tapering to the end which is pointed. Male with 23-24 flat supplements, partly adjacent, partly spaced, the series beginning about 1,5 spicula lengths posterior to anal opening. 10-11 submedian papillae present. Spicules 40 μ long, with small lateral guiding pieces. Six postanal papillae present.

Locality. — Mayuza, 5 km south of Katana, thermal spring, among *Chrysonema luettichau* n. sp.

D. conurus was originally reported by G. THORNE from mud of the riverside, Potomac River, Washington D.C., U.S.A. This species is new for Africa. Food habits like those of the preceding species.

***Dorylaimus flavomaculatus* VON LINSTOW, 1876.**

(Plate IV, Fig. 28, 29, 30, 31.)

♀♀ (n=4) : L=1,69-2,04 mm; a=56,0-62,8; b=4,3-4,8; c=13,6-16,2; V=45,1-47,7 %.

This species is distinctive because of the four yellow spindle-shaped bodies being located around the spear extensions. Due to the preservation in 4 % formalin the colour has been extracted but the spindles could still be clearly observed.

Body very slender, lip region width $\frac{1}{3}$ of body diameter at level of cardia. Female tail rather uniformly tapering to the filiform end which is not sharply

pointed with these Tanganyika specimens. Cuticle smooth, apparently also without the most delicate transverse striae. Lateral field $\frac{1}{4}$ of the corresponding body diameter. Lip region almost continuous with neck contour, lips obscure, corresponding exactly with the figure by G. THORNE and H. H. SWANGER (1936, p. 59, Pl. XII). Spear 1,5 times the lip width long and about $\frac{1}{6}$ as broad, the aperture being $\frac{1}{3}$ of the total spear-length. Guiding ring with the Tanganyika specimens rather delicate, often appearing as if only being simple. Amphids somewhat more anterior than usual, at level of the very slight depression of the lip region, occupying with its opening 60 % of the lip width. The spindle shaped bodies are about as long as the spear. Esophagus at 30-32 % of its total length surrounded by the nerve ring, at 54-56 % gradually expanded to about $\frac{2}{3}$ of the corresponding diameter. Cardia glandular and uncommonly long, its length being equal to one body width. Intestine filled with yellow granules, the single cells being very distinctive. Prerectum 1,75-2,0 rectum-lengths, rectum 1,75-2 anal body diameters long. The prerectum is clearly offset from the intestine. Gonad paired, reflexed ($G_1=12-13$ %, $G_2=13-14$ %), eggs 85-100 μ : 21 μ .

Locality. — Bangwe, border of the pond between Kigoma and Ujiji, among *Mononchus allgèni* mihi and *Actinolaimus tenuis* W. SCHNEIDER, 1935.

D. flavomaculatus is a widespread freshwater species which had been several times reported not only from Europe but also from Africa : H. MICOLETZKY (1916, pp. 167-168), South-Africa; I. N. FILIPJEV (1931, p. 436), Abyssinia; W. SCHNEIDER (1935, p. 19), Western French Africa.

Dorylaimus stagnalis DUJARDIN, 1845.

1 ♀ : L=2,82 mm; a=48,2; b=4,8; c=6,8; V=^{13,5} 44,2 ^{14,7}.

1 ♂ : L = 4,3 mm; a = 31,8; b = 4,3; c = 84,1.

Both specimens, found at different sites, correspond well with the detailed description by G. THORNE and H. H. SWANGER (1936, pp. 40-42). The male found possessed 39 preanal supplements and 32 submedian papillae.

Localities. — The single young female was found in sample No. 103 (1 km from the coast between Albertville and Camp Jaques) among *Trilobus graciloides* aff. DADAY, 1910 and *Metactinolaimus leloupi* mihi. The one male came from a thermal spring near Lambo Kilela.

D. stagnalis is known from all continents and was also often reported from Africa, for example recently by the author of this paper (MEYL, 1955, p. 136) from the psammon of the Tanganyika-lake. Food habits probably predacious.

Dorylaimus stagnalis aff. DUJARDIN, 1845.

(Plate V, Fig. 32.)

1 ♀ : L=3,47 mm; a=47,7; b=6,3; c=6,0; V=36,6 %.

Since only a single female was found, I hesitate to describe a new species, the specimen being most closely related to *D. stagnalis*. On the other hand the latter species is one of the widest-spread and most frequent forms which according to the various descriptions might be characterized by an uncommon great range of variability. Before natural variability is not cleared up thoroughly, one should principally stick to G. THORNE and H. H. SWANGER's neotype-description (1936, pp. 40-42) of specimens from the Potomac River, Washington, D.C. I am convinced that a remarkable part of the numerous *D. stagnalis* found does not really belong to that species.

Body shape like that of the type. Cuticle with 32 wings. Lips offset by slight depression. Amphid-opening $\frac{2}{3}$ (66 %) of the lip width broad. Spear 2,5 times as long and $\frac{1}{4}$ as broad as lip region diameter. Spear aperture exactly 36 %. Cuticle at level of spear aperture almost as thick as spear width. Esophagus at about 43 % gradually expanded, nerve-ring at 26 %. Cardia as long as broad. Prerectum 9 times the length of rectum, the latter occupying 1,25 anal body diameters. Tail long, (580 μ = 18 anal widths), uniformly tapering to the flagellum-like end. Gonads almost symmetrical, the anterior branch somewhat longer. Egg : 98 : 39 μ , only one present in G₂.

Locality. — Rumonge, river Mtossi. No other species within the sample.

Actinolaimus omer-cooperi aff. FILIPJEV, 1931.

(Plate V, Fig. 33.)

1 juv. ♀ : L=3,23 mm; a=68,1; b=4,8; c=14,5; V= ?.

Only a single young female of this interesting species was found in the collection. Therefore I am not quite sure about its specific identity. Because of the following characteristics, however, it was considered as most closely related.

Cuticle smooth [as indicated by I. N. FILIPJEV (1931, p. 439) in his original description]. Lip region continuous with neck contour. Amphid-opening smaller than usually, i.e. about 30 % of the lip width (after I. N. FILIPJEV $\frac{2}{7}$!). Spear 1,6 lip region diameters long and almost $\frac{1}{6}$ as broad, the aperture occupying about 30 % (against 25 % after G. THORNE, 1939, p. 76). Rectum 1,5 anal widths long, prerectum 4,8 times rectum length. Esophagus at 42 % gradually expanded. Tail rather uniformly tapering to the filiform end.

Unfortunately only this single specimens from the entire material could be thought identical to I. N. FILIPJEV's species, though as to the spear structure

and to the cuticle important diagnostic details should have been reviewed. Neither W. SCHNEIDER (1935, p. 14) nor J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN (1938, pp. 134-135) had given details regarding those characters. Moreover the specimens found by J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN certainly do not belong to *A. omer-cooperi* (see the following species!).

Locality. — Burton Bay, on the bottom of the lake. No other species in this sample.

Actinolaims must be considered as predacious nematodes feeding mainly on other nemas and small animals.

***Actinolaimus schuurmans-stekhoveni* n. sp.**

Syn. : *A. omer-cooperi* FILIPJEV of SCHUURMANS STEKHOVEN and TEUNISSEN, 1938.

(Plate V, Fig. 34.)

1 ♀ : L=2,04 mm; a=35,0; b=4,0; c=11,7; V=^{18,4}45,9^{22,5}.

A comparison between I. N. FILIPJEV's original description and figure of *A. omer-cooperi* (1931, p. 439, figs. 4, a-b) and the specimen found by J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN (1938, pp. 134-135, figs. 75, A-C) gives evidence that there exist many essential differences. I recently stated this fact (1955, p. 138) and consider it necessary to give the specimen from the Albert Parc a new name. The latter species differs from that of I. N. FILIPJEV in (1) cuticular structure (I. N. FILIPJEV states on p. 439 « cuticle smooth » whereas the refound *Actinolaimus* bears « 25-30 longitudinal winglike striae »), (2) in the shape of the head (*A. omer-cooperi*'s head is continuous with neck contour if observed in a position that one amphid can be seen in total), whereas the specimens compared with being likewise drawn, however, have the head clearly set off by a slight constriction or at least deep depression), (3) in the width of amphid-aperture (after I. N. FILIPJEV 28 % of lip region, diameter, the figure 75 A by J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN shows such one of about 37 %), (4) in the distinctiveness of lip papillae (being obscure with I. N. FILIPJEV's species and rather prominent with the specimens compared). As to the structure of the spear neither I. N. FILIPJEV nor J. H. SCHUURMANS STEKHOVEN and R. J. H. TEUNISSEN stated exactly the length of its opening.

