

قسم الطفيليات  
كلية الطب - جامعة أسيوط  
رئيس القسم : أ.د/ ماهر مختار

تصادف القوط كعائل نهائي لبعض الديدان المفاطحة  
( تريماتودا ) في البرمائيات والأسماك

أحمد مندور ، رفعت خليفة ، محمود الهادي

عند عمل مسح للديدان الطفيلية التي تصيب الثدييات الصغيرة تم اكتشاف نوعين من الديدان المفلطحة ( تريماتودا ) لأول مرة كعائل نهائي في أمعاء القوط المنزلية بالصدفة في محافظة أسيوط . واحدا من هذين النوعين يتبع عائلة البرامفيستوماتيدي من جنس ميجالودسكس والنوع الآخر يتبع عائلة سيفالوجونيميدي من جنس اموليتيال . وتعتبر هذه الطفيليات من طفيليات الضفادع والأسماك بالتوالي ، ولكن وجود هذين النوعين من الطفيليات في القوط يؤكد احتمال تأقلم هذه الطفيليات التدريجي من طفيليات البرمائيات والأسماك كي تتحول الى عوائل جديدة في الثدييات آكلة الأسماك .

Dept. of Parasitology,  
Faculty of Medicine, Assiut University,  
Head of Dept. Prof. Dr. M.M. Zaki.

**CATS AS ACCIDENTAL FINAL HOST OF AMPHIBIAN  
AND FISH TREMATODES**  
(With 1 Table & 2 Figs.)

By  
**A.M. MANDOUR; R. KHALIFA and M.E.M. MONIB**  
(Received at 10/3/1988)

**SUMMARY**

Two trematodes are recorded for the first time as accidental intestinal parasites of the domestic cats Felis catus L. in Assiut Governorate. One of them belonged to Paramphistomatidae; Megalodiscus sp. and the other was Cephalogonimidae; Emoleptalea sp. They are parasites of frogs and fishes respectively. The presence of the two parasites in cat denotes possible gradual adaptation of parasites of amphibians and fishes into new habitats in fish-eating mammals.

**INTRODUCTION**

Host specificity is not marked in all families of digenetic trematodes (MANTER, 1957). Heterophyes heterophyes adults were found naturally and experimentally in a big variety of fish-eating birds and animals as well as man (BEAVER, et al. 1984). Moreover, Fibricola cratera; a trematode parasite of mammals can easily be transferred to chicks (ULMER, 1955). However, Polyxenous parasites usually utilize related hosts. During the present work two trematode parasites of amphibians (Frog) and fishes were naturally found infecting domestic cats.

**MATERIAL and METHODS**

Twenty nine cats were collected from different localities in Assiut city especially from Walidya Suburb near the fish market and in the neighbourhood of irrigation canals. In the laboratory, cats were dissected and their intestines were examined for helminth parasites. Wherever found worms, were washed, stained in acetic acid alum carmine and mounted in canada balsam.

**RESULTS and DISCUSSION**

Out of the 29 cats examined, two were found infected. One was harbouring an amphistome identified as Megalodiscus sp. and the other has had a Cephalogonimidae identified as Emoleptalea sp. In both cases, the infection was mixed with Prohemistomum vivax, Haplorchis pumilio and Haplorchis Yakogawai.



Paramphistomatidae Fiscoeder, 1901

emend, Goto and Matsudaira, 1918

Genus Megalodiscus Chandler, 1923Megalodiscus sp. (Fig. 1).

Only one specimen was found in the small intestine of the domestic cat Felis catus L. The worm is Spindle-shaped; more rounded posteriorly. Its cuticle is smooth spineless along-side the whole length. The body measures 2,008 microns in length and 936 microns at the level of maximum breadth. Oral sucker is subterminal in position and measures 172.8x216 microns. It has a characteristic pair of postero-dorsal pouches. Ventral sucker is a large well-developed; Possessing more or less the same body breadth. It measures 576x712 microns. The gut begins by the mouth, followed by a prepharynx. An ill-defined muscular pharynx surrounds the oesophagus a little before. Its bifurcation into two simple tubular intestinal caeca which end at the level of the anterior surface of the ovary. Pharynx measures 144x115.2 microns. Two testes lie obliquely opposite each other, the left seems bigger than the right, measuring 360x302.4 and 288x259.2 microns respectively. They are smooth contoured, Spheroid or ovoid in shape. A small pyriform seminal vesicle could be traced to open in the male genital pore just anterior to the phrynx. Ovary is post-testicular and to the left of the median plane and is just pre-acetabular. It is spheroid in outline and measures 144x115.2 microns. Uterus has only and ascending limb and ends in the female genital pore just opposite the male pore. Vitellaria are in the form of coarse few follicles lying in the lateral fields of the thired fourth of the body. They are 14 on the left side and 11 on the right. About five large eggs were found in the uterus. They measure 150-160x50-60 microns.

