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Some new monogenean species and genera of the family Mazocraeidae

Yu. L. MAMAEV

Institute of Biology and Pedology, Far East Science Centre, USSR Academy of Sciences, USSR, Vladivostok

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Summary

The description of 6 new species and 3 new genera of monogenetic trematodes of the family Mazocraeidae is presented. Precision is given to the morphology and systematic relevance of several known species. The basic peculiarities in the structure of the representatives of Mazocraeidae, first of all their clamp organs, are analyzed. The Latin nomenclature of clamp skeleton elements is suggested. Individual parts of the paper are completed with illustrations.

The skeleton of clamp organs in the family Mazocraeidae consists of the following sclerites: 2 antero-lateral (sclerita antero-lateralia), antero-supplementary (scleritum antero-supplementarium), medio-basal (scl. medio-basale), medio-supplementary (scl. medio-supplementarium), postero-supplementary (scl. postero-supplementarium), 2 postero-lateral (sclerita postero-lateralia). A fussion of antero-lateral sclerites may result in formation of unpaired arched anterior sclerite (scleritum arcuatum anterius), whereas a fussion of postero-lateral sclerites may form arched posterior sclerite (scleritum arcuatum posterius). In this way developed sclerite may fuse with posterior-supplementary sclerite thus forming labial sclerite (scleritum labiatum).

The paper presents description of the following new monogenetic trematode species: *Cribromazocraes bychowskyi* gen. et sp. n., *C. nagibinae* gen. et sp. n., *Etrumeicotyle pumilionis* gen. et sp. n., *Heteromazocraes dodecacantha* gen. et sp. n., *H. coiliae* gen. et sp. n., *Leptomazocraes arabica* sp. n., and gives precision to the morphology of the following species: *Heteromazocraes vicinus* (Mamaëv, 1975), *Leptomazocraes orientalis* (Chauhan, 1950), *L. trispina* (Unnithan, 1964). Taxonomic diagnosis of new species and genera and of the species *Leptomazocraes* Mamaëv, 1975 is presented as well.

Key words: Monogenea; nomenclature of sclerites; Cribromazocraes bychowskyi gen. et sp. n.; C. nagibinae gen. et sp. n.; Etrumeicotyle pumilionis gen. et sp. n.; Heteromazocraes dodecacantha gen. et sp. n.; H. coiliae gen. et sp. n.; Leptomazocraes arabica sp. n.

Introduction

Mazocraeidae Price, 1936 is a type family of the order Mazocraeinea, the largest order of higher monogeneans in Bykhovsky's system. However, this family remains one of the least examined. This is due, first of all, to the extreme complexity of mazocraeid clamp structure. The clamps are very modified: some elements of clamp skeleton fused, supplementary sclerites are formed by sclerotization of fibrous basis substantion of the clamp walls. Most sclerites are very broad but thin, they overlap one another and are poorly visible. That is why almost all the works on mazocraeids have the most general and very rough pictures of their clamps. There is a few articles only in which mazocraeid clamps are carefully examined (Bykhovsky and Nagibina, 1954; Llewellyn, 1957).

Material and methods

The author of the present paper attempted to study morphology of some mazocraeids at one time (Mamaev, 1975), but failed, as it must be admitted: many slender details of clamps remained obscure. This was due to a lack of materials and, to a great extent, of experience in studying this complex monogenean group. However, at present is a lot of mazocraeid materials available at the Laboratory of General Helminthology, obtained from various regions of the World Ocean and received from many research organizations. This allows us to begin studies of mazocraeid morphology in detail and to discuss the problems of systematics.

The paper concerns the description of new species and genera of mazocraeids. However, some words should be said about morphological peculiarities of Mazocraeidae on the whole clarifying some terms, since descriptions contain many morphological characters which were ignored formerly.

The technique procedure developed by Bykhovsky and Nagibina (1954) was used for study of mazocraeid clamps.

The holotypes of new taxa described are kept in collection at the Laboratory of General Helminthology, Institute of Biology and Pedology, Far East Science Centre, USSR Academy of Sciences.

The basic morphological peculiarities of mazocraeids

First of all, mazocraeids are characterized by the peculiar clamp structures and copulative apparatus.

Let us consider the structure of the simplest clamp (Fig. 1 A). Its skeleton consists of 8 sclerites: paired sclerita antero-lateralia and postero-lateralia; unpaired scleritum medio-basale, medio-supplementarium, antero-supplementarium and postero-supplementarium.*

The subsequent development of clamp skeleton results in a fusion of sclerita antero-lateralia into united scleritum arcuatum anterius, and sclerita postero-lateralia into united scleritum arcuatum posterius (Fig. 1 B). These clamps are typical of half of mazocraeid genera known.

One more step of the development of clamp skeleton is the accretion of scleritum postero-supplementarium with scleritum arcuatum posterius (Fig. 1 C) resulting in the formation of the complex scleritum labiatum. These clamps are observed, at least, in 7 mazocraeid genera.

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* The names of basic elements of clamp skeleton, In Russian, were introduced by Bykhovsky (1957) and became common use in Soviet science literature. Some names were proposed by us for Mazocraeidae and related families (Mamaev, Parukhin, 1972; Mamaev, Slipchenko, 1975). The names in Latin used in this article are translated from the identical Russian terms. Nobody used these Latin names formerly, except for Lebedev (1975), but our terminology somewhat differs from his.