The single female found at locality No. 33 seems to be identical with the type of the National Albert Parc, because it bears on the cuticle 24 longitudinal striae, possesses a spear of about 1,2 lip region diameters with an aperture of $\frac{2}{5}$ of the spear length and having the head offset by a slight constriction. The amphid aperture occupies 33 % of the lip width, the onchia seem to be blunter than usual and the rectum is 1,5 anal body diameters long and the prerectum reaches to four rectum lengths. The esophagus is gradually expanded at about 50 %, surrounded by the nerve-ring at 30 %. The lateral field of the cuticle measures 30 % of the corresponding body width and bears delicate transverse striae. Tail uniformly attenuated, seven anal diameters long.

Locality. — Edith Bay, from the small pond, no other species observed.

The specimens found by the above mentioned authors came from forest-soil on Mount Sesero, Belgian Congo.

The specific name is given in honour of Prof. Dr. J. H. SCHUURMANS STEKHOVEN, Deventer, the Netherlands.

***Actinolaimus straeleni* n. sp.**

(Plate V, Fig. 36, 37, 38; Plate VI, Fig. 35, 39, 40, 41; Plate VII, Fig. 42.)

♀♀ (n=20) : L=4,1-5,5 mm; a=65-80; b=5,0-5,8; c=16-20; V=24-30 %.

Type ♀ : L=5,02 mm; a=70,0; b=5,6; c=20,0; V=26,9 %; G₁=7,4 %, G₂=42,3 %.

Type locality. — River Kibumbu, sample No. 340.

♂♂ (n=30) : L=2,4-4,6 mm; a=55-70; b=4-5; c=145-208.

Type ♂ : L=4,13 mm; a=60,0; b=5,0; c=173,7; supplements : 7-8-6.

Type locality. — See type ♀.

Body slender, in both sexes from the cardia to the beginning of the pre-rectum almost cylindrical. Lip width about half the body diameter in carida-region. Cuticle up to 5 μ thick, delicately transverse striated and bearing 24 longitudinal striae reaching from spear-end to almost tail-end. Lateral field $\frac{1}{5}$ of corresponding body width. Cuticle with many pores which often end on the surface of the cuticle as papillae-like elevations, being irregularly scattered from the neck to the tail. Head almost continuous with neck contour, the trilobed lips with their inconspicuous papillae are in no way prominent. Vestibule corrugated pharynx with heavily cuticularized walls and the usual sharp and forward pointing four onchia. Spear gliding in a double guiding ring. Spear itself massive, $1\frac{1}{2}$ lip region diameters long and $\frac{1}{5}$ as broad, its aperture occupying exactly $\frac{1}{2}$ the total spear-length. Amphids stirrup-shaped, their slit-like openings 40 % of the lip width, being located slightly posterior to the tips of the onchia. The esophagus proper is distinctly set off from the weakly muscular tissue which surrounds the heavily cuticularized spear-extensions. The esophagus begins with a relatively narrow tube of 43 % of the corresponding diameter (=75 % of lip width), is narrowing at level of nerve-ring (which encircles the esophagus at about 25-27 % of the total esophageal length from head end) to 30 % of corresponding body diameter and is expanding from that point gradually to 60 % of body width at cardia-region. From somewhat anterior 50 % of esophageal length (44-45 %) the proper expansion takes place which is, however, in no way distinctive. Shortly anterior to this expansion (marked by a lent-like thickening of the lining) a great nucleus is located. The cardia is twice as long as broad without peculiarities. The female pre-rectum measures

5-6 times the rectum length and is obviously set off from the intestine. The rectum is 1,8-2 anal body widths long. Female gonad paired, the anterior branch very short (5-8 % of entire body length), reflexed, serving as a receptacle seminis. The posterior branch is extremely long (30-43 % body length), reflexed to about 50 %. Vulva transverse, vagina extending to $\frac{2}{3}$ the corresponding body width. Eggs: 65-85 μ : 30-38 μ , several females having up to 40 eggs in G₂. Female tail attenuated to the flagellum-like end. Slightly posterior to the anal opening two papillae are located. Male in structure of head and neck similar to female. The testes begin at 30 % of the body length from head end. The copulatory apparatus is rather complicated, resembling somewhat that of *A. radiatus* COBB, 1913. The supplements proper consist of three fascicles, the most anterior being reduced, possessing within the cuticle-elevation only two or three delicate innervations. The other both groups are compound of several adjacent papillae with marked innervations. With 30 specimens the average number of those papillae was in the first (closest to anal opening) bundle 6,4 (5-8) and in the second 7,4 (6-9). Between both the non-reduced groups further 7-13 (mostly 8-9) cone-shaped, ventromedian supplements are located. This is the most distinctive character of this new species. In addition to these fascicles and connecting papillae several series of auxiliary papillae are arranged from the anus to the beginning of the prerectum. Anterior to the adanal pair a subventral series of 7-10 papillae are arising on both sides of the ventromedian line: three to four pairs between the adanal pair and first fascicle, two or three on both sides on the first and second group and mostly one or two at level of the third, reduced group. A second series is arranged submedian, consisting of 14-16 rather stout papillae from midway anus and first group to beginning of the prerectum. Both series, the subventral and the submedian ones are continued to the tail, where they appear as postanal papillae. 7-8 subdorsal, prominent and rather uniformly spaced papillae are located from about tail-end to one corresponding body diameter posterior to the « reduced group ». The bluntly conoid tail is bearing in lateral view 10-12 postanal papillae, all being very prominent. The 70-78 μ long, slender, arcuate spicules have 19 μ long, small, lateral guiding pieces, the anterior half of which is narrowed ending in a blunt tip.

Diagnosis. — A species of the genus *Actinolaimus* COBB, 1913, closely related to *A. radiatus* COBB, 1913, but differing in (1) arrangement of supplements, (2) aperture of the spear, (3) structure of esophagus, etc. Also related to *A. africanus* FILIPJEV, 1929, but differing among others in (1) cuticular structure and (2) arrangement of supplements (after C. ALLGÉN, 1933).

Localities. — Karema, river Ifume. Kibumbu-river (sample No. 340). Kioko-Nyumba, boggy pond. The same location but sample No. 345.

The specific name is given in honour of Prof. Dr. V. VAN STRAELEN, Honorary Director of the Royal Institute of Natural Science of Belgium.

Actinolaimus taylori n. sp.

(Plate V, Fig. 43.)

1 ♀ (juv.) (type) : L=3,729 mm; a=32,0; b=4,0; c=13,5; V=43,8 %.

Type locality. — Sample No. 121, Edith Bay, near tower of the bay.

Body widest at vulva, tapering in front and behind. Lip width about $\frac{1}{4}$ of the body diameter at level of the end of the esophagus. Cuticle thick, with many pores and about 32 longitudinal striae which disappear midway neck and near the anus. Lip region not interfering neck contour. Lip papillae a bit more prominent than in other related species. Amphid-aperture slit-like, $\frac{1}{3}$ of corresponding body diameter, sensillae located directly at the base of the stirrup-shaped amphid. Vestibule corrugated, pharynx with heavily cuticularized walls and armed with four forward pointing onchia. Guiding ring double, massive. Spear extremely long, occupying exactly 2,6 lip widths, its aperture 38 % of its total length. The base of the spear is $\frac{1}{4}$ as broad as the lip region. Esophagus expanded gradually at about 50 % of its length to 1,5 times the width at height of body anterior to nerve-ring. The latter surrounds the esophagus at 28 % total esophageal length from head-end. Cardia $1\frac{1}{4}$ as long as broad, heart-shaped. The gonad was not yet developed with this specimen, but it seemed to be paired. Prerectum 3 times the length of the rectum which is about 2 anal body diameters long. Tail uniformly attenuated to the pointed end.

Diagnosis. — Species of the genus *Actinolaimus* COBB, 1913, differing from all other known species in the extremely long spear. The only species with a similar long spear is *A. michaelsoni* STEINER, 1916. The spear length of that form is only two lip region diameters and the pharynx is much less cuticularized.

The specific name is given in honour of Prof. Dr. A. L. TAYLOR, principal nematologist in charge, Beltsville, U.S.A.

Actinolaimus tenuis W. SCHNEIDER, 1935.

(Plate VI, Fig. 44; Plate VII, Fig. 45, 46, 47; Plate VIII, Fig. 48.)

♀ ♀ (n=20) : L=2,6-3,0 mm; a=54-64; b=5,1-5,8; c=12-14; V=38-45 %; G₁=11-16 %; G₂=20-27 %; Egg : 60-84 : 27-32 μ.

♂ ♂ (n=10) : L=2,1-2,6 mm; a=55-66; b=4,0-4,7; c=115-147.

