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MYCOLOGY.—*A nematode-capturing fungus with clamp-connections and curved conidia.*

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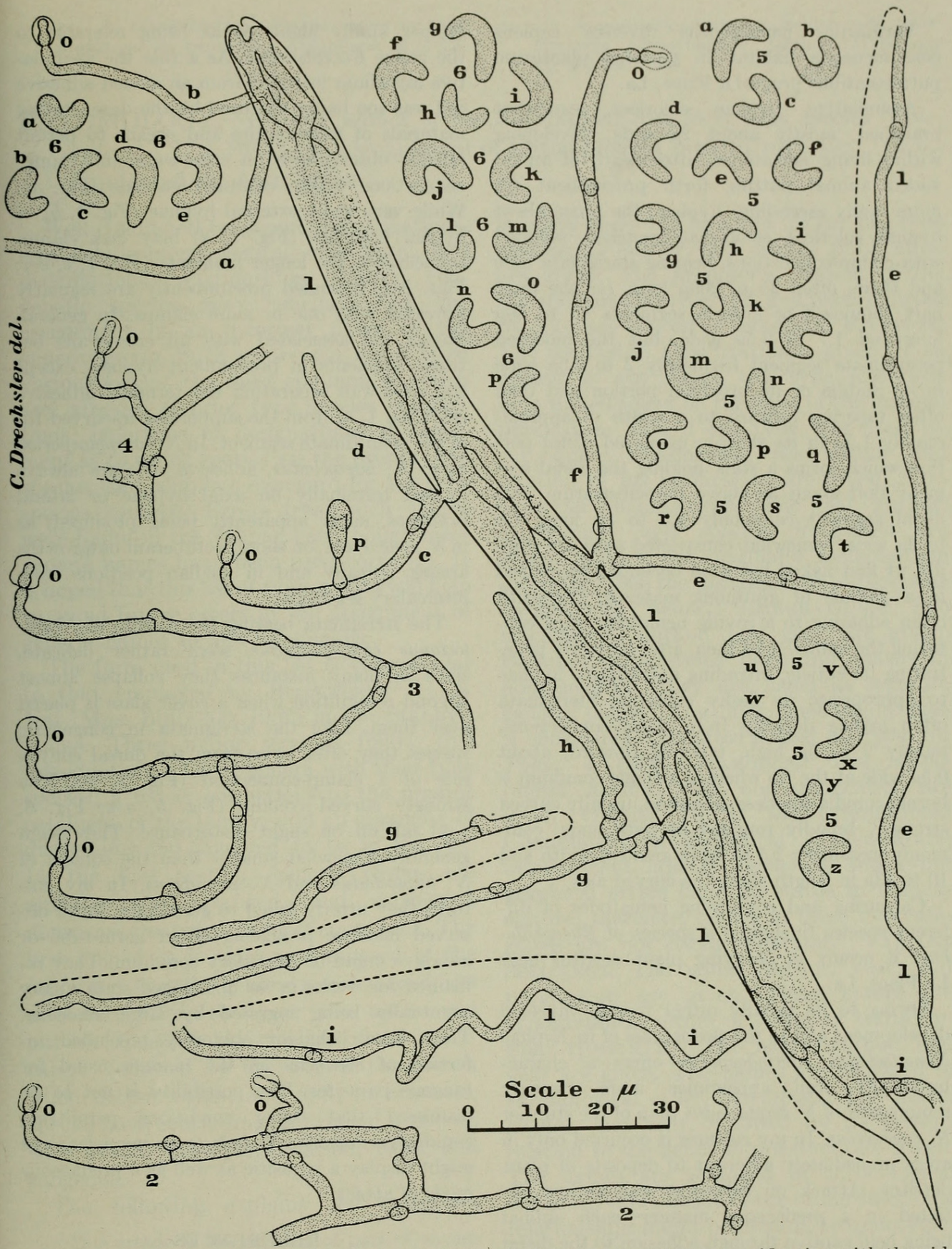
In earlier papers (Drechsler, 1941, 1943, 1946, 1949) I described as new species six nematode-destroying fungi that may with some confidence be reckoned among the Basidiomycetes, for although they have not been found producing basidia and basidiospores their hyphae are unmistakably furnished with clamp-connections. Four of these fungi, namely *Nematoctonus tylosporus*, *N. leiosporus*, *N. pachysporus*, and *N. leptosporus*, always attack eelworms in the usual manner of parasites: their conidia, after becoming externally affixed to the animal by means of an adhesive secretion, will push through the integument a narrow germ tube which on reaching the fleshy interior widens out, elongates, and ramifies to form an assimilative mycelium extending lengthwise from head to tail. The two other fungi, *N. haptocladus* and *N. concurrens*, likewise often attack by intruding a germ tube from an adhering conidium, but in addition they employ adhesive organs of mycelial origin to capture motile eelworms; each captive being subsequently invaded and expropriated of all its digestible substance. A clamp-bearing fungus similarly given to capture of nematodes but differing markedly in its strongly curved conidia from both *N. haptocladus* and *N. concurrens*, as well as from the other 4 named species of *Nematoctonus*, was mentioned (Drechsler, 1941, p. 780) as occurring in Hawaii, though the material available at the time was too poor to justify a full description under a separate binomial. More recently a nematode-capturing fungus with clamp-connections and strongly curved conidia developed abundantly in several maize-meal agar plate cultures which after being over-grown by *Pythium debaryanum* Hesse had been further planted with small quantities of decaying vegetable detritus collected on December 20, 1952, in an open field in southern Louisiana. How this fungus is related to the Hawaiian form remains uncertain. In any case it seems unquestionably distinct from the six species of *Nematoctonus* to which names have been given, and accordingly merits recognition as an additional member of the genus. A specific epithet compounded of two words (καμπυλος and σπορα) meaning "bent" and "seed," respectively, may serve helpfully in recalling one of its most conspicuous diagnostic features.