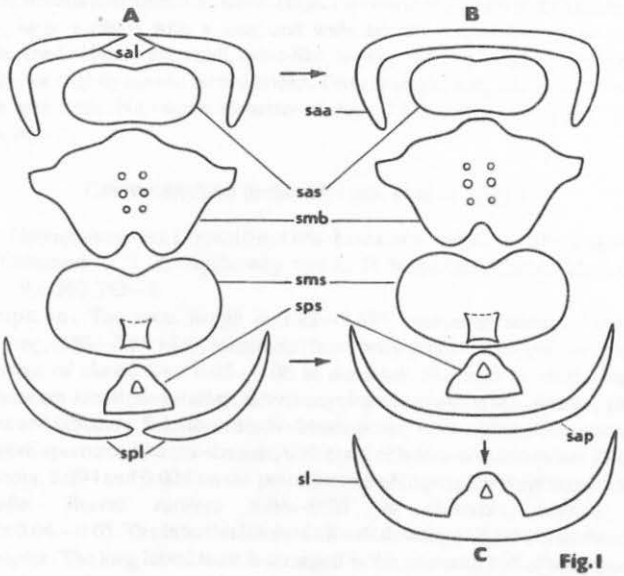

Fig. 1. The scheme of structure of mazocraeid clamp skeleton and nomenclature of its elements: A — the simple (primitive) skeleton; B, C — The skeleton complicated by fusion of some sclerites

Abbreviations

sal — sclerita antero-lateralia
sas — scleritum antero-supplementarium
smb — scleritum medio-basale
sms — scleritum medio-supplementarium
sps — scleritum postero-supplementarium
spl — sclerita postero-lateralia
saa — scleritum arcuatum anterius
sap — scleritum arcuatum posterius
sl — scleritum labiatum

The clamp skeleton represented in Fig. 1 is rather schematic. Really the shape of sclerites in various mezocraeid species may differ greatly. More or less similar in shape for all the mazocraeids are sclerita antero-lateralia and postero-lateralia, and developing from them arcuatum anterius and arcuatum posterius. Scleritum postero-supplementarium is usually trapezoid or triangular, with foramen (as in Fig. 1) or solid. Scleritum medio-supplementarium is ovoid or "saddle-shaped", with the notch on posterior edge. This sclerite has, as rule, wide canal with a tendon of extrinsic muscles passing through it and attaching to scleritum postero-supplementarium or to the projection of scleritum labiatum. Scleritum medio-supplementarium in monogeneans of the subfamily Grubeinae is of absolutely different structure; it has a long posterior appendage and sharp drawn of posteriorly lateral tips, and wide foramen instead of canal.

A great variety of shape is typical of scleritum medio-basale. It is no good describing all its variations, the more so, though they are numerous, the deviations from the schematic type

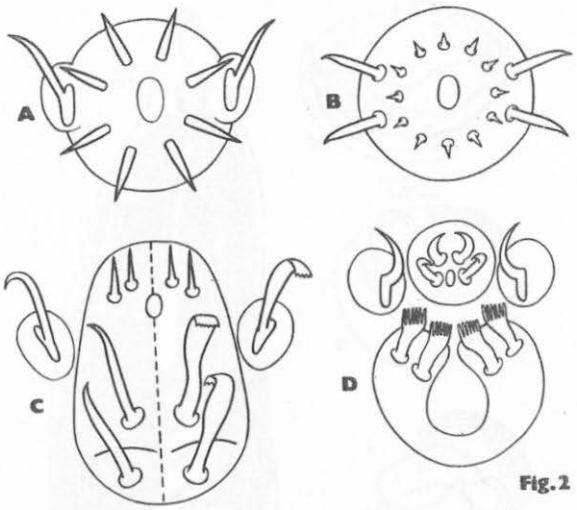

Fig. 2. The types of structure of mazocraeid copulative organ:
A — the typical (ordinary); B — genus *Leptomazocraes*; C — genus *Heteromazocraes* gen. n.; D — genus *Paramazocraes*

(represented in Fig. 1) are negligible. The shape of scleritum medio-basale of Grubeinae differs from the type in the most degree: it is long and narrow as in higher monogeneans of the other families. Such a shape may be primary and primitive for mazocraeids.

Two parallel rows of apertures on scleritum medio-basale are particulary characteristic of Mazocraeidae. Probably the thin tendons of muscles are passing through these apertures (Bykhovsky, 1975). Usually there are 3—4 pairs of the apertures, but sometimes much more.

The usual shape of scleritum antero-supplementarium is given in Fig. 1, but it may have lateral hollows or apertures; sometimes it is elongated not transversely, but along the clamp. The monogeneans of some genera have a pair of small sclerites instead of such a big one. Scleritum antero-supplementarium obviously differs from other elements of clamp in its origin (Llewellyn, 1957).

Description of new mazocraeid taxa

Cribromazocraes gen. n.

Generic diagnosis: Mazocraeinae with 4 pairs of similar clamps, closed type, nearly globular. Skeleton of clamp consists of 5 sclerites: arcuatum anterius, antero-supplementarium, medio-basale, medio-supplementarium and labiatum. Scleritum medio-basale is perfo-

rated with numerous apertures, like sieve. Haptor is constricted from body proper. Two pairs of anchors; large anchors with a long and wide handle. Copulative organ is typical of mazocraeids; medial hooks are small, spine-like, arranged in two longitudinal rows; a pair of small, straight or slightly curved lateral hooks. Testis is single, long and lobed. Ovary is long, side by side with testis. No vagina. Parasites of clupeid fishes. Type species: *C. bychowskyi* Mamaëv sp. n.

Cribromazocraes bychowskyi gen. et sp. n. (Fig. 3)

Host: *Harengula zunasi*. Location: Gills. Locality and date: The Yellow Sea, May 25, 1957 (Collected by B. E. Bykhovsky and L. F. Nagibina). Material: 2 specimens. Holotype: No. 262/TO—1.