I believe that I have refound W. SCHNEIDER's species *A. tenuis* though the author's meagre description does not permit a final decision. W. SCHNEIDER (1935, pp. 14-15) stated that in comparison to *A. omer-cooperi* FILIPJEV, his adult females are smaller, but this difference does not seem to be great enough. The spear of his species is only measuring 21 μ in length but W. SCHNEIDER did not indicate its proportion to the width of the lip region. I found the spear being

1,5 times longer than the lip diameter at level of papillae, which is similar to *A. omer-cooperi*. However, differences exist in (1) spear-aperture (*A. omer-cooperi* after FILIPJEV about $\frac{1}{4}$ of the spear length, against 45-50 % with *A. tenuis* regarding the specimens found in this collection), (2) in the spear being somewhat more slender with the species compared, (3) in the width of the amphid-aperture which was not stated by W. SCHNEIDER (after THORNE in *A. omer-cooperi* $\frac{2}{7}$ and according to the figure by FILIPJEV 26% of the lip width, against 50% with my specimens), (4) in the prerectum-length of the female (*A. tenuis* mihi = 4-5 times the rectum length, *A. omer-cooperi* 6-7 times the rectum length). The cuticle is smooth. Nerve-ring at 30%. Esophagus near 50 % of its length expanded (gradually). Male testes begin at 30 % of total body length from head end. Male prerectum extends to seven corresponding body diameters from anus. Spicules 50-55 μ . Male supplementary organs in 3 fascicles, the most anterior being always rudimentary. The first group with 5-7 (generally 6), the second group with 6-7 (generally 6) innervated papillae. Between these fascicles or « groups » either none or one respectively seldom two single, small papillae are (irregularly spaced) located. 12-14 submedian papillae are present on both sides of the ventromedian line. Male tail rounded, not always uniformly shaped (from almost hemispherical to bluntly conoid), provided with 5-6 postanal, rather obscure papillae.

The probably related species *Actinolaimus frostae* ALLGÉN (1952, pp. 149-151) is so meagerly figured and insufficiently described, — especially the spear structure and the « peculiarities » of the pharynx, — that one could either take it for a synonym to *A. tenuis* W. SCHNEIDER or shift it to the « species inquirenda ». On the other hand, *A. tenuis* could be very closely related (if not identical) with *A. hutchinsoni* FILIPJEV, 1931. But I. N. FILIPJEV described the position of the vulva at 69 % and also G. THORNE (1939, p. 75) apparently approved of it. Nevertheless I. N. FILIPJEV stated in the text of his description : « The vulva is situated near the middle of the body » and according to the given key of a 1950 μ long female the vulva lies at 43,8 %.

Localities. — Tembwe pond. Bangwe, pond between Kigoma and Ujiji, sample No. 260. Camp Jaques, swamp. Kibumbu-river, sample No. 340.

***Actinolaimus tenuis* var. *brevicaudatus* W. SCHNEIDER, 1935.**

(Plate VII, Fig. 49.)

1 ♀ : L=2,83 mm; a=60,0; b=5,1; c=20,8; V=45,5 %; G₁ (with 4 eggs) =18,3 %; G₂ (with 8 eggs)=34,3 %; Egg : 52-78 μ : 32 μ .

As to this variety the validity seems to be doubtful. I have only found a single female in the collection which might correspond with W. SCHNEIDER's variety because that author stated that all other characteristics, — with the exception of the length of the tail, total length and relative width of the body, — correspond with *A. tenuis* W. SCHNEIDER, 1935.

Body slender, the width of the lip region occupies 40 % of the body diameter at level of cardia. Cuticle smooth without visible transverse striae or longitudinal wings. Lip region continuous with neck contour, vestibule corrugated. Amphid-opening 50 % of the lip-width. Spear 1,4 times as long and $\frac{1}{2}$ as broad as head diameter, its aperture being exactly 50 % of the total spear length. Onchia pointing forward with sharp tips. Esophagus at 28 % surrounded by the nerve-ring and at about 50 % gradually expanded. Cardia almost twice as long as broad, conical. Gonad paired, the anterior branch slightly longer than posterior one, both reflexed to about $\frac{3}{8}$ of their length. Vulva typical. Rectum $1\frac{1}{2}$ anal body diameters long, prerectum 6,5 rectum lengths. Tail uniformly tapering to the finely pointed end.

I am not quite sure whether this female found is only representing an extreme form within the range of the natural variability of *A. tenuis* W. SCHNEIDER or a valid species. With the exception of the tail-length (which might be broken and healed!) there is no real diagnostic feature in comparison with *A. tenuis* W. SCHNEIDER.

Locality. — Karema, Ifume-river.

METACTINOLAIMUS n.g.

For the genus *Actinolaimus* further division is without doubt necessary. This fact was already stated by G. THORNE (1939, p. 71). Unfortunately the descriptions are often lacking essential diagnostic dates such as cuticular structure, aperture of the spear, number and position of the subventral papillae. On the other hand highly variable dates such as absolute length of the body, length of female tail or even the number of the papillae within the supplement fascicles caused descriptions of new species. Though without doubt critical studies of literature alone are not appropriate for exact taxonomic work, there are at least three groups within the genus *Actinolaimus* for which new genera have to be erected.

1. Species which possess mural denticles in addition to the usual four onchia :

- A. filipjevi* W. SCHNEIDER, 1935,
- A. micoletzkyi* W. SCHNEIDER, 1935,
- A. microdentatus* THORNE, 1939,
- A. striatus* THORNE, 1939.

I propose for those species the new generic name

PARACTINOLAIMUS

the type species being *Paractinolaimus micoletzkyi* (W. SCHNEIDER) n. c.

2. Species without the usual large onchia but pharynx with cuticularized longitudinal ribs :

A. tobleri MENZEL and MICOLETZKY, 1925.

The new generic name

ACTINOLAIMOIDES

is proposed for these forms and the type species becoming therefore *Actinolaimoides tobleri* (MENZEL and MICOLETZKY, 1925) n. c.

3. Species possessing a cuticularized pharyngeal frame-work consisting of the amalgamated four onchia, in place of more or less forward pointing, sharp teeth (onchia).

For these forms the new genus

METACTINOLAIMUS

is erected, the type species thus becoming *Metactinolaimus kreisi* n. nov. n. c. (see the following description of *Metactinolaimus leloupi*!).

As we do not know the males of all other described *Actinolaimus*-species, it seems to be not appropriate to propose a further division into species with males possessing supplement fascicles and with males having a more or less continuous series of ventromedian papillae-like organs. The value of such a division is doubtful moreover, since apparently there are occurring intermediate forms.

***Metactinolaimus leloupi* n. sp.**

(Plate VII, Fig. 52; Plate VIII, Fig. 50, 51, 53, 54, 55.)

♀ ♀ (n=2) : L=1,8-2,0 mm; a=31-32; b=3,8-3,9; c=12,9-14,5; V=47,2-48,3 %.

♀ (type) : L=2,08 mm; a=32,0; b=3,8; c=14,5; V=48,3 %.

Type locality. — 1 km from the beach, between Albertville and Camp Jaques, sample No. 103.

♂ (type) : L=1,44 mm; a=23,1; b=2,9; c=74,0.

Type locality. — See ♀.

Body of both male and female moderately tapering in front, the lip width being about 35 % of the greatest body diameter or 38 % of the body width at the end of the esophagus. Cuticle smooth, apparently lacking transverse or longitudinal striae. Lateral field $\frac{1}{2}$ of the body diameter. Cuticle rather thick with lateral pores. Lips almost continuous with neck contour, set off by a very shallow depression. Lip-papillae rather obscure, arranged in the usual two

circlets. Amphid-apertures slitlike and half the lip width broad. Their sensillae located directly at the base of the shield-like organs. Mouth opening circular and corrugated. The walls of the pharynx and the vestibule are heavily cuticularized. In place of the usual large, four onchia the species shows a cuticularized ring-shaped frame-work, consisting of the amalgamated onchia, typically for the genus. Spear uncommonly short reaching only to 82 % (σ) resp. 60-66 % (φ) of the lip width. The aperture occupies 60-65 % of the spear length. The spear is $\frac{1}{5}$ - $\frac{1}{6}$ as broad as the diameter of the lip region. Guiding ring double. The spear extensions are surrounded by a spindle-like muscle-bundle which is well offset by a sharp constriction from the esophagus, and begins already at level of the guiding ring. Esophagus to 46 % of its total length (from head end) a moderately slender tube, — at 26 % crossed by the nerve-ring, — then gradually expanded to 2,5 times the original width but without forming a bulb. Cardia conical, hardly longer than broad. Intestine rather well tessellated. Female prerectum twice the rectum length, the latter almost 2 times the analwidth long. The female with two symmetrical ovaries of about 20 % of total body length long, generally reflexed to as much as $\frac{1}{10}$ of their length. Eggs 65-70 : 40 μ , 1-2 ripe eggs in each uterus. The two females found contained sperms. Female tail attenuated, 5-6 anal body diameters long with finely pointed end. The papillae located shortly posterior to the anal opening. Head and neck of the male are of the same structure as those of the female. Male gonad begins at 37 % of body length from head end. The sperms are spindle-shaped with longitudinal ridges, 8-10 μ long and about 2,5 μ thick. Male prerectum extends past supplements so that it occupies 4-5 times the body width. Three elevated, compound supplements are present, the anterior one being rudimentary without marked innervations. The other two ventromedian groups consist of 7-8 minute, contiguous papillae. On each side of those groups 2-3 subventral papillae without ampullae-like innervations can be observed. In addition to those subventral papillae still six almost submedian located papillae are present. They are irregularly arranged between the anal opening and the rudimentary fascicle. Spicules 58 μ long, gubernaculum lacking. Lateral guiding pieces obscure and very short. Male tail rounded to bluntly conoid, with five papillae.

