HORTON H. HOBBS, JR.
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New Entocytherid Ostracods with a Key to the Genera of the Subfamily Entocytherinae

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ABSTRACT

Hobbs, Horton H., Jr., and H. H. Hobbs III. New Entocytherid Ostracods with a Key to the Genera of the Subfamily Entocytherinae. *Smithsonian Contributions to Zoology,* 47:1–19, 1970.—Following a key to the genera of the subfamily Entocytherinae, keys to the species of each of the genera, *Ascetocythere, Dactylocythere,* and *Geocythere* precede the descriptions of new species, *A. lita, D. coloholca, D. macroholca, D. pughae,* and *G. nessoides. Entocythere tyttha* and a new genus and species, *Lordocythere petersi,* are also described, and *Thermastrocythere harti* is synonymized with *T. riojai,* new combination. All of the new species are from the southeastern part of the United States.

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New Entocytherid Ostracods with a Key to the Genera of the Subfamily Entocytherinae

Presented here are a key to the genera of the subfamily Entocytherinae, descriptions of a new genus and seven new species, together with keys to the members of the genera *Ascetocythere, Dactylocythere,* the largest of the entocytherid genera, and *Geocythere.* The genus *Lordocythere* is proposed to receive an undescribed species, occurring in the Cumberland drainage system in southeastern Kentucky, which differs from all entocytherids in possessing, among other features, a posteriorly oriented penis. The remaining species, all also from the southeastern part of the United States, are assigned to *Ascetocythere, Dactylocythere, Entocythere,* and *Geocythere.*

The most recent key to the genera of the subfamily is that of Hobbs and Hart (1966:36). Following this publication, five additional genera, including that proposed herein, have been added, thus bringing the total to 19. Hobbs and Walton described the genera *Thermastrocythere* (1966:7) and *Litocythere* (1968:247); Hobbs (1967:2) added the genus *Ornithocythere;* Hobbs III (1969:167) proposed the genus *Saurocythere;* and one additional monotypic genus is described herein. The ranges of all of the genera proposed before 1968 are discussed by Hart and Hart (1969).

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Listed below are the described genera together with the number of species assigned to each.

List of genera	*Number of species*
Ankylocythere, Hart, 1962:126	14
Ascetocythere, Hart, 1962:128	12
Cymocythere, Hart, 1962:128	3
Dactylocythere, Hart, 1962:129	31
Donnaldsoncythere, Rioja, 1942:686	10
Entocythere, Marshall, 1903:120	12
Geocythere, Hart, 1962:134	3
Harpagocythere, Hobbs III, 1965: 163	2
Litocythere, Hobbs and Walton, 1968:247	1
Lordocythere (new genus, herein)	1
Okriocythere, Hart, 1964:243	1
Ornithocythere, Hobbs, 1967:2	2
Phymocythere, Hobbs and Hart, 1966: 48	1
Plectocythere, Hobbs III, 1965:161	2
Rhadinocythere, Hart, 1962:135	1
Sagittocythere, Hart, 1962:135	2
Saurocythere, Hobbs III, 1969:167	1
Thermastrocythere, Hobbs and Walton, 1966:7	1
Uncinocythere, Hart, 1962:136	21

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Key to the Genera of the Subfamily Entocytherinae