Description: The total length is 3.22—3.58*, maximum width — 0.82. Haptor 0.44—0.53 long, 0.53—0.64 wide, constricted from body proper. Four pairs of similar nearly globular clamps of closed type 0.05—0.06 in diameter. Skeleton of clamp consists of 5 sclerites: scleritum arcuatum anterius, antero-supplementarium, medio-basale, medio-supplementarium and labiatum. Scleritum medio-basale is very wide and massive, perforated with numerous small apertures, like tea-strainer, with a pair of latero-dorsal notches. There are two pairs of anchors, 0.094 and 0.024 on the posterior end of haptor. They are large with long and wide handle. Buccal suckers 0.04—0.05 in diameter, septate; pharynx 0.05—0.06×0.04—0.05. The intestinal limbs with well developed lateral branches come up to the end of haptor. The long lobed testis is arranged in the posterior half of body (apparently it is formed by means of confluence of many small testes). Copulative organ 0.03×0.02 in size is typical of mazocraeids, but with short hooks, that are turned into straight spines. Medial hooks 0.006—0.008 long, 9—10 in number, are arranged in two longitudinal rows; a pair of lateral hooks 0.010 long. Ovary is folded in two, very long (the total length about 2 mm) and placed to the right of testis. Vitellaria are well developed, but do not reach the haptor. No vagina. The mature eggs are not found.

Cribromazocraes nagibinae sp. n. (Fig. 4)

Host: *Clupea antipodus*. Location: Gills. Locality and date: The Pacific by New Zealand, July 18, 1969 (collected by 24th Parasitological expedition of the Pacific Research Institute of Fisheries and Oceanography). Material: single specimen. Holotype: No. 263/TO—576.

Description: The total length is 2.23, maximum width of the body — 1.65. Haptor 0.60 long, 0.5 wide. Clamps are slightly different in size: anterior pair 0.08 and posterior 0.06 in diameter. The structure of clamps as in the type species. Anchors about 0.080 and 0.022 long. Buccal suckers 0.05 in diameter, with well developed septa. Pharynx 0.053×0.046 in size. Copulative organ — 0.04×0.05 has 10 medial straight hooks 0.008 long arranged in two longitudinal rows; pair of lateral hooks is about of the same size slightly curved. Testis is long, somewhat lobed. Long and narrow ovary is placed side by side with testis. The vitellaria are

* All measurements are given in mm

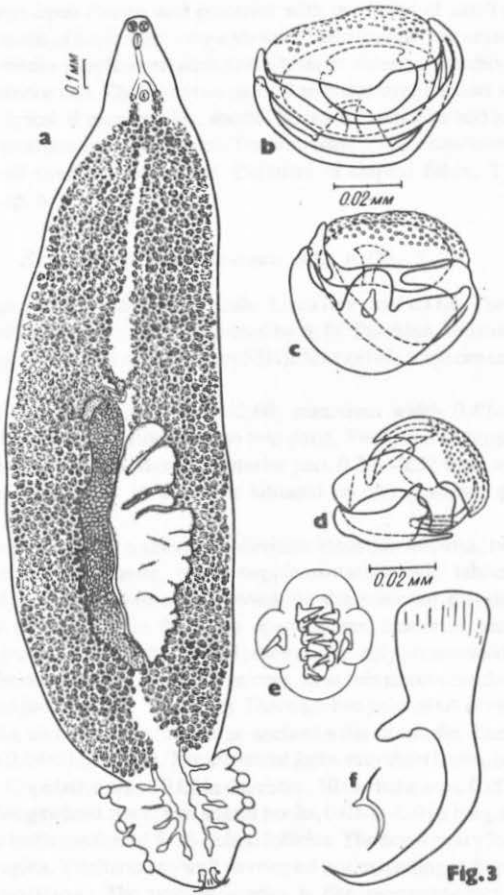

Fig. 3. *Cribromazocraes bychowskyi* gen. et sp. n.
a — Entire worm; b—d — Clamps in various postures; e — Copulative organ; f — Anchors

extending along the whole intestine up to nearly the end of haptor. No vagina. Eggs are not found.

This species differs from the type one in larger clamps and haptor and in lesser total size of body, and also in vitellaria extending up to nearly the end of haptor.

Systematic position: The monogenean species decribed are resembling, in some degree, representatives of the genus *Mazocraeoides* Price, 1936 (single testis arranged side by side with ovarium), but differ in the well-defined haptor (*Mazocraeoides* has no haptor as

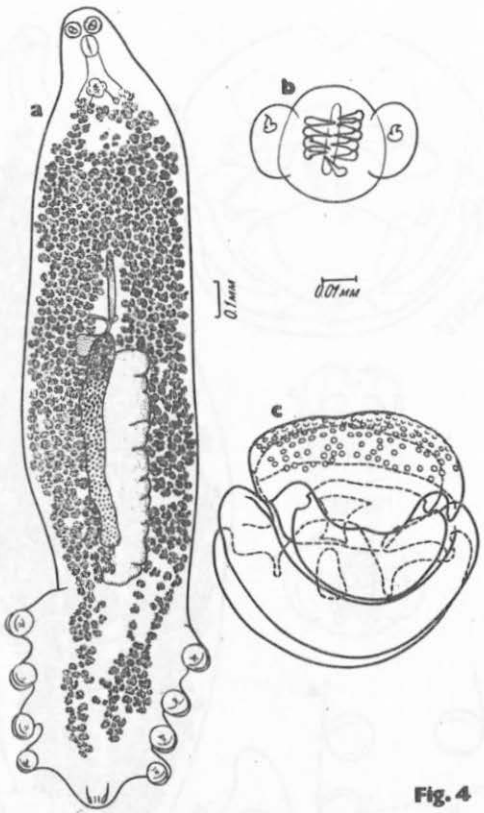

Fig. 4. *Cribromazocraes nagibinae* gen. et sp. n.
a — Entire worm; b — Copulative organ; c — Clamp

such, and the clamps situated on margins of body proper). The new species are distinguished from all the known mazocraeids by structure of clamps: scleritum medio-basale is perforated by numerous apertures and like a tea-strainer. The peculiarities said allow to propose a new genus. The name of the genus is derived from the Latin word cribrum — sieve. The species were named after Academician B. E. Bykhovsky and L. F. Nagibina, who made a valuable contribution to the study of monogeneans (the type species of the genus is described on the basis of their collections).

Etrumeicotyle gen. n.