Diagnosis. — Species of the genus *Metactinolaimus* n. g., differing from the most closely related species *M. kreisi* nom. nov. n. c. [= *Actinolaimus tripapillatus* KREIS, 1932, nec *Actinolaimus tripapillatus* (DADAY, 1905) STEINER, 1916], in (1) length of body (1,8-2,0 mm against 4-9 mm), (2) in the length of the spear (1,3 lip widths against 66-82 %), (3) in position of the vulva (23-35 against 48 %), etc.

The specific name is given in honour of Dr. E. LELOUP, Brussels, chief of the Tanganyika-Mission, 1946-1947.

As to *Actinolaimus tripapillatus* (DADAY, 1905) STEINER, 1916, it was recently stated by I. ANDRÁSSY (1954, p. 140), who reviewed the type material of DADAY that *Dorylaimus tripapillatus* DADAY, 1905, was the same species as *Actinolaimus*

radiatus COBB, 1913. The right name should be therefore: *Actinolaimus tri-papillatus* (DADAY, 1905) STEINER, 1916 (this species was transferred to the genus *Actinolaimus* by STEINER and not by MICOLETZKY, 1921, as I. ANDRÁSSY believes). On the other hand I am quite sure that the specimens found by H. A. KREIS from the Paraguayan Chaco (1932, pp. 87-89, figs. 11 A-K) which he thought identical with E. DADAY's *Actinolaimus*, have to be recognized as valid species. H. A. KREIS had found 102 specimens, of which 49 had been measured and investigated. There is no good reason to doubt the statements by H. A. KREIS.

RÉSUMÉ.

Dans les échantillons recueillis au cours de l'« Exploration Hydrobiologique du Lac Tanganika », expédition entreprise par l'Institut royal des Sciences naturelles de Belgique en 1946-1947, se trouvaient 962 individus (262 ♀♀, 180 ♂♂, 520 juv.), comprenant 10 genres, 17 espèces et une variété; 7 espèces sont nouvelles pour la science. Le genre *Actinolaimus* COBB a été divisé en 4 genres, c'est-à-dire en *Actinolaimus* COBB, 1913, *Paractinolaimus* n. g., *Actinolaimoides* n. g. et *Metactinolaimus* n. g.

Toutes les espèces appartiennent à la classe des *Aphasmidia* CHITWOOD, 1933. Ce fait est d'autant plus remarquable qu'il confirme l'hypothèse de B. G. CHITWOOD (1951, p. 617) que les Nématodes marins et dulcicoles font partie des *Aphasmidia* en raison de leur structure cuticulaire.

Des travaux sur la faune africaine ont déjà fait connaître la moitié des espèces trouvées. Seul, le genre *Monachromadora* W. SCHNEIDER connu exclusivement en Indonésie, est nouveau en Afrique. Les espèces les plus nombreuses sont de la super-famille des *Dorylaimoidea*. Le genre *Chrysonema* THORNE, qu'elle renferme, semble plus abondant que dans les autres continents.

C'est également le cas pour la sous-famille des *Actinolaiminae* THORNE, les découvertes faites en Afrique le prouvent. Ce groupe est très riche non seulement en espèces, mais aussi en individus.

Parmi les genres récoltés, dix (y compris *Dorylaimus stagnalis* DUJARDIN, 1845) sont carnivores probablement à cause du caractère limnétique de l'habitat.

On a toujours constaté que, par suite de nouvelles recherches, les espèces, trouvées dans un seul continent, occupent aussi d'autres continents. Le problème des genres et des espèces géographiquement restreints reste donc ouvert. Sans aucun doute, il y a des genres et des espèces indigènes. Mais il est difficile de dire, avant des études approfondies de la faune des Nématodes libres, quelles espèces sont autochtones, et lesquelles sont rares, malgré leur extension.

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-

EXPLANATION OF PLATE I

The figures on this plate are arranged in the following order:

Fig. 1. - *Alouatta palliata*, *Alouatta palliata*, *Alouatta palliata*.

Fig. 2. - *Alouatta palliata*.

Fig. 3. - *Alouatta palliata*, *Alouatta palliata*.

Fig. 4. - *Alouatta palliata*.

Fig. 5. - *Alouatta palliata*, *Alouatta palliata*, *Alouatta palliata*.

Fig. 6. - *Alouatta palliata*.

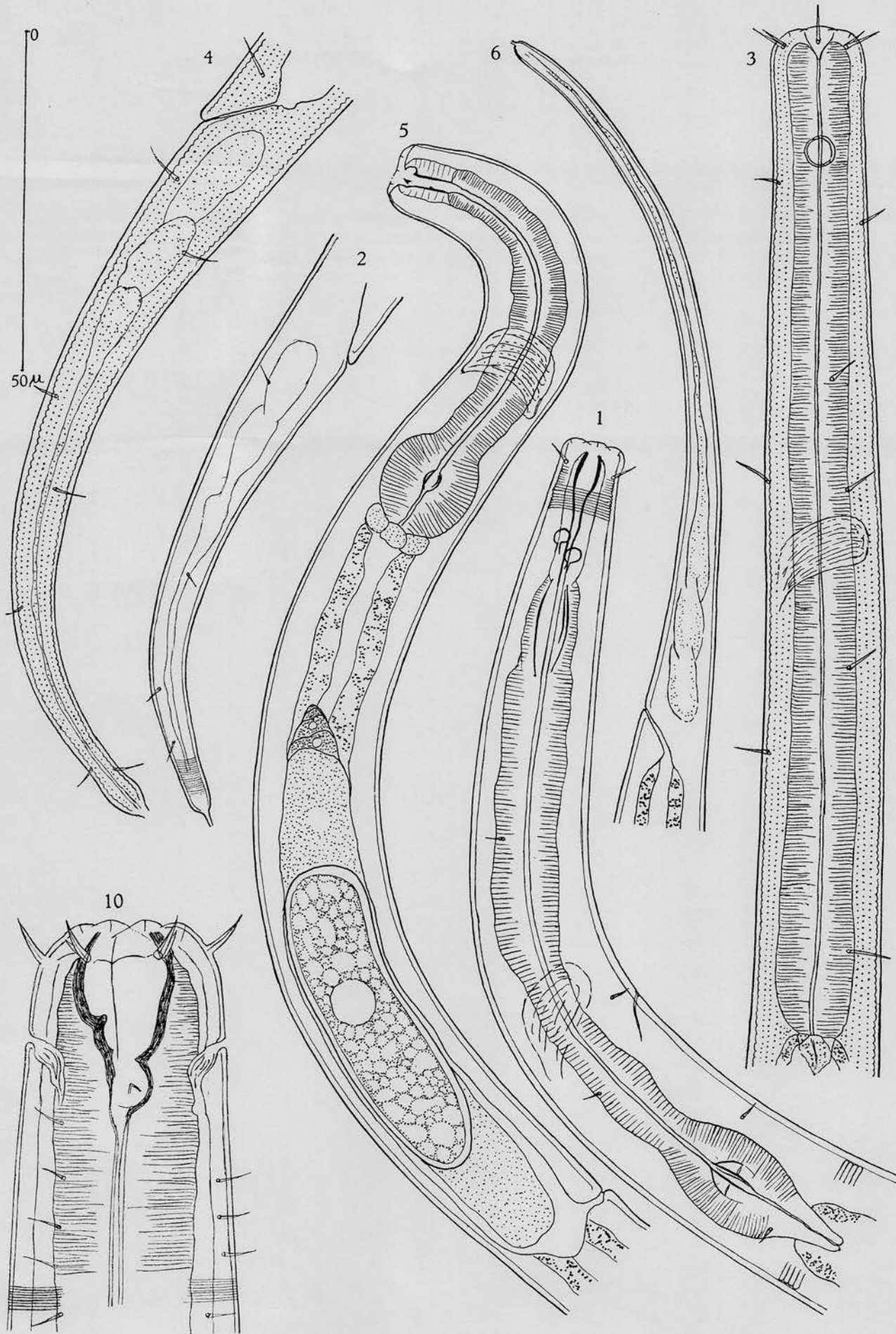
Fig. 7. - *Alouatta palliata*, *Alouatta palliata*.