Discussion:

The parasite under discussion belongs to the family Paramphistomatidae Fiscoeder, 1901 as it possesses a large disc like posterior sucker. As the oral sucker has a pair of pouch-like muscular diverticula, a muscular oesophageal bulb, ventral sucker much bigger than oral and vitelline glands chiefly ventral to coeca, the parasite belongs to the genus Megalodiscus SCHELL (1970). A very similar parasite was described by EL-NAFFAR (1970) from the fish Synodontis Schall from Assiut under the name Synodontiella synodonti n. gen. n. sp., but it seems to be very similar to the frog amphistome Diplodiscus temperatus which was named Megalodiscus temperatus by OLSEN (1974). HASSAN (1987) was able to complete the life cycle of an amphistome cercaria obtained from the snail Cleopatra bulimoides and he could get immature worms in frogs which he identified as Megalodiscus sp. Adults of such parasites were described from rectum of frogs by KRULL and PRICE (1932), HERBER (1938, 1939) and SMITH (1967).

The present parasites are very similar to EL-NAFFAR (1970) specimens and the immature worms of HASSAN (1987). However, Megalodiscus parasites were never encountered from cats before.

Cephalogonimidae Nicoli, 1915Genus Emoleptalea Looss, 1900Emoleptalea sp. El-Naffar, (1970).

Description is based on two mature specimens (Fig. 2).

Body is oval in shape, covered by dense scale-like spines anteriorly while distal third is aspinose. All measurements are shown in table 1. Oral sucker is subterminal and is inverted-funnel shaped. After a small prepharynx, a small muscular pharynx surround the oesophagus which soon divides into two simple intestinal coeca that could be traced to end near the



## CAT TREMATODES

posterior extremity. Ventral sucker occurs at the level of the junction of the anterior third with the posterior two thirds of the body. Two testes are rounded, smooth contoured and are equal in size. They occur one above the other in the middle line at the level of the junction of the anterior three fourth with the posterior fourth. Cirrus pouch begins at the anterolateral border to the ventral sucker and is totally preacetabular. It opens to the right side of the oral sucker. Ovary is rounded, pretesticular and lies to the left of the middle line. A small reseptaculum seminis lies posterolateral to the ovary. Uterus is post-ovarian and the metraterm open in the female genital pore close the male pore. Vitelline glands are in the form of coarse follicles, 7-9 in number on each side, lying in the region between the ventral sucker and the ovary. A pear shaped excretory vesicle lies in the posterior fourth of the body.

**Discussion:**

The description of the present worms coincides with the morphological characters of the Genus Emoleptalea LOOSS, 1900. According to EL-NAFFAR (1970), four species of this genus were previously described from fishes. E.axiler LOOSS, 1899 from Bargus bayad and E.preteropora LOOSS, 1900 from Synodontis schall were described from Egypt by LOOSS (1900).

EL-NAFFAR (1970) encountered Emoleptalea sp. from Synodontis schall in Assiut, Upper Egypt. Table (1) shows a comparison between the present material with EL-NAFFAR'S specimens. The present worms are bigger in size together with minor morphological differences. The bigger size of the parasites might be attributed to the different final host. The present authors believe that the present worms are identical with Emoleptalea sp. EL-NAFFAR (1970). However, this parasite was never encountered in cats before.