1	Penis with prostatic and spermatic elements widely separated along much of their lengths 2
1′	Penis simple; or if two elements recognizable, contiguous along their entire lengths 4
2 (1)	Ventral portion of peniferum tapering with tip of penis reaching or almost reaching apex ..... ***Plectocythere***
2′	Ventral portion of peniferum usually rounded or with one or more prominences, seldom tapering; if tapering, tip of penis never approaching apex 3
3 (2′)	Ventral portion of peniferum rounded, without prominences ..... ***Phymocythere***
3′	Ventral portion of peniferum with one or more prominences ventrally and/or anteriorly ..... ***Ascetocythere***
4 (1′)	Penis directed posteroventrally from base ..... ***Lordocythere,*** new genus
4′	Penis directed anteroventrally from base 5
5 (4′)	Finger guard present 6
5′	Finger guard absent 10
6 (5′)	Peniferum with accessory groove except in *Dactylocythere leptophylax* in which finger guard always slender and trifid 7
6′	Peniferum without accessory groove; finger guard never slender and trifid 8
7 (6)	Posteroventral portion of peniferum terminating in barbed point ..... ***Sagittocythere***
7′	Posteroventral portion of peniferum variable, but never ending in barbed point ..... ***Dactylocythere***
8 (6′)	Ventral portion of peniferum bulbiform, clasping apparatus never extending so far ventrally as does peniferum ..... ***Cymocythere***
8′	Ventral portion of peniferum slender or strongly flattened; clasping apparatus extending ventrally to or beyond ventral extremity of peniferum 9
9 (8′)	Ventral portion of peniferum slender, terminating in small recurved projection ..... ***Harpagocythere***
9′	Ventral portion of peniferum flattened and with concave ventral border ..... ***Litocythere***
10 (5′)	Anteroventral portion of peniferum with acute beaklike projection ..... ***Ornithocythere***
10′	Anteroventral portion of peniferum never with beaklike projection 11
11 (10′)	External border of horizontal ramus of clasping apparatus with one or more excrescences 12
11′	External border of horizontal ramus of clasping apparatus entire or with few shallow subapical grooves 15
12 (11)	Anteroventral portion of peniferum produced ventrally in rounded lobe 13
12′	Anteroventral portion of peniferum never produced ventrally in rounded lobe; if produced, apex acute or truncate 14
13 (12)	Spermatic loop horizontal; peniferum distal to dorsal margin of spermatic loop at least twice as long as portion dorsal to loop; clasping apparatus with external border bearing single tubercle and terminating in fanlike cluster of serrations ..... ***Saurocythere***
13′	Spermatic loop vertical; peniferum distal to dorsal margin of spermatic loop much less than twice as long as portion dorsal to loop; clasping apparatus with external border broadly serrate and terminating in annulations ..... ***Okriocythere***
14 (12′)	Anteroventral portion of peniferum with conspicuous anterodorsally directed projection ..... ***Geocythere***
14′	Anteroventral portion of peniferum never with conspicuous anterodorsally directed projection ..... ***Ankylocythere***
15 (11′)	Internal border of clasping apparatus usually with no more than three teeth; if more than three, with only two apical denticles or vertical ramus strongly convex posteriorly 16
15′	Internal border of clasping apparatus with more than three teeth, apical cluster with more than two denticles, vertical ramus straight 18
16 (15)	Clasping apparatus not clearly divisible into vertical and horizontal rami, extremities directed at angle of at least 100 degrees ..... ***Donnaldsoncythere***
16′	Clasping apparatus usually divisible into vertical and horizontal rami, extremities directed at angle of no more than 90 degrees 17

Key to the Genera of the Subfamily Entocytherinae—Continued

17 (16′) Penis large, S-shaped or sinuous, and with curved posteroventral thickening of peniferum presenting forcipate appearance to ventral portion of peniferum. . ***Thermastrocythere***

17′ Penis of moderate size, L-shaped, and never so disposed as to contribute forcipate appearance to ventral portion of peniferum ***Uncinocythere***

18 (15′) Ventral portion of peniferum tapering to slender tip ***Rhadinocythere***

18′ Ventral portion of peniferum never slender nor tapering ***Entocythere***

Genus *Ascetocythere* Hart, 1962

DIAGNOSIS.—Terminal tooth of mandible pectinate. Male copulatory complex without finger guard; peniferum extending ventrally much beyond clasping apparatus, elongate, comparatively slender, with subterminal bulbous enlargement bearing one to several projections; penis consisting of separate dorsal spermatic and ventral prostatic elements basally and directed anteriorly or anteroventrally; both elements always shorter than clasping apparatus; accessory groove lacking. Clasping apparatus well developed and may or may not be clearly divisible into vertical and horizontal rami; external border of horizontal ramus entire, internal border with two, three, or no teeth along apical half, if present, often grouped far distally with three apical denticles. Triunguis female lacking pectinate process on distal podomere of second antenna; genital complex consisting of genital papilla but lacking J-shaped rod and amiculum. (Slightly modified from Hobbs and Hart, 1966:37–38.)