PLATE I

EXPLANATION OF PLATE I.

(All figures drawn with the aid of the camera lucida.)

- FIG. 1. — *Plectus sambesii* MICOLETZKY : head and neck of ♀.
- FIG. 2. — Id. : ♀ tail.
- FIG. 3. — *Monhystera mwerazii* n. sp. : head and neck of ♀.
- FIG. 4. — Id. : ♀ tail.
- FIG. 5. — *Monachromadora monhysteroides* W. SCHNEIDER : anterior part of the ♀ body.
- FIG. 6. — Id. : ♀ tail.
- FIG. 10. — *Trilobus graciloides* aff. DADAY : ♀ head.
-



A. H. MEYL. — Freelifving Nematodes.

PLATE II

PLATE II

PLATE II

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PLATE II

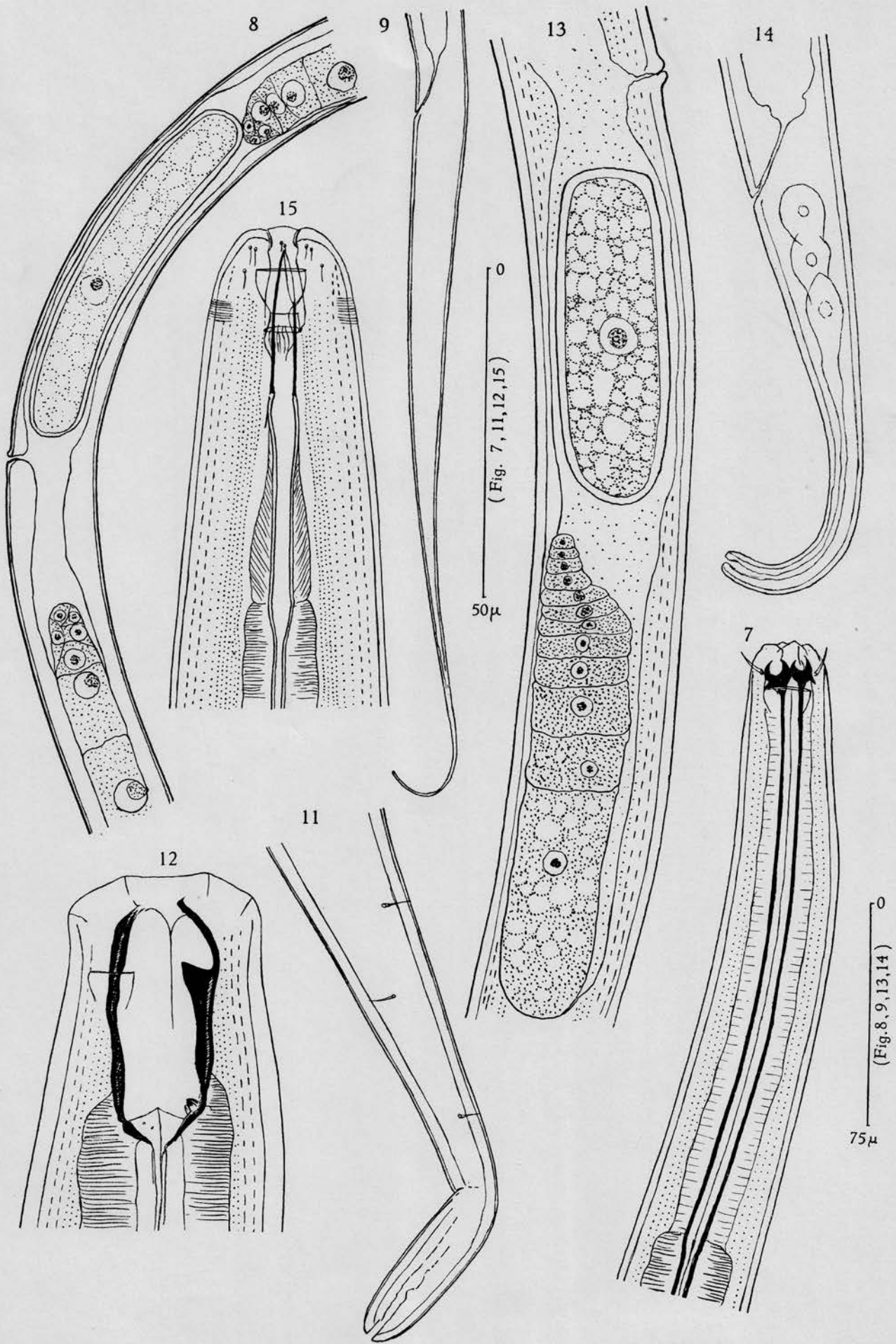
PLATE II

PLATE II

EXPLANATION OF PLATE II.

(All figures drawn with the aid of the camera lucida.)

- FIG. 7. — *Ironus macramphis* SCHUURMANS STEKHOVEN and TEUNISSEN : ♀ head and anterior part of the neck.
- FIG. 8. — Id. : region of the vulva and egg.
- FIG. 9. — Id. : ♀ tail.
- FIG. 11. — *Trilobus graciloides* aff. DADAY : ♀ tail-end.
- FIG. 12. — *Mononchus allgèni* n. sp. : ♀ head.
- FIG. 13. — Id. : posterior branch of the gonad with egg.
- FIG. 14. — Id. : ♀ tail.
- FIG. 15. — *Chrysonema luetichau* n. sp. : ♀ head to the end of the spear extensions.
-



A. H. MEYL. — Freelifving Nematodes.

PLATE III

PLATE III

EXPLANATION OF PLATE III.

(All figures drawn with the aid of the camera lucida.)

FIG. 16. — *Chrysonema luettichau* n. sp. : ♀ head and neck.

FIG. 17. — Id. : vulvular region and egg.

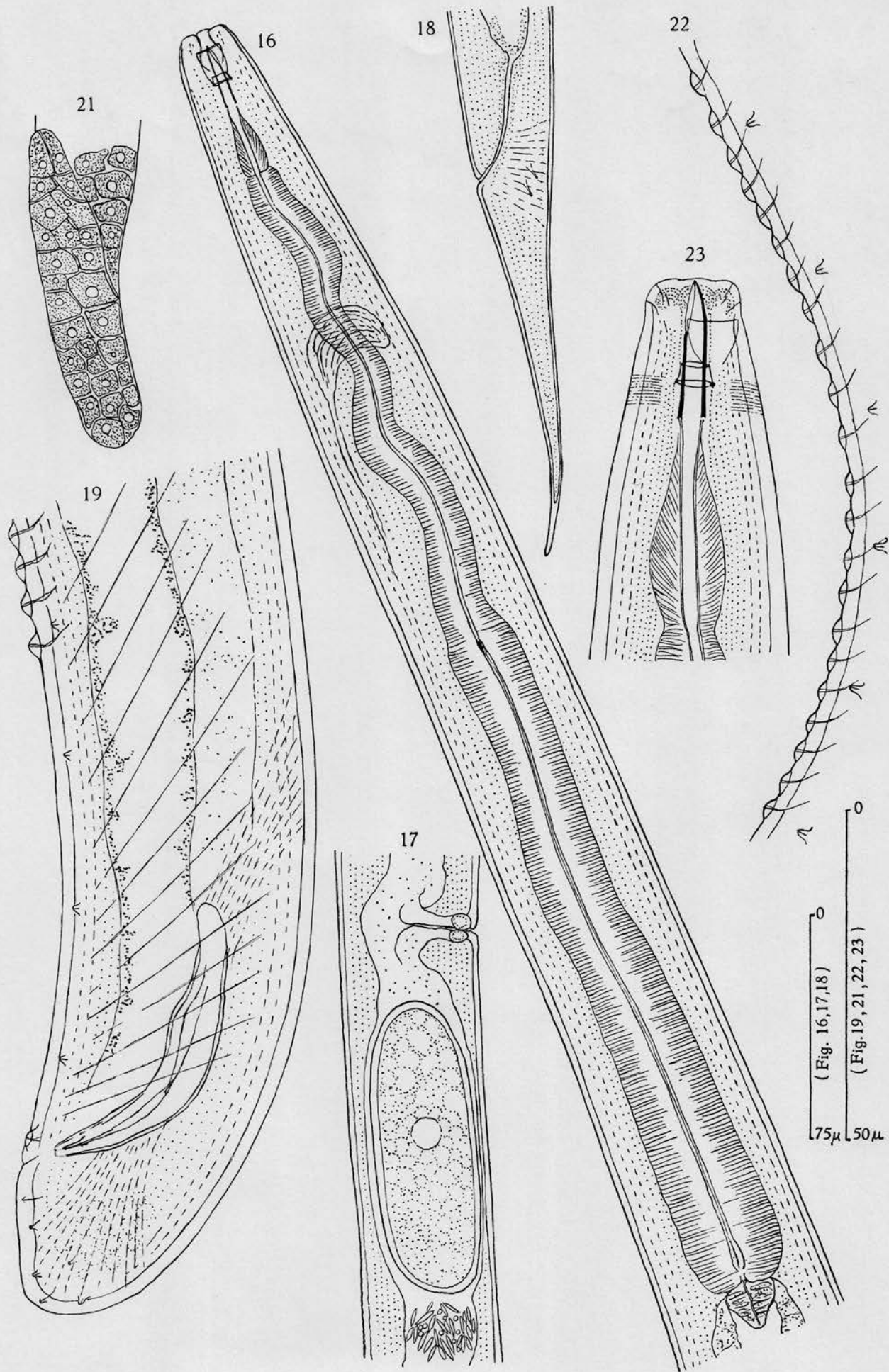
FIG. 18. — Id. : ♀ tail.