**GENERAL DISCUSSION**

The present two trematodes are recorded for the first time as intestinal parasites of the domestic cats Felis catus L. Assiut, Upper Egypt. According to ROGERS (1962) parasites with indirect life cycles are less host specific than those with a direct life cycle. There is less host specificity where there are two intermediate hosts than when only one is employed (NOBLE & NOBLE, 1964). The present two trematodes are with indirect life cycle including two intermediate hosts. Also, the presence of the infected cats near a fish market and irrigation canals might lead to the gradual adaptation of parasites to be the new final hosts (cats) rather than the usual hosts (frogs and fishes).

**REFERENCES**

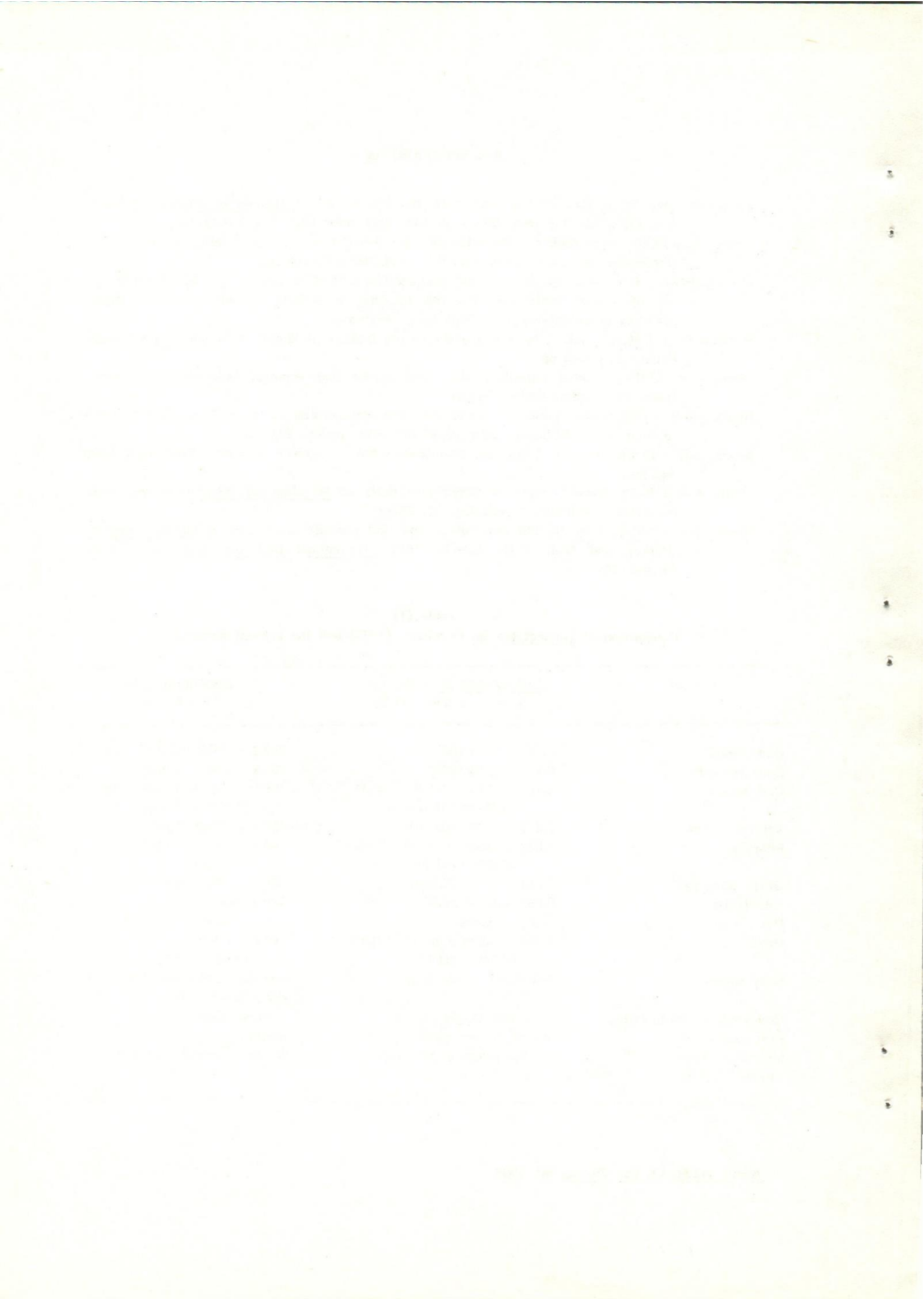
- Beaver, P.C.; Jung, R.C. and Cupp, E.W. (1984): Clinical parasitology. Lea & Febiger, Philadelphia, 825 pp.
- El-Naffar, M.K. (1970): Studies on parasites of Nile fishes. Some parasites in Assiut Province. Ph.D. Thesis, Faculty of Science, Assiut University.
- Hassan, I.M. (1987): Studies on the role played by some snails in transmitting parasites to animals and man in Qena Province. Ph.D. Thesis, Faculty of Science, Assiut Univ.
- Herber, E.C. (1938): On the mother redia of Diplodiscus temperatus stafford, 1905. J. parasit. 24, 549.
- Herber, E.C. (1939): Amphistome, Diplodiscus temeratus stafford, 1905. J. Parasit., 25, 189-195.