TYPE-SPECIES.—*Entocythere asceta* Hobbs and Walton, 1962:43; by designation, Hart, 1962:128.

Key to the Species of the Genus *Ascetocythere*

(Modified from Hobbs and Hart, 1966)

1 Internal border of distal half of clasping apparatus with one or more teeth situated proximal to distal denticles, or internal border unarmed (Asceta Group) 2

1′ Internal border of clasping apparatus with teeth and distal denticles grouped distally (Coryphodes Group) 10

2 (1) Bulbous portion of peniferum with well-developed cephalic process 3

2′ Bulbous portion of peniferum lacking cephalic process 8

3 (2) Ventral portion of peniferum with angular flange 4

3′ Ventral portion of peniferum lacking angular flange 5

4 (3) Ventral extremity of peniferum with fingerlike projection extending ventrally beyond angular flange . . . . . ***A. asceta*** (Hobbs and Walton, 1962:39)

4′ Ventral extremity of peniferum lacking fingerlike projection extending ventrally beyond angular flange . . . . . ***A. ozalea*** Hobbs and Hart, 1966:40

5 (3′) Ventral portion of peniferum with posterior process 6

5′ Ventral portion of peniferum lacking posterior process 7

6 (5) Anterior process of peniferum much shorter than digitiform process and situated on level above base of penis . . . . . ***A. sclera*** Hobbs and Hart, 1966:42

6′ Anterior process of peniferum as long as digitiform process and situated on level below base of penis . . . . . ***A. holti*** Hobbs and Walton, 1970:853

7 (5′) External border of clasping apparatus with proximal bend at end of proximal fifth of apparatus; penis reaching posterior surface of digitiform process . . ***A. lita,*** new species

7′ External border of clasping apparatus with proximal bend at end of proximal third of apparatus; penis extending along anterior side of digitiform process . . . . . ***A. batchi*** Hobbs and Walton, 1968:237

8 (2′) Ventral portion of peniferum lacking angular flange . . . . . ***A. didactylata*** Hobbs and Hart, 1966:43

8′ Ventral portion of peniferum with angular flange 9

9 (8′) Ventral portion of peniferum with distinct curved digitiform process extending posteroventrally from flange . . . . . ***A. hoffmani*** Hobbs and Hart, 1966:40

9′ Ventral portion of peniferum lacking distinct digitiform process . . . . . ***A. hyperoche*** Hobbs and Hart, 1966:41

Key to the Species of the Genus *Ascetocythere*—Continued

10 (1′) Anterior surface of subterminal or terminal enlargement of peniferum with anteroventrally projecting, clublike prominence and two additional prominences..... ***A. cosmeta*** Hobbs and Hart, 1966:46

10′ Anterior surface of terminal enlargement of peniferum with single prominent snoutlike projection.....11

11 (10′) Snoutlike prominence less than half as long as longitudinal diameter of peniferum at level of prominence..... ***A. myxoides*** Hobbs and Hart, 1966:45

11′ Snoutlike prominence more than two-thirds as long as longitudinal diameter of peniferum at level of prominence..... ***A. coryphodes*** Hobbs and Hart, 1966:44

Ascetocythere lita, new species

FIGURES 1*a–d*

MALE.—Eye pigmented. Shell (Figure 1*c*) subovate with posterior region much higher than anterior, greatest height slightly posterior to midlength; ventral margin weakly concave anterior to midlength. Submarginal setae, although sparse, present anteriorly, posteriorly, and ventrally; absent dorsally.

Copulatory complex (Figures 1*a, b*) with peniferum bearing two prominences extending from subterminal expansion: anterior process straight and rodlike, its length subequal to that of anteroposterior plane of distal portion of peniferum, and directed anteriorly from upper surface of bulbous expansion; ventral process heavier than anterior process, broad at base and tapering anteroventrally, bearing longitudinal penial groove. Penis long, otherwise unremarkable. Clasping apparatus divisible into vertical and horizontal rami, former with subangular bend proximally; internal border of horizontal ramus with three teeth, proximal most prominent; external border entire, curving anterodorsally from junction of rami to level of proximal tooth on internal border, from there extending anteriorly to base of three apical denticles. Dorsal finger comparatively stout and terminating in simple seta directed ventrally; ventral finger slender, curved anteriorly parallel to anterior process of peniferum.