Nematoctonus campylosporus sp. nov. Hyphae assumentes incoloratae, plus minusve ramosae, plerumque circa 2μ crassae, intra vermiculum nematoideum crescentes, post mortem animalis hyphas procumbentes (vel rarius ascendentes) extra emittentes; his hyphis procumbentibus incoloratis, aliquid ramosis, ad modum Hymenomycetum septato-nodosis, hic illic (praecipue in nodis) sterigmata ferentibus, saepe 25–200μ longis, ex magna parte in cellulis filiformibus 10–50μ longis et 1.7–2.5μ crassis constantibus, sed cellula paenultima in postica ejus parte saepius 2–3.5μ crassa in antica ejus parte vulgo usque 1.5μ attenuata et abrupte in aerem flexa itaque fronte in modo columellae ascendente; columella circa 5μ alta, 1.6–2μ crassa, cellulam ultimam in aere sustentans; cellula ultima saepius 3.5–5μ longa, 1.6–2μ crassa, medio aliquid constricta, primo nuda sed mox pila glutinis circumdata, denique saepe ad vermiculum nematoideum inhaerente, animal ita capiente, cuticulam ejus perforante, hyphas assumentes intrudente; sterigmatibus 2–5μ altis, sursum attenuatis, apice circa 0.5μ crassis, conidia singula ferentibus; conidiis incoloratis, allantoideis, plerumque valde curvis, basi atque apice late rotundatis, vulgo 10–13μ longis, 2.5–4μ crassis.



FIGS. 1–5.—*Nematoctonus campylosporus* (all parts drawn at a uniform magnification with the aid of a camera lucida; ×1000 throughout): 1, Specimen of *Eucephalobus* sp., which evidently was captured through adhesion to the procumbent hypha a (*b–i*, procumbent hyphae put forth externally by the assimilative mycelium; *o*, adhesive terminal cell; *p*, conidium borne on sterigma); 2–4, portions of procumbent hyphae, showing some terminal adhesive cells, *o*, and some clamp-connections; 5 (*a–z*), 6(*a–p*), random assortment of detached conidia, showing usual variations in size, shape, and curvature.

Vermiculos nematoideos diversos capiens consumensque habitat in materiis plantarum putrescentibus prope La Place, La.

Assimilative hyphae colorless, somewhat branched, mostly about 2μ wide, developing within living nematodes, after death of an invaded animal putting forth procumbent (or more rarely ascending) hyphae; the procumbent hyphae colorless, somewhat branched, studded with clamp-connections, bearing sterigmata here and there, often 25 to 200μ long, for the most part composed of filiform segments 10 to 50μ long and 1.7 to 2.5μ wide, but the modified penultimate segment frequently 2 to 3.5μ wide in its middle or its proximal portion and then often tapering forward to a width of approximately 1.5μ in its sharply upcurved distal portion which forms a stalk holding the distal segment aloft about 5μ above the substratum; this distal segment commonly 3.5 to 5μ long, 1.6 to 2μ wide, somewhat constricted near the middle, at first naked but soon becoming enveloped in a globule of glutinous material, therewith often adhering to a roving nematode, thus capturing the animal, and then, after narrowly penetrating its cuticle, intruding assimilative hyphae to appropriate its fleshy contents. Sterigmata often arising dorsally from clamp-connections, mostly 2 to 5μ high, tapering upward, about 0.5μ wide at the tip whereon a single conidium is borne; conidia colorless, allantoid, usually curved strongly, broadly rounded at both ends, commonly measuring 2.5 to 4μ in greatest width and 10 to 13μ in length along the curved axis.

Capturing and consuming nematodes of different species (including a species of *Eucephalobus*) it occurs in decaying plant detritus near La Place, La.