- Krull, W.H. and Price, H.F. (1932): Studies on the life history of Diplodiscus temperatus Stafford, 1905 from the frog. Occ. Pap. Mus. Zool Univ. Mich. No. 237, 37 pp.
- Looss, A. (1900): Nachtragliche Bemerkungen 24 den Namendern von mir vorgeschlagenen Distomiden gattungen. Zool. Anz. Bd. XXVI, No. 630, 604 pp.
- Mantel, H.W. (1957): Host specificity and other host relationships among the digentic trematodes of marine fishes P.P. 185-198. In: First symposium on host specificity among parasites of vetebrates. Inst. Zool. Univ. Neuchatel.
- Noble, E.R. and Noble, G.A. (1964): Parasitology. The biology of animal parasites. Lea & Febiger Philadelphia, 724 pp.
- Olsen, O.W. (1974): Animal parasites. Their life cycles and ecology. University park press, Baltimerc, London, Tokyo, 562 pp.
- Rogers, W.B. (1962): The nature of parasitism. The Relationship of some Metazoan Parasites to their Hosts. Academic press, New York and London, 287 pp.
- Schell, S.C. (1970): How to know the trematode. WM. C. Brown company Publishers, Iowa 341 pp.
- Smith, R.J. (1967): Ancyloid snails as intermdiate hosts of Megalodiscus temperatus and other digenetic trematodes. J. parasite., 53, 287-291.
- Ulmer, M.J. (1955): Notes on the morphology and host-parasite specificity of Fibricola cratera (Barker and Noil, 1915) Dubois, 1932 (Trematode: Diplostomatidae) J. Parasit., 41, 460-466.

Table (1)  
Comparison of Emoleptalea sp. El-Naffar, (1970) and the present material

	<u>Emoleptalea</u> sp. El-Naffar (in milli meters) (1970)	Present material (in microns)
Body length	0.64 - 0.83 (0.74)	979.2 - 1152 (1065.6)
Body breadth	0.27 - 0.30 (0.28)	403.2 - 446.4 (424.8)
Oral sucker	0.10 - 0.14 X 0.098 - 0.136 (0.12 X 0.116)	108 - 111.6 X 144 - 147.6 (109.8 X 145.8)
Ventral sucker	0.072 - 0.099 (0.086)	151.2 - 154.8 (153)
Pharynx	0.022 - 0.030 X 0.028 - 0.042 (0.027 X 0.034)	46.8 - 50.4 (48.6) diameter
Ovary (diameter)	0.061 - 0.076 (0.068)	86.4 - 90 (88.2)
ant. Testis	0.069 - 0.090 (0.078)	108 (108)
Post Testis	Same	Same
Ova	0.022 - 0.026 X 0.015 - 0.019 (0.024 - 0.017)	28.8 - 30.6 X 14.4 - 16.2 (29.8 X 15.3)
Body spines	Cover the whole body	more concentrated anteriorly distal third aspinose
Oral/ventral sucker ratio	oral bigger	Ventral bigger
Prepharynx	absent or very short	present
Intestinal coeca	to the middle of the body	to the posterior extremity
Vitelline follicles	7 - 10	7 - 9