TRIUNGUIS FEMALE.—Eye pigmented. Shell (Figure 1*d*) of approximately same size and otherwise similar to that of male. Genital complex situated posterodorsally and consisting of sclerotized cone-shaped prominence tapering ventrally with orifice at ventral extremity; paired fingerlike projections lateral to cone directed ventrally; small sclerotized rod surrounded by granular mass located anterodorsally to cone.

Measurements (in millimeters) of ten males and two females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0.42	0.39–0.42	0.42	0.42
Average		0.41		0.42
Height (range)	0.25	0.23–0.26	0.23	0.23–0.25
Average		0.24		0.24

TYPE-LOCALITY.—Creek and burrows in seepage area (Cumberland River drainage system), 4.8 miles southwest of junction of U.S. Hwy. 25W and Interstate Hwy. 75 on U.S. Hwy. 25W, southwest of Corbin, Whitley County, Kentucky. This is the only locality from which *A. lita* has been collected.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), numbers 126251 and 126252. Paratypes are in the collections of C. W. Hart, Jr. (1 ♂), H.H.H.III (1 ♂), and the Smithsonian Institution (2 ♂, 1 ♀).

HOSTS.—*Cambarus sphenoides* Hobbs and an unidentified species of the genus *Cambarus*.

ENTOCYTHERID ASSOCIATES.—*Donnaldsoncythere tuberosa* (Hart and Hobbs 1961: 182), *Dactylocythere coloholca* (see under the species), *D. pughae* (see under the species), and *Lordocythere petersi* (see under the species).

RELATIONSHIPS.—*Ascetocythere lita* unquestionably has its closest affinities with the members of the Asceta Group (Hobbs and Hart, 1966: 39) and is more closely allied to *A. batchi* than to any other member of the genus. It may be distinguished from all other species of the group by the major bend of the clasping apparatus occurring distal to the midlength, one of the characters utilized by Hobbs and Hart (op. cit.: 44) in defining the Coryphodes Group. In light of the fact that *A. lita* obviously is more closely related to *A. asceta* and its allies than to *A. coryphodes* and its relatives, this character must be deleted from the definition of the two groups. Like the members of the Asceta Group, the internal border of the clasping apparatus of *A. lita* has three teeth not grouped with the terminal

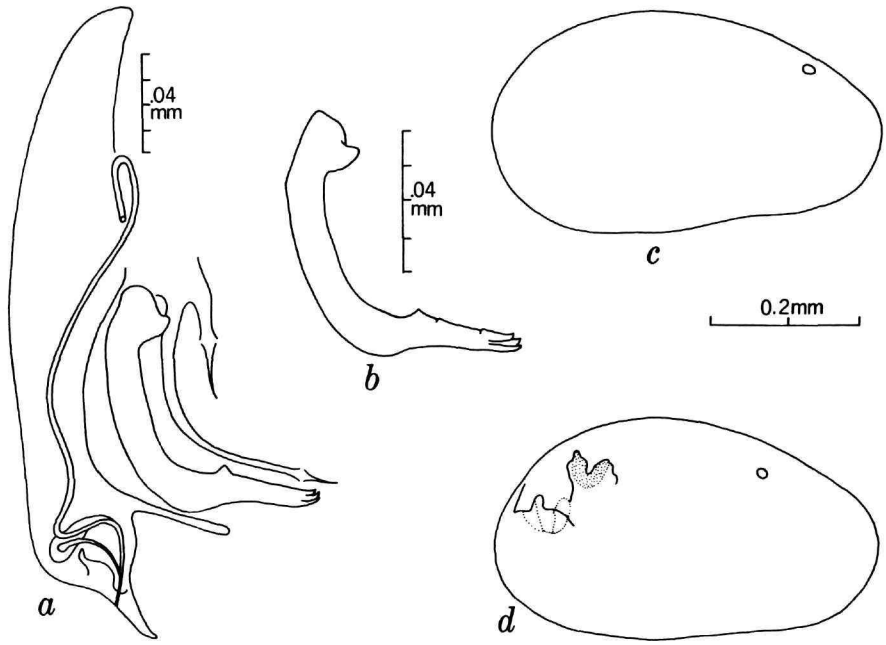

FIGURE 1.—*Ascetocythere lita*, type-locality: *a*, copulatory complex of male; *b*, clasping apparatus of male; *c*, shell of male; *d*, shell of female.

denticles, and the distal portion of the peniferum is armed with projections.