FIG. 19. — Id. : ♂ tail and beginning of supplement series.

FIG. 21. — Id. : reflexed part of the ♂ gonad.

FIG. 22. — Id. : supplement series.

FIG. 23. — *Dorylaimus acris* THORNE : ♀ head to the end of spear extensions.



A. H. MEYL. — Freelifving Nematodes.

PLATE IV

EXPLANATION OF PLATE IV.

(All figures drawn with the aid of the camera lucida.)

FIG. 20. — *Chrysonema luetichau* n. sp. : posterior part of ♂ body with the copulatory apparatus.

FIG. 24. — *Dorylaimus acris* THORNE : ♀ tail.

FIG. 25. — *Dorylaimus conurus* THORNE : ♀ head to the end of spear-extensions.

FIG. 26. — Id. : ♀ tail.

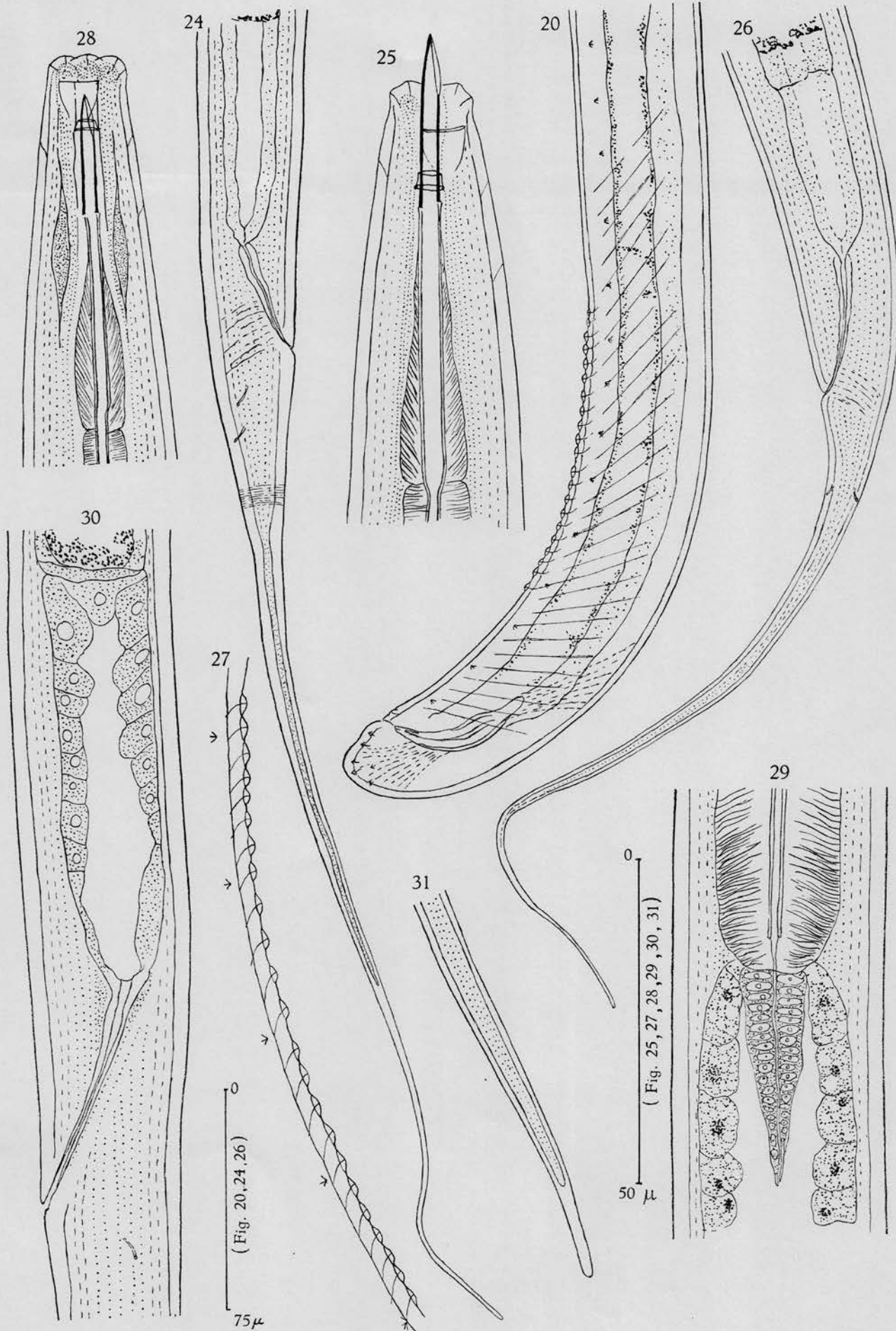
FIG. 27. — Id. : ♂ supplement series.

FIG. 28. — *Dorylaimus flavomaculatus* VON LINSTOW : ♀ head to the end of the spear-extensions.

FIG. 29. — Id. : cardia-region.

FIG. 30. — Id. : rectum and prerectum of ♀.

FIG. 31. — Id. : tail end of ♀.



A. H. MEYL. — Freelifving Nematodes.

EXPLANATION OF PLATE V

All figures show the side of the vessel facing

Fig. 25 — Diagram showing the position of the vessel

Fig. 26 — Diagram showing the position of the vessel

Fig. 27 — Diagram showing the position of the vessel

Fig. 28 — Diagram showing the position of the vessel

to the position of the vessel

Fig. 29 — Diagram showing the position of the vessel

Fig. 30 — Diagram showing the position of the vessel

Fig. 31 — Diagram showing the position of the vessel

PLATE V

EXPLANATION OF PLATE V.

(All figures drawn with the aid of the camera lucida.)

FIG. 32. — *Dorylaimus stagnalis* aff. DUJARDIN : ♀ head.

FIG. 33. — *Actinolaimus omer-cooperi* aff. FILIPJEV : ♀ head.