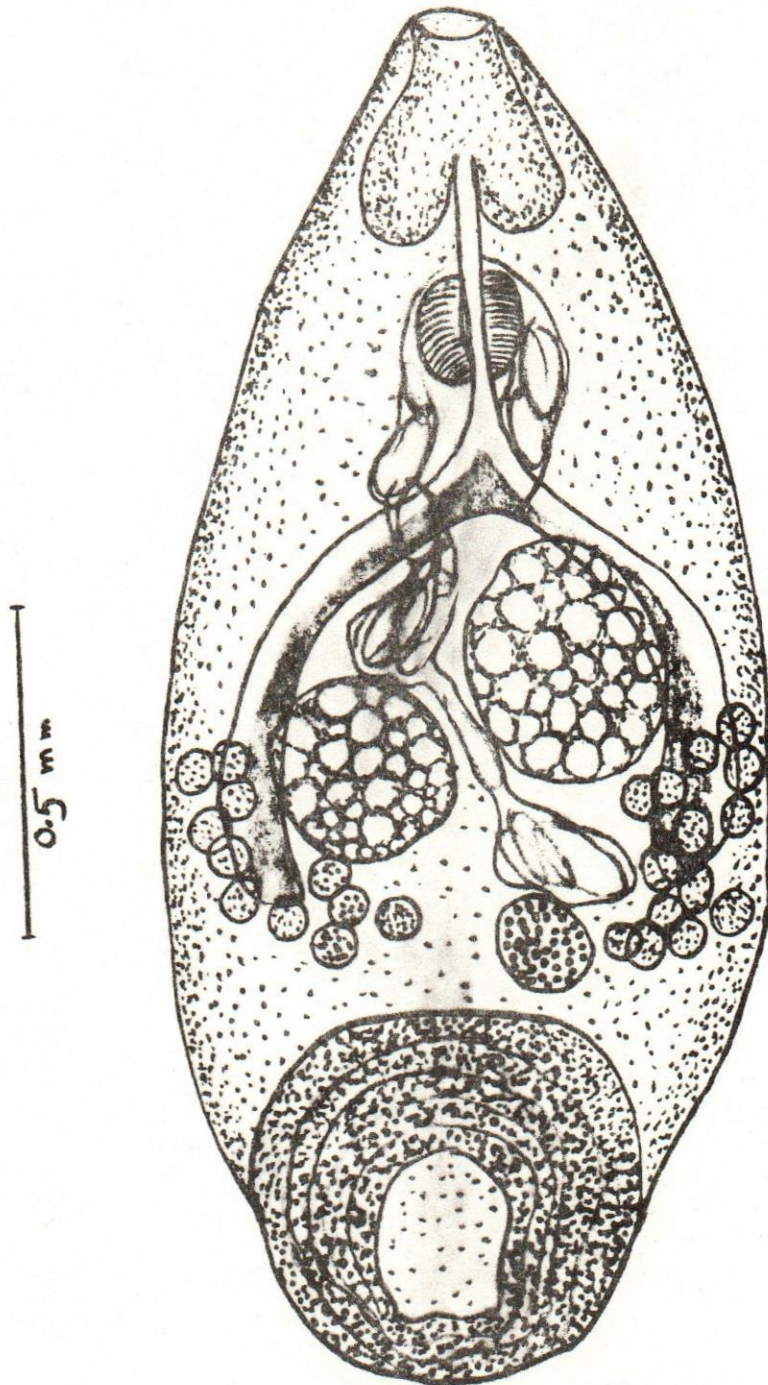
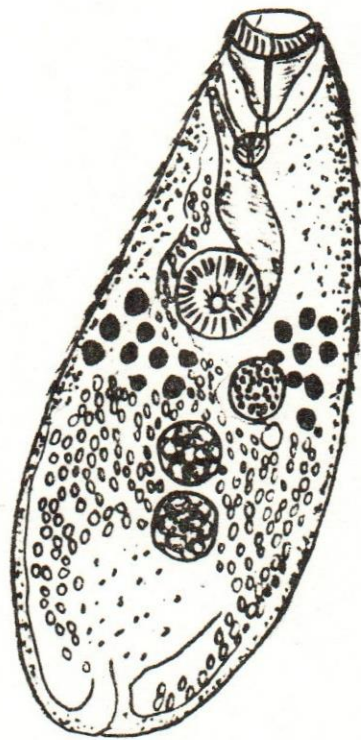


Fig. (1)







0.5 mm

Fig. (2)



10 274