ETYMOLOGY.—Litos (Greek) = plain; referring to the comparatively unadorned peniferum of the male copulatory complex.

Genus *Dactylocythere* Hart, 1962

DIAGNOSIS.—Terminal tooth of mandible pectinate. Male copulatory complex with finger guard; peniferum, except in *D. leptophylax*, never extending ventrally beyond clasping apparatus and never with bulbous enlargement or conspicuous terminal or subterminal processes nor terminating in barbed point; penis complex directed anteroventrally, simple, with spermatic and prostatic elements contiguous throughout their lengths and shorter than clasping apparatus; accessory groove conspicuous except in *D. leptophylax*. Clasping apparatus well developed, often divisible into vertical and horizontal rami; external border of horizontal ramus entire, and internal border with or without teeth. Triunguis female with second antenna lacking accessory pectinate process on distal podomere; genital complex including J-shaped rod and amiculum except in *D. coloholca* (see under the species).

TYPE-SPECIES.—*Entocythere runki* Hobbs, 1955: 330; by designation, Hart, 1962:129.

Key to the Species of the Genus *Dactylocythere*

1	Ventral portion of peniferum with two or more small acute projections; finger guard very slender and tridentate; clasping apparatus almost U-shaped with subterminal flare; accessory groove reduced or obsolete ... ***D. leptophylax*** (Crawford, 1961:238)
1′	Ventral portion of peniferum without projections; finger guard seldom slender, if tridentate, comparatively stocky; clasping apparatus variable but never with subterminal flare; accessory groove well developed ... 2
2 (1′)	Apex of clasping apparatus without denticles ... 3
2′	Apex of clasping apparatus with denticles ... 4
3 (2′)	Clasping apparatus scythelike, sometimes with single tooth on internal border of horizontal ramus, otherwise unadorned ... ***D. falcata*** (Hobbs and Walton, 1961:379)