Owing to its usually rather meager mycelial development and to the slenderness of its hyphae *Nematoctonus campylosporus* offers a characteristically frail appearance more strongly reminiscent of *N. haptocladus* than of the sturdier *N. concurrens*. In my cultures it occurred only in areas immediately adjacent to deposits of plant detritus. Attack on eelworms was always initiated in a predaceous manner—each animal being held captive through adhesion to the distal cell of a procumbent hypha (Fig. 1, *a*) extended from an assimilative mycelium in a nematode that had been captured earlier. The eelworms taken belonged mostly to a single sharp-tailed species present in large numbers, which Dr. G. Steiner kindly identified as being referable to the genus *Eucephalobus*. As a rule the assimilative mycelium intruded from an affixed adhesive cell was too badly obscured by the degenerating materials of musculature and organs to permit reliable observations on cross-walls and clamp-connections within captured animals (Fig. 1). While very short external hyphae (Fig. 1, *b*) or hyphal branches (Fig. 1, *d*) may lack clamp-connections, the longer filaments (Fig. 1, *c*, *e–i*; Figs. 2–4) extended procumbently are regularly provided with one or more clamps. In general, clamps are associated with all cross-walls between segments in procumbent hyphae, except the cross-wall separating the terminal adhesive cell (Fig. 1, *o*) from the supporting upcurved tip of the penultimate segment. In *N. campylosporus*, as in *N. haptocladus*, adhesive cells are always formed terminally on axial hyphae or lateral branches, never apparently being produced, as in *N. concurrens*, on short protuberant outgrowths arising dorsally and in median positions from intercalary segments.

The sterigmata bearing the conidia of *Nematoctonus campylosporus* seem rather delicate, since in many instances they collapse almost beyond recognition when a cover glass is placed over them. Like the sterigmata in congeneric species they often arise from the dorsal convex side of a clamp-connection (Fig. 1, *p*). The strongly curved conidia (Fig. 5, *a–z*; Fig. 6, *a–p*) fall off on slight disturbance. They seem generally somewhat smaller than the conidia of *N. haptocladus* and *N. concurrens*. In my cultures they utterly failed to germinate, in no observed instance producing either germ-tube or adhesive organ or secondary conidium. They remained for weeks in an unchanged state, many eventually being ingested by large amoebae. Their inert behavior obviously precluded infection of eelworms in the manner usual for fungous parasites. The possibility is not to be dismissed that under conditions permitting conidial germination *Nematoctonus campylosporus* might display a parasitic as well as a predaceous mode of attack.

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ENTOMOLOGY.—*Generic names of the Salpingidae and their type species (Coleoptera).*[1] T. J. SPILMAN, Department of Entomology, Cornell University. (Communicated by Alan Stone.)

Well-conducted taxonomic investigations, establishing morphological, ethological, and distributional relationships between congeneric species, may conclude with the assignment of an incorrect name to the generic group. Such errors can result from various causes, the most common of which are: absence of prior type species designations; ignorance of designations; disagreement as to which species are the proper type species; and complete disregard for the type species concept. Errors from such causes were found in the Salpingidae, though most generic names have been used correctly. It is hoped that this list of type species will help to avoid future errors in the assignment of generic names in the Salpingidae.

The form used in this list is very similar to that employed by Blackwelder (U. S. Nat. Mus. Bull. 200. 1952) in the Staphylinidae. Three major sections follow this introduction: a list of genera with their type species; a list of corrections to the present catalogue of the family; and an appendix of discussions too involved to be in the list. In the first section, generic names are alphabetically arranged, and subgeneric names are treated as being of equal rank. The first line of each entry is composed of the following: *first*, the generic name; *second*, the proposer; *third*, the year the name was published; *fourth*, the citation of the publication, followed by the day of the month when determinable; and *fifth*, in brackets, special facts concerning the original proposal, such as new name, emendation, fossil, and subgenus.

The following explains the categories grouped under the first line. TYPE: The type species, its author, and year of publication are given. The proposer's citation of the specific name is preserved, and parts omitted by him are placed in brackets. FIXATION: The method of type fixation is given. If an author is not listed, the type has been determined solely on the basis of the original publication; and if the type was fixed by subsequent designation, the author and citation of his publication are given. SUBSEQUENT DESIGNATIONS: The year, author, publication, and species designated are given. Species not originally included are indicated. (See the discussion on subsequent designations below.) EMENDATIONS: The emendation, author, and year are given. Because emendations have full status in nomenclature, they are listed as separate generic names. The only emendation that is considered warranted is that of *Pytho* for *Tytho*. LAPSUS CALAMORUM: The *lapsus calami*, author, year, and publication are given. Opinion 29, of the International Commission on Zoological Nomenclature, implies that *lapsus calamorum* and typographical errors have no status in nomenclature; therefore, names in these two categories are not listed separately. VARIANT SPELLINGS: The name, author, year, and publication are given. These names are typographical errors or errors of transcription. HOMONYMS: The name, author, and year are given. The names are arranged in chronological order. SYNONYMS: The name, author, and year, followed by its present relation to the genus in question, are given. The names are arranged in chronological order. An explanation of the terms describing relationships might be helpful. Isogenotypic: generic names which have as their types the same species, example *Suggibbus* and *Hybogaster* (objective synonymy). Conspecific genotypes: generic names which have as their types species which are considered zoologically identical, example *Chilopeltis* and

[1] This article is the revision of part of an unpublished master of science thesis written at Cornell University. I wish to express my sincere gratitude especially to Dr. V. S. L. Pate for his suggestions and aid, and to thank Dr. Ross H. Arnett, Jr., for making various literature available to me, Dr. John G. Franclemont for much helpful advice, and W. Wayne Boyle for checking the difficult manuscript.

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