Generic diagnosis: Mazocraeinae with haptor clearly divided into two parts: anterior

with two pairs of large open clamps and posterior with two pairs of small closed clamps. Skeleton of clamp consists of 6 sclerites: very wide scleritum anterius, two antero-supplementaria, medio-basale, medio-supplementarium and labiatum. Scleritum medio-basale has two projections on its posterior end. There are two pairs of anchors, large anchors without handle. Copulative organ is typical of mazocraeids: medial hooks are spinelike and arranged in two longitudinal rows; lateral hooks daggershaped. Testis consists of some confluated follicles, it is placed behind a small ovarium. No vagina. Parasites of clupeid fishes. Type species *E. pumilionis* Mamaëv, sp. n.

Etrumeicotyle pumilionis gen. et sp. n. (Fig. 5)

Host: *Etrumeus microps*. Location: Gills. Locality and date: The Indian Ocean near Africa (Bao-Pash area), June, 1969 (collected by A. M. Parukhin, Institute of Biology of South Seas, Academy of Sciences of Ukrainian SSR). Material: 9 specimens. Holotype: No. 261/ИО—838.

Description: The total length 2.12—2.60, maximum width 0.42—0.72. Haptor 0.37—0.40 long is divided by constriction into two parts. Two pairs of large open clamps, 0.08—0.09 in diameter, are arranged on the anterior part, 0.32—0.52 wide, and two pairs of small closed clamps 0.03—0.04 in diameter situated on the posterior part of haptor 0.16—0.24 wide.

Skeleton of clamp consists of 6 sclerites: scleritum arcuatum anterius, two small lateral antero-supplementaria, medio-basale, medio-supplementarium and labiatum. Scleritum arcuatum anterius is very wide, with a small notch on the posterior margin. The notch is particularly strongly pronounced in the large open clamps. Scleritum medio-basale has specific hornlike projections on its posterior end; they are strongly pronounced in small closed clamps especially. The small clamps, unlike large ones, have thin transverse chitinoid stripe on the external margin of jaws (see Fig. 5b and 5c). There are two pairs of anchors, 0.045—0.047 and 0.014 long, on the end of haptor. The large anchors without handle. The buccal suckers 0.03—0.04, pharynx 0.04×0.03 in size. The intestinal limbs with short lateral branches extend somewhat in haptor. Copulative organ 0.03 in diameter; 10 medial spines, 0.008—0.012 long are arranged in two longitudinal rows; two lateral hooks, 0.014—0.016 long, have the typical shape of dagger. The testis consists of 5—6 united follicles. The small ovary folded in two lies before a testis. No vagina. Vitellaria are well developed not extending in haptor. No eggs.

Systematic position: The present species is like representatives of the genera *Pseudoanthocotyle* Bychowsky et Nagibina, 1954 and *Pseudoanthocotyloides* Price, 1958, but differs from them in a presence of two (but not one) pairs of the large open anterior clamps, in the structure of clamp skeleton and haptor clearly divided into two parts. That is why this species should by ranked as a new genus in my opinion.

Heteromazocraes gen. n.

Generic diagnosis: Mazocraeinae with clamps widely differing in the size and form; two anterior clamps on one side of a haptor are large, wide and open; two posterior clamps on the same side of haptor and all four clamps on other are rather smaller, narrow and closed. Skeleton of clamp consists of 7 sclerites: pair of sclerita antero-lateralia, antero-supplementa-

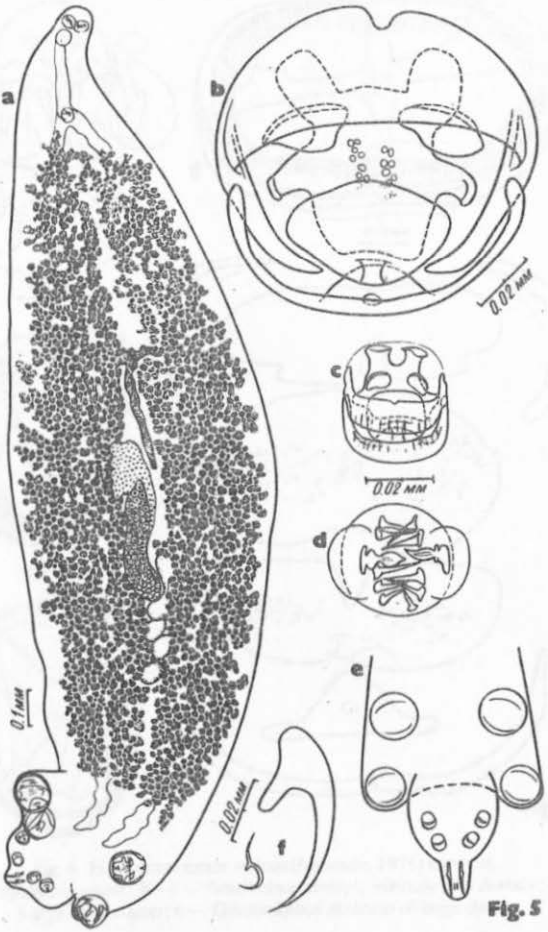

Fig. 5. *Etrumeicotyle pumilionis* gen. et sp. n.
a — Entire worm; b — Large open clamp (of open type); c — Small close clamp (of close type); d — Copulative organ; e — Scheme of haptor; f — Anchors

rium, medio-basale, medio-supplementarium, postero-supplementarium and arcuatum posterius (the latter is formed by united, but incompletely fused sclerita postero-lateralia). Haptor is narrow, not constricted from a body proper, it has long posterior appendage with two pairs of anchors and a pair of hooklets. The anchors with short wide rounded handle.

Buccal suckers joint together, aseptate. Apical glands are well developed, especially, two pairs at the level of genital atrium. Copulative organ has complex armature consisting of two groups of medial and a pair of lateral hooks. Hooks may be in the form of crescent, of knife blade, scoop and scraper with indented margin. Testes are not numerous, large. Ovarium small. Single middorsal vaginal pore or a pair of dorsolateral. Parasites of anchovies (Engraulidae). Type species: *H. vicinus* (Mamaëv, 1975) comb. n. Other species: *H. phase* (Tripathi, 1957) comb. n., *H. kazikodiensis* (Gupta et Khullar, 1968) comb. n. (sp. inquirenda), *H. thrissoclissae* (Unnithan, 1964) comb. n. (sp. inquirenda), *H. dodecacantha* Mamaëv, sp. n., *H. coiliae* Mamaëv, sp. n.