Key to the Species of the Genus *Dactylocythere*—Continued

3′	Clasping apparatus not scythelike, without teeth but with two or three grooves appearing to encircle distal portion of horizontal ramus ..... ***D. striophylax*** (Crawford, 1959:157)
4 (2′)	Shell with posteroventral projection 5
4′	Shell without posteroventral projection (*D. exoura* has small prominence on shell) 7
5 (4)	Shell with anteroventral protuberance ..... ***D. amphiakis*** Hart and Hart, 1966:3
5′	Shell without anteroventral protuberance 6
6 (5′)	Accessory groove extending dorsally clearly above ventral level of spermatic loop ..... ***D. daphnioides*** (Hobbs, 1955:325)
6′	Accessory groove, extending dorsally only to ventral level of spermatic loop ..... ***D. pughae,*** new species
7 (4′)	Accessory groove extending dorsally much beyond level of dorsal extremity of spermatic loop 8
7′	Accessory groove never extending dorsally more than slightly beyond dorsal extremity of spermatic loop, sometimes not reaching loop 12
8 (7)	External border of vertical ramus of clasping apparatus with angular shoulder ..... ***D. macroholca,*** new species
8′	External border of vertical ramus of clasping apparatus without angular shoulder 9
9 (8′)	Vertical ramus of clasping apparatus almost straight ..... ***D. mecoscapha*** (Hobbs and Walton, 1960:19)
9′	Vertical ramus of clasping apparatus distinctly arched 10
10 (9′)	Proximal and distal portions of clasping apparatus subparallel ..... ***D. prionata*** (Hart and Hobbs, 1961:178)
10′	Proximal and distal portions of clasping apparatus directed at angles of 50° to 70° to each other 11
11 (10′)	Three proximal teeth on internal border of horizontal ramus of clasping apparatus subequal in size and equally spaced ..... ***D. arcuata*** (Hart and Hobbs, 1961:177)
11′	Proximal tooth on internal border of horizontal ramus of clasping apparatus much larger than more distal two and widely separated from them ..... ***D. amicula*** Hart and Hart, 1966:2
12 (7′)	Dorsal margin of accessory groove not reaching ventral portion of spermatic loop 13
12′	Dorsal margin of accessory groove reaching almost to, or slightly beyond, dorsal extremity of loop of spermatic duct 16
13 (12)	External border of clasping apparatus with two subangular bends ..... ***D. brachystrix*** Hobbs and Walton, 1966:2
13′	External border of clasping apparatus with only one angular or subangular bend 14
14 (13′)	Finger guard short, truncate distally, with posterior margin strongly arched, reaching ventrally only to level of base of terminal seta on dorsal finger ..... ***D. coloholca,*** new species
14′	Finger guard long, tapering, with posterior margin straight or only slightly arched, reaching ventrally to or beyond tip of terminal seta on dorsal finger 15
15 (14′)	Finger guard heavy, tapering from base, posterior margin straight ..... ***D. exoura*** Hart and Hart, 1966:5
15′	Finger guard slender, tapering irregularly with distal portion abruptly narrower than basal and middle portions ..... ***D. prinsi*** Hobbs and Walton, 1968:242
16 (12′)	External border of vertical ramus of clasping apparatus with distinct angular shoulder 17
16′	External border of vertical ramus of clasping apparatus without angular shoulder 19
17 (16)	Internal border of horizontal ramus of clasping apparatus with two teeth ..... ***D. jeanae*** Hobbs, 1967:6
17′	Internal border of horizontal ramus of clasping apparatus with three or more teeth 18
18 (17′)	Ventral portion of peniferum terminating in posteriorly directed spine; internal border of clasping apparatus with four teeth, distal extremity with two ..... ***D. crawfordi*** Hart, 1965:255
18′	Ventral portion of peniferum subtruncate and directed posteroventrally; internal border of clasping apparatus with three teeth, distal extremity with three ..... ***D. phoxa*** Hobbs, 1967:8

Key to the Species of the Genus *Dactylocythere*—Continued

19 (16′) Internal border of horizontal ramus of clasping apparatus with or without one prominent tooth and occasionally with undulations distal to tooth....20
19′ Internal border of horizontal ramus of clasping apparatus with more than one prominent tooth....23
20 (19) Ventral margin of peniferum flattened with posteroventral extremity subangulate.... ....*D. enoploholca* Hobbs and Walton, 1970:857
20′ Ventral margin of peniferum rounded without angle at posteroventral extremity....21
21 (20′) Clasping apparatus L-shaped with vertical ramus nearly straight or concave posteriorly; finger guard with anteroventral tubercle most prominent.... ....*D. myura* Hobbs and Walton, 1970:859
21′ Clasping apparatus C-shaped with vertical ramus convex posteriorly; finger guard with posteroventral tubercle most prominent....22
22 (21′) Finger guard terminating in two tubercles...*D. chalaza* (Hobbs and Walton, 1962:45)
22′ Finger guard terminating in three tubercles...*D. spinata* Hobbs and Walton, 1970:860
23 (19′) Finger guard with three distinct distal tubercles....24
23′ Finger guard with less than three distinct distal tubercles....25
24 (23) Anteroventral extremity of peniferum rounded; distal portion of internal border of clasping apparatus serrate....*D. suteri* (Crawford, 1959:162)
24′ Anteroventral extremity of peniferum angular; distal portion of internal border of clasping apparatus with teeth but not serrate...*D. chelomata* (Crawford, 1961:242)
25 (23′) External border of clasping apparatus subangular at junction of vertical and horizontal rami....26
25′ External border of clasping apparatus curved at junction of indistinctly delineated horizontal and vertical rami....27
26 (25′) Peniferum with prominent hump on posterior margin paralleling accessory groove; posterior margin of finger guard strongly concave, distal end with single emargination....*D. xystroides* Hobbs and Walton, 1963:460
26′ Peniferum without prominent hump on posterior margin paralleling accessory groove; posterior margin of finger guard only slightly concave, distal end with two emarginations....*D. pachysphyrata* Hobbs and Walton, 1966:3
27 (25′) Internal border of clasping apparatus with only two teeth.... ....*D. ungulata* (Hart and Hobbs, 1961:177)
27′ Internal border of clasping apparatus with three or more teeth....28
28 (27′) Finger guard with distinctly curved posterior margin....*D. runki* (Hobbs, 1955:330)
28′ Finger guard straight or almost so....29
29 (28′) Finger guard with longitudinal ridge; extremities of clasping apparatus divergent.... ....*D. cooperorum* Hobbs and Walton, 1968:238
29′ Finger guard without longitudinal ridge; extremities of clasping apparatus subparallel ....*D. steevesi* (Hart and Hobbs, 1961:180)