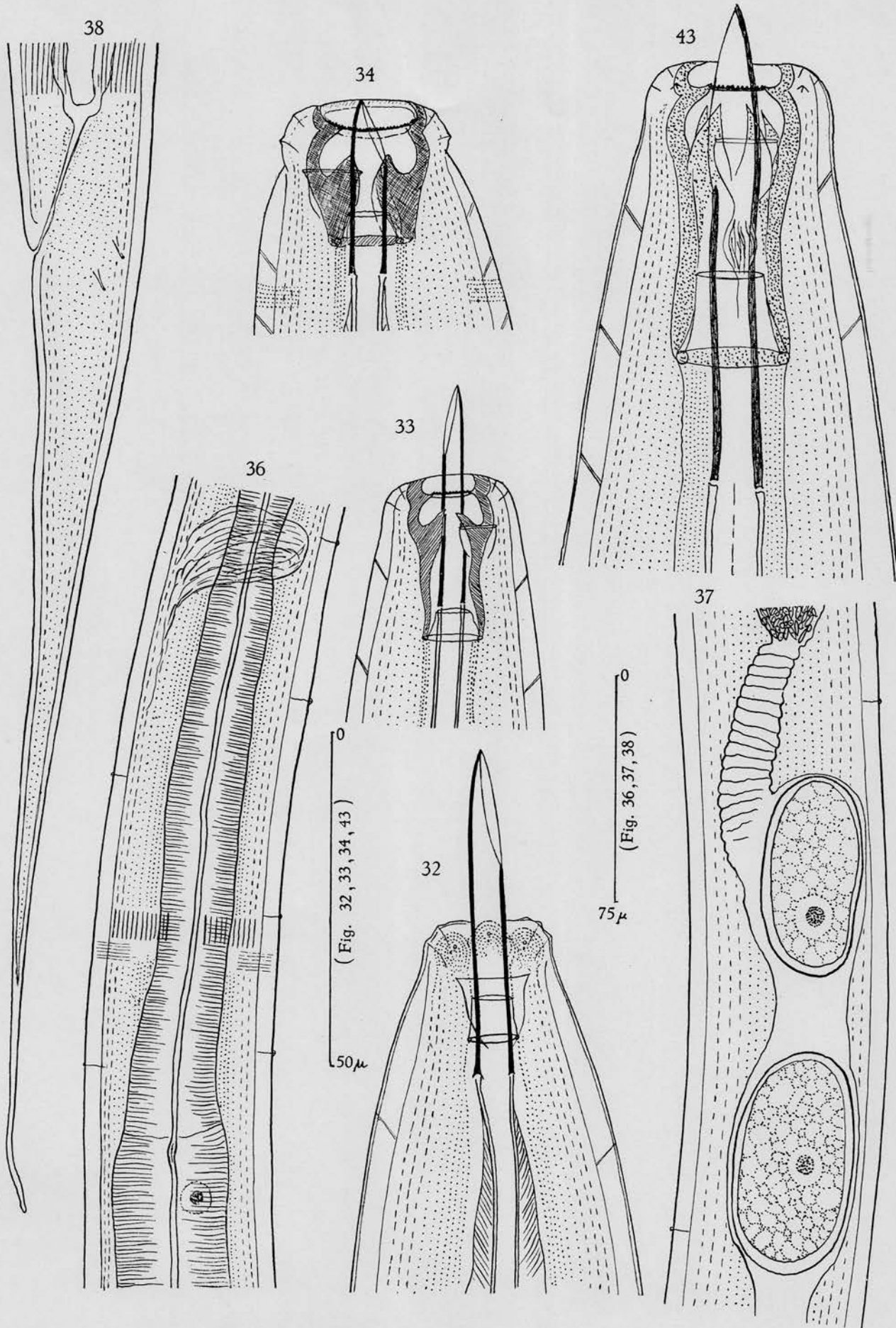
FIG. 34. — *Actinolaimus schuurmans-stekhoveni* n. sp. : ♀ head.

FIG. 36. — *Actinolaimus straeleni* n. sp. : region of the esophagus from the nerve-ring to the beginning of the gradual expansion.

FIG. 37. — Id. : two eggs in the uterus.

FIG. 38. — Id. : ♀ tail.

FIG. 43. — *Actinolaimus taylori* n. sp. : ♀ head.



A. H. MEYL. — Freelifving Nematodes.

PLATE VI

EXPLANATION OF PLATE VI.

(All figures drawn with the aid of the camera lucida.)

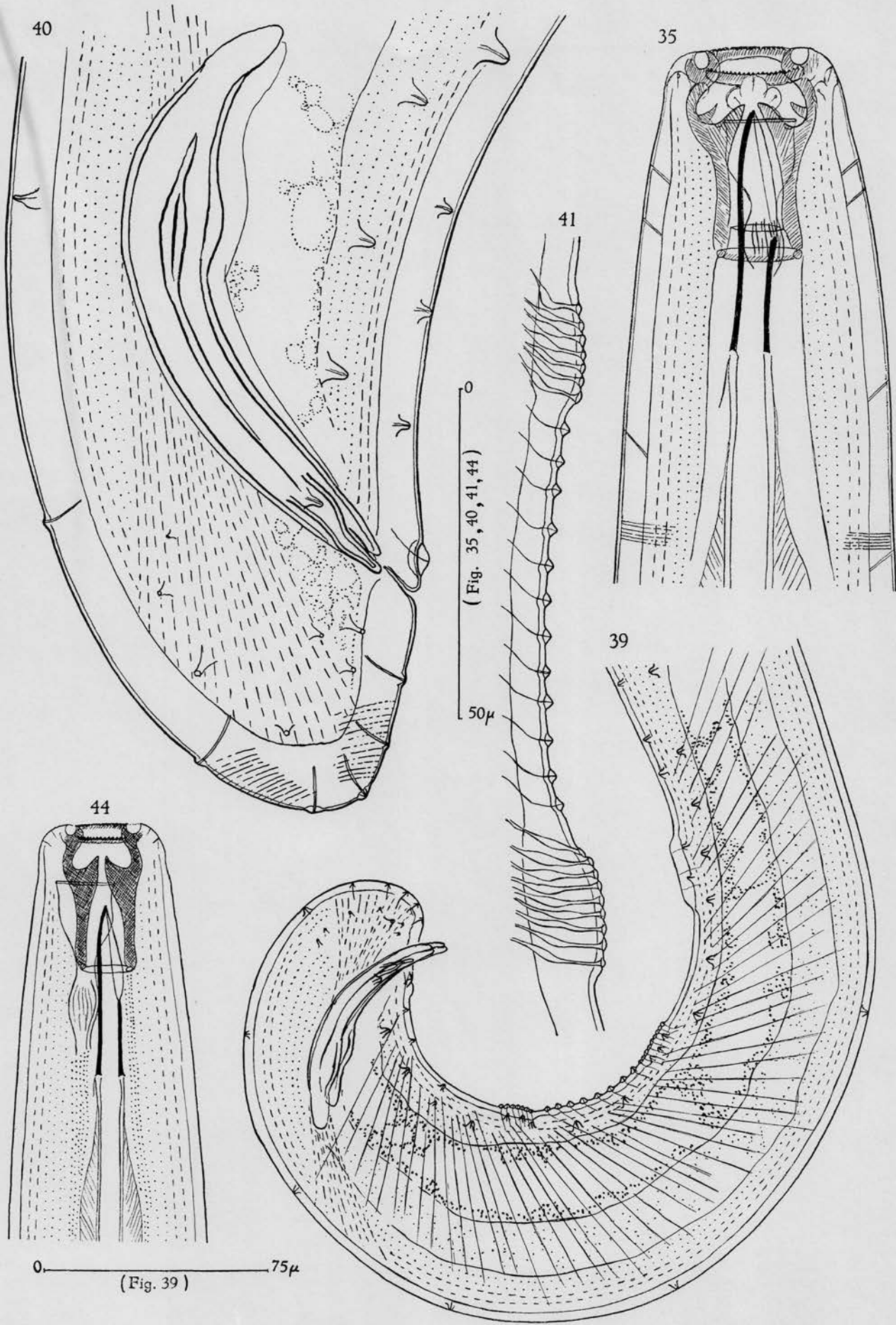
FIG. 35. — *Actinolaimus straeleni* n. sp. : ♀ head.

FIG. 39. — Id. : posterior part of the ♂ body with copulatory apparatus and tail.

FIG. 40. — Id. : ♂ tail and spicular apparatus.

FIG. 41. — Id. : supplementary organs of a ♂ with 12 papillar organs between first and second fascicle.

FIG. 44. — *Actinolaimus tenuis* W. SCHNEIDER : ♀ head.



A. H. MEYL. — Freelifving Nematodes.

EXPLANATION OF PLATE VII

The figures on this plate are arranged in the following order:

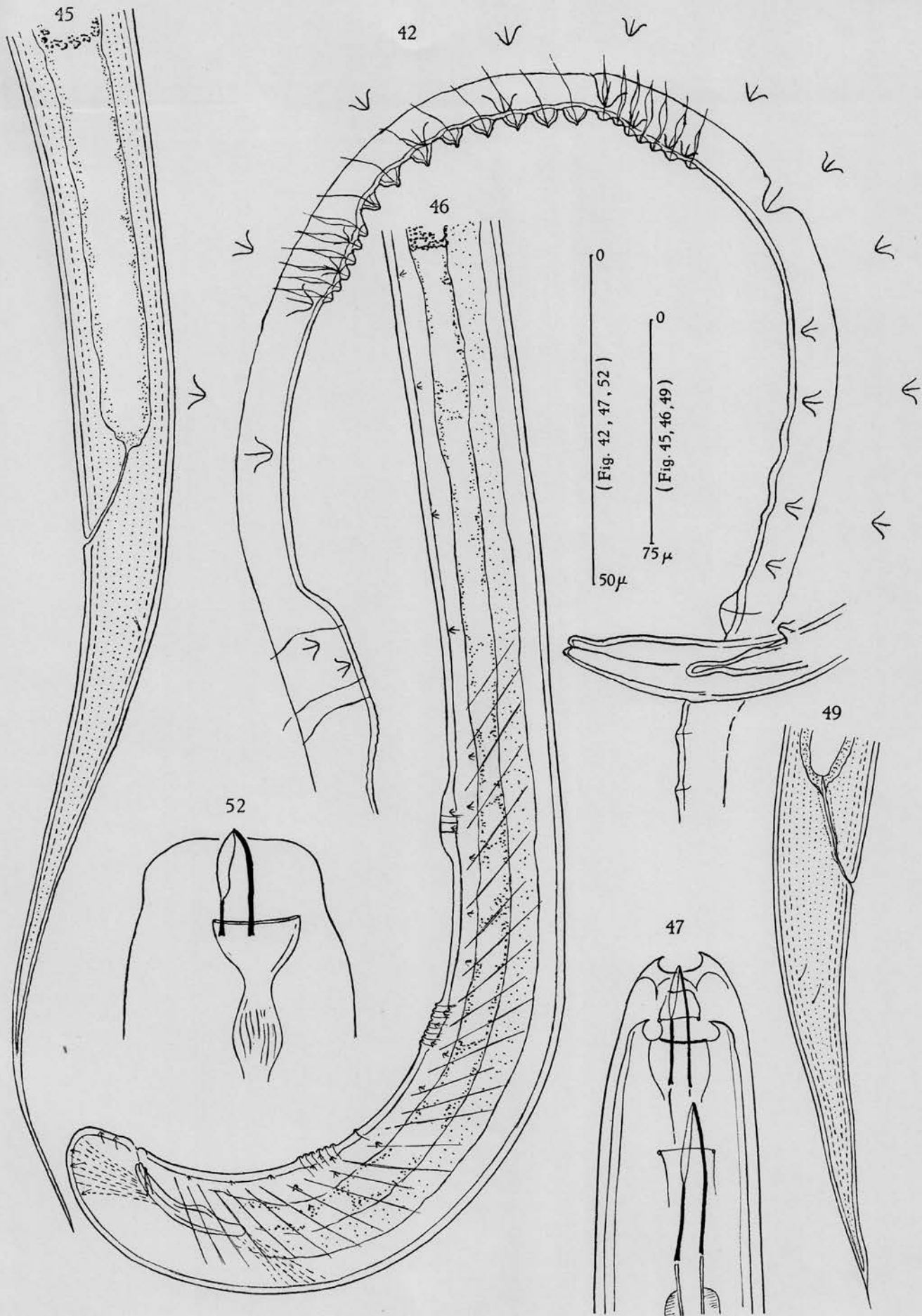
- Fig. 1. — A view of the specimen in its natural position.
- Fig. 2. — A view of the specimen after it has been treated with potassium permanganate.
- Fig. 3. — A view of the specimen after it has been treated with potassium permanganate and then with potassium dichromate.
- Fig. 4. — A view of the specimen after it has been treated with potassium permanganate, potassium dichromate, and then with potassium bichromate.
- Fig. 5. — A view of the specimen after it has been treated with potassium permanganate, potassium dichromate, potassium bichromate, and then with potassium dichromate.
- Fig. 6. — A view of the specimen after it has been treated with potassium permanganate, potassium dichromate, potassium bichromate, and then with potassium dichromate and potassium permanganate.

PLATE VII

EXPLANATION OF PLATE VII.

(All figures drawn with the aid of the camera lucida.)

- FIG. 42. — *Actinolaimus straeleni* n. sp. : supplementary organs of a ♂.
- FIG. 45. — *Actinolaimus tenuis* W. SCHNEIDER : ♀ tail.
- FIG. 46. — Id. : posterior part of the ♂ body from the beginning of the prerectum to the tail end.
- FIG. 47. — Id. : head of a moulting young ♂ (notice the slightly smaller spear-aperture of the original spear!).
- FIG. 49. — *Actinolaimus tenuis* var. *brevicaudatus* W. SCHNEIDER : ♀ tail.
- FIG. 52. — *Metactinolaimus leloupi* n. g. n. sp. : head contour of a ♀ with spear and amphid.
-



A. H. MEYL. — Freelifving Nematodes.

EXPLANATION OF PLATE VIII

The figures are arranged in the order in which they were observed.

Fig. 1. — *Staphylinus* sp. (see text for description).

Fig. 2. — *Staphylinus* sp. (see text for description).

PLATE VIII

Fig. 3. — *Staphylinus* sp. (see text for description).

Fig. 4. — *Staphylinus* sp. (see text for description).

Fig. 5. — *Staphylinus* sp. (see text for description).

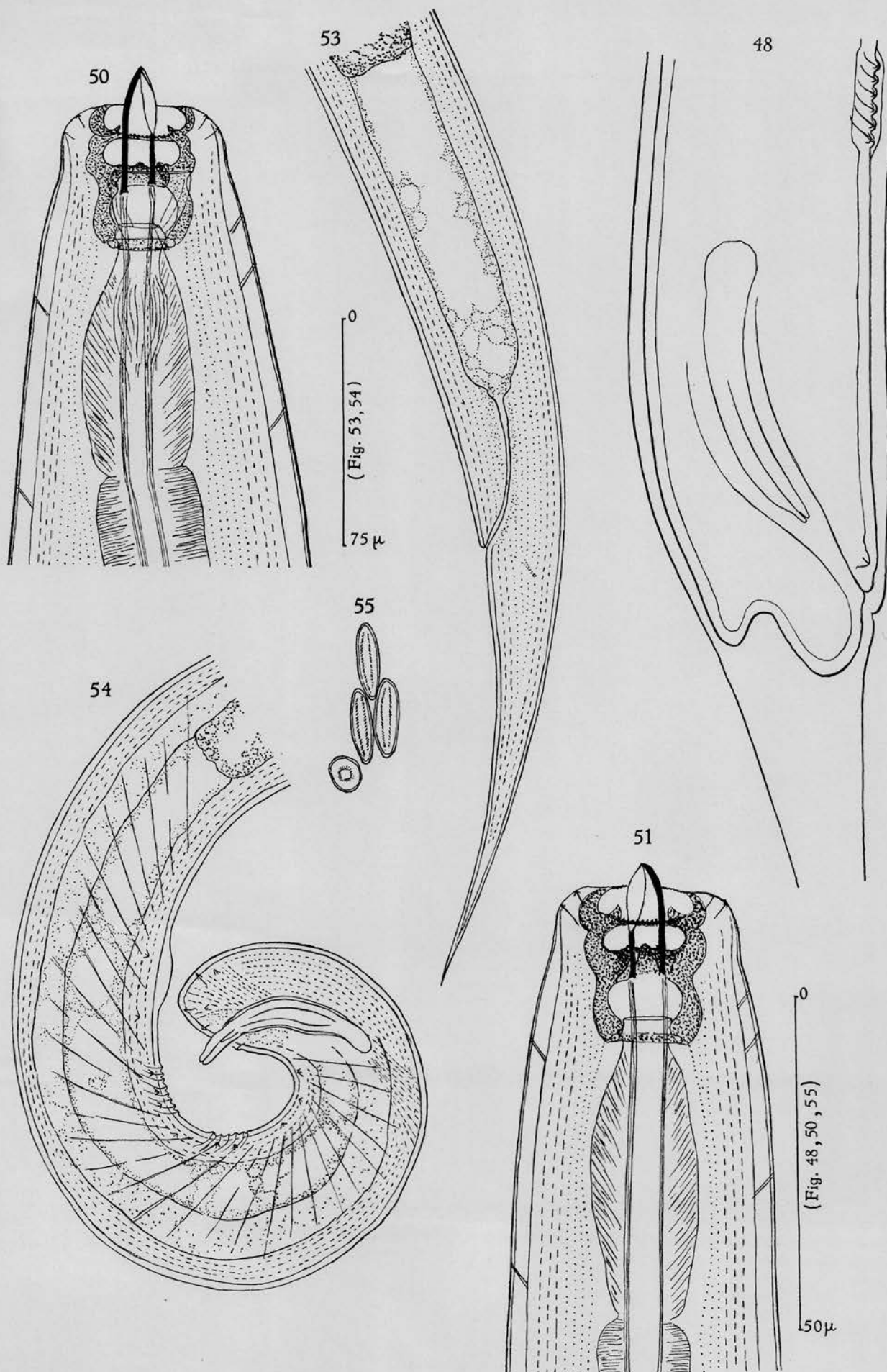
Fig. 6.

Fig. 7. — *Staphylinus* sp. (see text for description).

EXPLANATION OF PLATE VIII.

(All figures drawn with the aid of the camera lucida.)

- FIG. 48. — *Actinolaimus tenuis* W. SCHNEIDER : tail of a moulting ♂.
- FIG. 50. — *Metactinolaimus leloupi* n. g. n. sp. : ♂ head to the end of spear-extensions.
- FIG. 51. — Id. : ♀ head.
- FIG. 53. — Id. : ♀ tail.
- FIG. 54. — Id. : posterior part of the ♂ body from the beginning of the prerectum to tail-end.
- FIG. 55. — Id. : sperms.
-



A. H. MEYL. — Freelifving Nematodes.