The present genus is being substantiated for some monogenean species, which were previously included in the genus *Paramazocraes* Tripathi, 1959. It should be noted that Unnithan (1964) attempted to substantiate the separate genus *Heterocotyle* for one of representatives of this genus. However, the name is invalid, as it was nomen preoccupatum (Scott, 1904). The type species (single in that taxon) — *Heterocotyle thrissoclissae* was described by Unnithan quite inadequately with errors. Only generic features are shown in the description rather well and it is impossible to determine whether the species is valid or conspecific with other. That is why I designate it as *Heteromazocraes trissoclissae* (Unnithan, 1969) sp. inquirenda.

Heteromazocraes vicinus (Mamaëv, 1975) comb. n. (Fig. 6)

Hosts: *Trissocles* sp., *Th. hamiltoni*. Location: Gills. Locality and date: Tonkin Bay, March, 1960; May, 1978.

A mistake has slipped by me in the original description: of lateral hooks of the copulative organ which were described and pictured as crescentic (see Mamaev, 1975, p. 106, Fig. 3); in fact, they are the same as in two posterior pairs, i.e. in the form of scraper with indented margin (Fig. 6a).

Clamps were not properly examined up to now. Thorough examination of type and new materials shows that a clamp of this species consists of 7 skeletal sclerites: a pair sclerita antero-lateralia, antero-supplementarium, medio-basale, medio-supplementarium, postero-supplementarium and arcuatum posterius, which is formed by jointed but not completely fused two sclerita postero-lateralia. The large clamps are of the open type and more wide than long, the small clamps are closed and more long than wide. Their skeletal sclerites differ greatly in the form (Fig. 6). The following differences are noteworthy: sclerita antero-lateralia of large clamps have a thin wing stretching from apex to the middle of sclerite, the same wing of small clamps is wide and long covering about one-third of the anterior jaw area (see Fig. 6b and e); scleritum postero-supplementarium of large clamps with aperture, whereas of small clamps without it. Jaws tinoid strips.

All the rest details of morphology of *H. vicinus* are given in the original description rather well (see Mamaev, 1975), numerical characteristics are given there too.

Heteromazocraes dodecacantha sp. n. (Fig. 7)

Host: *Trissocles* sp. Location: Gills. Locality and date: Tonkin Bay, March 14, 1960. Material: 5 specimens, but only one in a good condition and the description is based on it. Holotype: No. 267/CB—742.

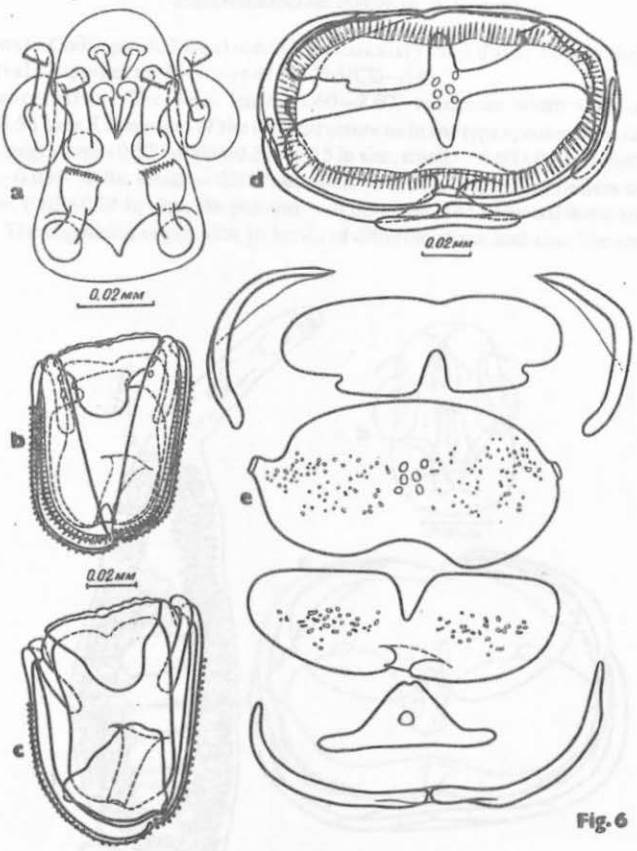

Fig. 6. *Heteromazocraes vicinus* (Mamaëv, 1975) comb. n.
a — Copulative organ; b—c — Small close clamps, ventraly and dorsaly; d — Large open clamp; e — Dismembered skeleton of large clamp

Description: The total length 1.72, maximum width 0.23, length of haptor 0.67. The large open clamps 0.085×0.15 in size, small closed clamps — 0.06—0.09×0.07—0.09; structure of clamps as in the type species. Three pairs of hooks on the posterior appendage have the following sizes: large anchors — 0.041, small anchors — 0.012, hooklets — 0.010. The hooks are of the same form as in the type species. The buccal suckers joint together, 0.02×0.03 in size, pharynx — 0.05×0.02. The intestinal limbs are thin without marked lateral appendages. The copulative organ is provided with 12 hooks: three pairs of anterior hooks are crescentic, 0.012—0.013 long; two pairs of the posterior hooks are slightly bent,