Dactylocythere coloholca, new species

FIGURES 2*a–d*

MALE.—Eye pigmented, located approximately one-third shell length from anterior margin. Shell (Figure 2*c*) oblong-ovate with posterior region vaulted and posteroventral margin subangulate; margins entire. Submarginal setae moderate in number and evenly spaced anteriorly, posteriorly, and ventrally. Sternal spine lacking.

Copulatory complex (Figures 2*a*, *b*) with finger guard strongly concave posteriorly and slightly concave distally; peniferum heavy, tapering ventrally but with ventral surface truncate; accessory groove short, extending posterodorsally but not nearly reaching level of ventral extremity of loop of spermatic duct; peniferal groove opening ventrally, its apical width approximately two-thirds that of diameter of vertical ramus of clasping apparatus; penis L-shaped and situated in ventral third of peniferum; clasping apparatus, extending ventral to peniferum, divisible into vertical and horizontal rami, forming angle of less than 90 degrees, external borders of both rami and internal border of vertical ramus entire, internal border of horizontal ramus with three teeth, apex of ramus with three denticles; both dorsal and ventral fingers slender, latter more than twice length of former and gently curved throughout its length.

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TRIUNGUIS FEMALE.—Eye pigmented, located approximately one-fifth shell length from anterior margin. Shell (Figure 2*d*) distinctly larger than that of male, highly vaulted posteriorly, subangular posteroventrally, and with slight ventral concavity anterior to mid-length. Submarginal setae as in male. Genital complex situated posterodorsally and consisting of posteroventrally directed rod surrounded by granular mass together with small ventrally directed papilla situated immediately posterodorsal to rod; J-shaped rod and amiculum absent. In lacking latter, triunguis female of this species unique in genus.

Measurements (in millimeters) of ten males and ten females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0. 44	0. 43–0. 48	0. 49	0. 49–0. 54
Average		0. 46		0. 52
Height (range)	0. 26	0. 25–0. 27	0. 32	0. 32–0. 34
Average		0. 27		0. 33

TYPE-LOCALITY.—Creek and burrows in seepage area (Cumberland River drainage system) 4.8 miles southwest of junction of U.S. Hwy. 25W and Interstate Hwy. 75, on former, southwest of Corbin, Whitley County, Kentucky. This is the only locality from which *D. coloholca* has been collected.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), numbers 126253 and 126254. Paratypes are in the collections of C. W. Hart, Jr. (1♂, 1♀), H.H.H. III (1♂, 1♀), and the Smithsonian Institution (4♂, 3♀).

HOST.—*Cambarus sphenoides* Hobbs.

ENTOCYTHERID ASSOCIATES.—*Ascetocythere lita,* new species, *Donnaldsoncythere tuberosa, Dactylocythere pughae* (see under the species), and *Lordocythere petersi* (see under the species).

RELATIONSHIPS.—*Dactylocythere coloholca* appears to have its closest affinities with *D. prinsi* which resembles it in lacking a sternal spine and possessing a comparatively slender clasping apparatus in which the vertical and horizontal rami are clearly divisible, and in having a very short accessory groove in the peniferum. Except for the latter characteristic, *D. myura* also appears to be a near relative. *Dactylocythere coloholca* may be distinguished from *D. prinsi* by possessing a shorter finger guard and by the opening of the peniferal groove being directed ventrally, instead of posteriorly. Furthermore, the females differ from all other members of the genus in lacking a J-shaped rod and an amiculum.