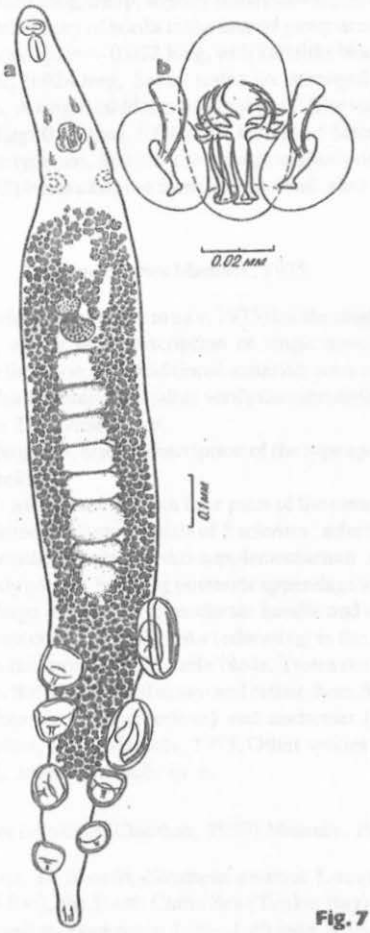

Fig. 7

Fig. 7. *Heteromazocraes dodecacantha* gen. et sp. n.
a — Entire worm; b — Copulative organ

0.018—0.020 long; a pair of lateral hooks is in a form of scoop, 0.034 long. Eight rather big testes are arranged in a single file behind of small short ovarium. There are two dorso-lateral vaginal pores. The vitellaria begin behind vaginal pores and extend up to the level of 3rd pair of clamps. No eggs.

The present species well differs from the type both in the number and form of hooks of the copulative organ.

Heteromazocraes coiliae sp. n. (Fig. 8)

Host: *Coilia grayii*. Location: Gills. Locality and date: Tonkin Bay, May 1978. Material: 2 specimens. Holotype: No 266/СБ—141.

Description: The total length 1.60—2.07, maximum width 0.28—0.31, haptor 0.48—0.58 long. Clamps are of the same structure as in the type species, but more rounded in shape; large clamps 0.07—0.08×0.11—0.15 in size, small — 0.05×0.06. Length of anchors: large — 0.038—0.04, small — 0.012; hooklets — 0.010. The buccal suckers aseptate, joint together, 0.03×0.04 in size; the pharynx — 0.06×0.04. The intestinal limbs are thin, hardly visible. The copulative organ with 10 hooks of different shape and size. The anterior pair of

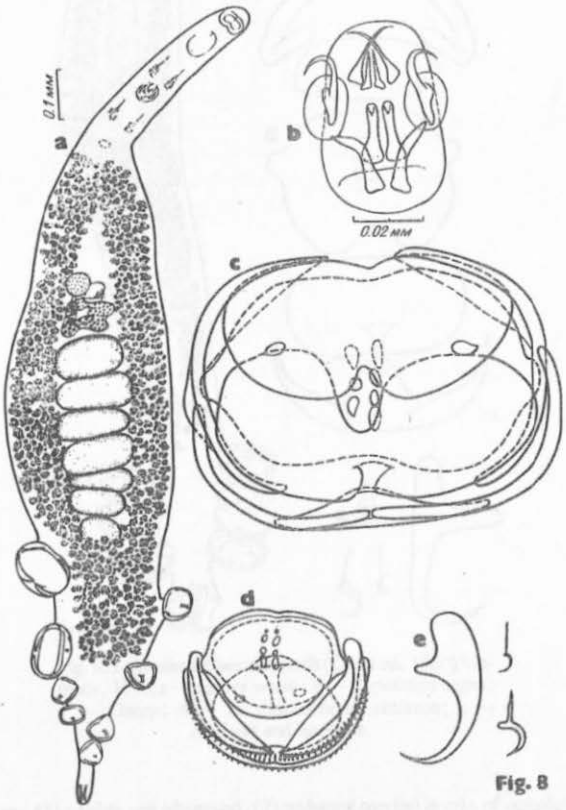

Fig. 8. *Heteromazocraes coiliae* gen. et sp. n.
a — Entire worm; b — Copulative organ; c — Large open clamp; d — Small close clamp; e — Anchors and hooklets

hooks in the first group is 0.020 long, sharp, slightly turned down; hooks of the posterior pair are sharp, straight. The anterior pairs of hooks in the second group are 0.024 long, sharp, with ventraly bent tops; the posterior pair — 0.022 long, with knifelike blade bending at the angle. The lateral hooks crescentic, 0.024 long. Seven testes are arranged in a single file behind rather long twisted ovarium. A single middorsal vaginal pore. The vitellaria extending up to the second pair of clamps. Eggs 0.28 long, 0.04 wide, with short filaments.

This species differs from type one, first of all, in a single vaginal pore and, in this respect, is like *H. phase* (Tripathi, 1957) but is different from it, as from all other, in the form of hooks of copulative organ.

Leptomazocraes Mamaëv, 1975

This genus was substantiated by me (Mamaev, 1975) for the single species — *Mazocraes orientalis* Chauhan, 1950, and a brief description of single specimen, available in our collection, was given at that time, too. The additional materials were received from the South China Sea more recently. This has made it possible verify the morphological description of the species and the whole genus *Leptomazocraes*.

More precise generic diagnosis, brief redescription of the type species and description of one new species are given below.

Generic diagnosis: Mazocraeinae with four pairs of the same closed clamps bearing very thin walls of jaws. Skeleton of clamp consists of 5 sclerites: scleritum arcuatum anterius, antero-supplementarium, medio-basale, medio-supplementarium and labiatum. Haptor slightly constricted from body proper, has a big posterior appendage with two pairs of anchors and pair of hooklets. The large anchors have moderate handle and a guard of same length. Copulative organ is feebly muscular; medial hooks reduced up to the minute tubercles; 1—5 pairs of lateral hooks are in the form of table-knife blade. Testes not numerous, arranged in a single file behind ovarium, the latter folded in two and rather short. Single middorsal vaginal pore. Parasites of small clupeids (Dussumierinae) and anchovies (Engraulidae). Type species: *L. orientalis* (Chauhan, 1950) Mamaëv, 1975. Other species: *L. trispina* (Unnithan, 1964) Mamaëv comb. n., *L. arabica* Mamaëv sp. n.

Leptomazocraes orientalis (Chauhan, 1950) Mamaëv, 1975 (Fig. 9)

Hosts: *Dussumieria sp., D. hasselti, Etrumeus microps.* Location: Gills. Locality: The Indian Ocean (Bengal Bay), the South China Sea (Tonkin Bay).

Description: The small monogeneans 1.00—1.40 long, 0.13—0.15 maximum wide, with a haptor indistinctly constricted off. Four pairs of the same closed clamps with very thinwall jaws. Skeleton consists of 5 sclerites: scleritum arcuatum anterius, antero-supplementarium, medio-basale, medio-supplementarium and labiatum. All medial sclerites of clamp are very wide. The posterior appendage of haptor bears two pairs of anchors 0.048 and 0.019 long, and pair of hooklets 0.015 long. The buccal suckers septate. The copulative organ is feably muscular with medial hooks reduced up to the minute tubercles, 10—14 in number and with 9—10 lateral hooks in a form of table-knife, about 0.010 long. Five small testes are behind the small ovarium. The vagina pore middorsal. The vitellaria not extending in haptor.

Previous descriptions of this species (Chauhan, 1950; Mamaëv, 1975) have the

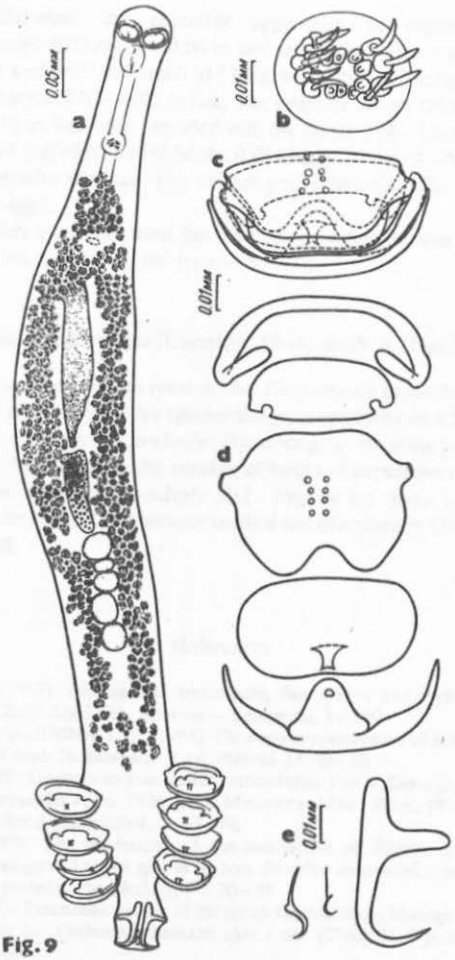

Fig. 9

Fig. 9. *Leptomazocraes orientalis* (Chauhan, 1950) Mamaëv, 1975: a — Entire worm; b — Copulative organ; c — Clamp; d — Its dismembered skeleton; e — Anchors and hooklets

following defects: (1) vagina not observed, (2) reduced medial hooks of copulative organ not observed (numerous lateral hooks were erroneously regarded as medial), (3) the structure of clamps not elucidated, (4) the anchors were depicted in the wrong way.

Leptomazocraes arabica sp. n. (Fig. 10)

Host: *Trissocles malabaricus*. Location: Gills. Locality and date: The Arabian Sea, September 10, 1969 (collected by A. M. Parukhin, Institute of Biology of South Seas, Academy of Sciences of Ukrainian SSR). Material: 6 specimens. Holotype: No. 264/ИО—2443.

Description: The total length 0.90—1.16, maximum width 0.13—0.17. The haptor

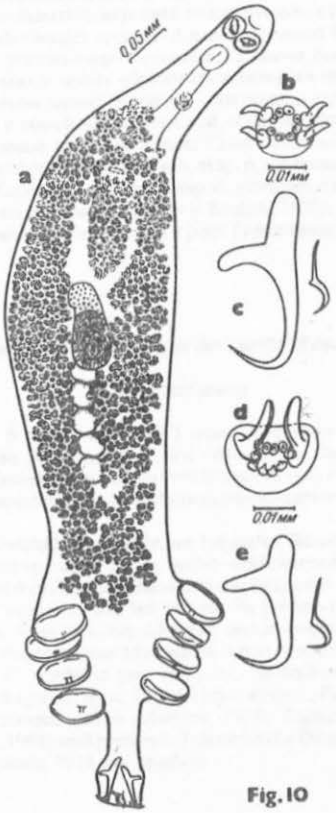

Fig. 10. *Leptomazocraes arabica* sp. n. and *L. trispina* (Unnithan, 1964):
L. arabica sp. n.: a — Entire worm; b — Copulative organ; c — Anchors
L. trispina: d — Copulative organ; e — Anchors

0.20—0.24 long, 0.20 wide, the posterior appendage of haptor 0.10—0.11 long, 0.04—0.05 wide. Clamps 0.03×0.05—0.06 in size are of the same structure as in the type species. Two pairs of anchors 0.050 and 0.017 long, hooklets 0.012 long. The buccal suckers 0.02—0.03×0.02, pharynx 0.03—0.02 in size, The intestine is very thin, poorly visible. The copulative organ 0.016 in diameter, provided with the crown of 8—10 minute medial spines and with two pairs of knifelike lateral hooks 0.014 long. Testes, 4—6 in number, placed behind a short but massive ovarium. The vaginal pore middorsal. The vitellaria somewhat extend in haptor. No eggs.

This species differs markedly from the type one in a few number of lateral hooks of copulative organs (it has 2 pairs and the type — 5 pairs).

Leptomazocraes trispina (Unnithan, 1964) comb. n. (Figs 10d, e)

There is a single specimen of this species from *Dussumieria haselti* from the South China Sea at our disposal. Examination of this species allows to establish that it has the clamps of the same structure as *L. orientalis* and, undoubtedly, belongs to the same genus. This species is like *L. arabica* sp. n., but differs in the number of hooks of copulative organ. More precise pictures of copulative organ and anchors of *L. trispina* are given in Fig. 10. The rest morphological characters of this species were studied and described by Unnithan (1964, pp. 162—165) rather well.

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Несколько новых видов и родов моногеней семейства Mazocraeidae

Выводы

Приводятся описания 6 новых видов и 3 новых родов моногеней сем. Mazocraeidae, уточняется морфология и систематическое положение нескольких ранее известных видов, рассматриваются основные особенности строения мазокреид, прежде всего их прикрепительных клапанов, предлагается латинская номенклатура элементов скелета клапанов. Все это иллюстрируется рисунками.

Скелет прикрепительных клапанов мазокреид состоит из следующих пластинок (склеритов): 2 передних боковых (scl. anterolateralia), передней дополнительной (scl. antero-supplementarium), срединной основной (scl. medio-basale), срединной дополнительной (scl. medio-supplementarium), задней дополнительной (scl. postero-supplementarium), 2 задних боковых (scl. postero-lateralia). Путем слияния передних боковых может образоваться непарная передняя пластинка (scleritum arcuatum anterius) а при слиянии задних боковых — дуговидная задняя (scl. arcuatum posterius). Последняя может сливаться с задней дополнительной, образуя губовидную пластинку (scl. labiatum). Описаны следующие новые виды моногеней: *Cribromazocraes bychowskyi* gen. et sp. n., *C. nagibinae* gen. et sp. n., *Etrumeicotyle pumilionis* gen. et sp. n., *Heteromazocraes dodecacantha* gen. et sp. n., *H. coiliae* gen. et sp. n., *Leptomazocraes arabica* sp. n., уточняется морфология *Heteromazocraes vicinus* (Mamaëv, 1975), *Leptomazocraes orientalis* (Chauhan, 1950), *L. trispina* (Unnithan, 1964), даются таксономические диагнозы новых родов и рода *Leptomazocraes* Mamaëv, 1975.

Ю. Л. Мамаев

Einige neue Arten und Gattungen der Familie Mazocraeidae

Zusammenfassung

Die Beschreibung von 6 neue Arten und 3 neuen Gattungen der Monogenea der Familie Mazocraeidae sind gegeben, die Morphologie und systematische Stellung einiger bekannter Arten werden geprüft, Hauptbesonderheiten der Struktur von Mazocraeidae, vor allem ihre Klappen werden analysiert, die lateinische Nomenklatur der Klappenskelettelemente ist gegeben. Alles wird mit Abbildungen illustriert.

Die Mazocraeidae-Skelettklappe besteht aus folgenden Skleriten: 2 sclerita antero-lateralia, scleritum antero-supplementarium, medio-basale, medio-supplementarium, postero-supplementarium, 2 sclerita postero-lateralia. Bei dem Zusammenfliessen von sclerita antero-lateralia kann ein ungepaartes scleritum anterius arcuatum entstehen und bei der sclerita postero-lateralia — scleritum arcuatum posterius. Das lätztgenannte kann sich mit scleritum postero-supplementarium vereinigen, damit scleritum labiatum entsteht. Folgende neue Monogenea Arten werden beschrieben: *Cribromazocraes bychowskyi* gen. et sp. n., *C. nagibinae* gen. et sp. n., *Etrumeicotyle pumilionis* gen. et sp. n., *Heteromazocraes dodecacantha* gen. et sp. n., *H. coiliae* gen. et sp. n., *Leptomazocraes arabica* sp. n. Die Morphologie von *Heteromazocraes vicinus* (Mamaëv, 1975), *Leptomazocraes orientalis* (Chauhan, 1952), *L. trispina* (Unnithan, 1964) wird prezisiert. Taxonomische Diagnosen neuer Gattungen und der Gattung *Leptomazocraes* Mamaëv, 1975 sind gegeben.

Ju. L. Mamaew

Niektoré nové druhy a rody monogenetických trematódov z čeľade Mazocraeidae

Súhrn

Uvádza sa opis 6 nových druhov a 3 nových rodov digenetických trematódov z čeľade Mazocraeidae. Spresňuje sa morfológia a systematická príslušnosť niekoľkých už známych druhov. Analyzujú sa základné zvláštnosti štruktúry príslušníkov čeľade Mazocraeidae, predovšetkým štruktúry ich prichytávacích orgánov. Navrhuje sa latinská nomenklatúra elementov skeletu prichytávacích orgánov. Jednotlivé časti práce sú doložené ilustračnými obrázkami.

Skelet prichytávacích orgánov v čeľadi Mazocraeidae pozostáva z nasledujúcich skleritov (platničiek): 2 predné bočné (sclerita antero-lateralia), predný doplnkový (scleritum antero-supplementarium), stredný základný (scl. medio-basale), stredný doplnkový (scl. medio-supplementarium), zadný doplnkový (scl. postero-supplementarium), 2 zadné bočné (sclerita postero-lateralia). Splynutím predných bočných skleritov môže vzniknúť nepárna oblukovitá predná platnička (scleritum arcuatum anterius), zatiaľ čo pri splynutí zadných bočných platničiek — oblúkovitý zadný sklerit (scleritum arcuatum posterius). Takto vzniknutý sklerit môže splynúť so zadnou doplnkovou platničkou vytvoriac tým labiálny sklerit (scleritum labiatum).

V príspevku sa opisujú nasledujúce nové druhy monogenetických trematódov: *Cribromazocraes bychowskyi* gen. et sp. n., *C. nagibinae* gen. et sp. n., *Etrumeicotyle pumilionis* gen. et sp. n., *Heteromazocraes dodecacantha* gen. et sp. n., *H. coiliae* gen. et sp. n., *Leptomazocraes arabica* sp. n. a spresňuje sa morfológia nasledujúcich druhov: *Heteromazocraes vicinus* (Mamaëv, 1975), *Leptomazocraes orientalis* (Chauhan, 1950), *L. trispina* (Unnithan, 1964). Uvádza sa tiež taxonomická diagnóza nových druhov a nových rodov a rodu *Leptomazocraes* Mamaëv, 1975.

Ju. L. Mamaëv