ETYMOLOGY.—Kolos (Greek) = shortened, + holkos = furrow; so named because of the very short accessory groove of the peniferum.

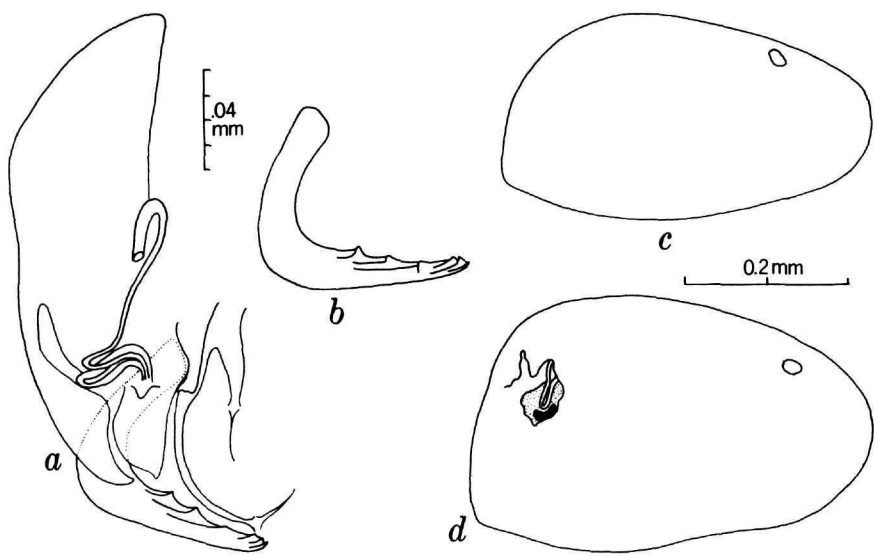

FIGURE 2.—*Dactylocythere coloholca,* type-locality: *a,* copulatory complex of male; *b,* clasping apparatus of male; *c,* shell of male; *d,* shell of female.

Dactylocythere macroholca, new species

FIGURES 3*a–d*

MALE.—Eye pigmented, located approximately one-fifth shell length from anterior margin. Shell (Figure 3*d*) subovate with greatest height posterior to midlength; ventral margin with broad shallow concavity, otherwise entire. Submarginal setae present in limited numbers anteriorly, ventrally, and very sparse posteriorly. Sternal spine lacking.

Copulatory complex (Figures 3*a, b*) possessing finger guard with broad base tapering anteroventrally to fingerlike projection, ending without tubercles; peniferum elongate with greatest width at level of penis; distal apex of peniferum twisted and anteroventral portion with small mesially folded flange; accessory groove very long, extending well beyond dorsal extremity of spermatic loop and slightly beyond dorsal one-seventh of peniferum; apex of peniferal groove approximately one-fourth greatest width of vertical ramus of clasping apparatus; penis small and L-shaped and situated in ventral third of peniferum; clasping apparatus heavy, divisible into horizontal and vertical rami disposed at approximately 90 degrees; internal border of vertical ramus entire, its external border bearing prominent angular shoulder slightly proximal to midlength, and distal half of ramus approximately 1.5 times as broad as width immediately above shoulder; external border of horizontal ramus entire and tapering; internal border bearing four teeth, and apex of ramus with three denticles; both dorsal and ventral fingers slender, dorsal one bifurcate; ventral finger bent at midlength, forming angle of approximately 130 degrees.

TRIUNGUIS FEMALE.—Eye pigmented, located one-third shell length from anterior margin. Shell (Figure 3*c*) obovate, highly vaulted, and highest slightly posterior to midlength; submarginal setae as in male except more abundant posteriorly. Genital complex composed of large J-shaped rod and massive amiculum, latter protruding well beyond posterior margin of shell; two or three posterodorsally directed papillae situated between dorsal portion of J-shaped rod and amiculum.

Measurements (in millimeters) of three males and two females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0. 60	0. 58–0. 62	0. 61	0. 61
Average		0. 60		0. 61
Height (range)	0. 41	0. 35–0. 41	0. 42	0. 40–0. 42
Average		0. 39		0. 41

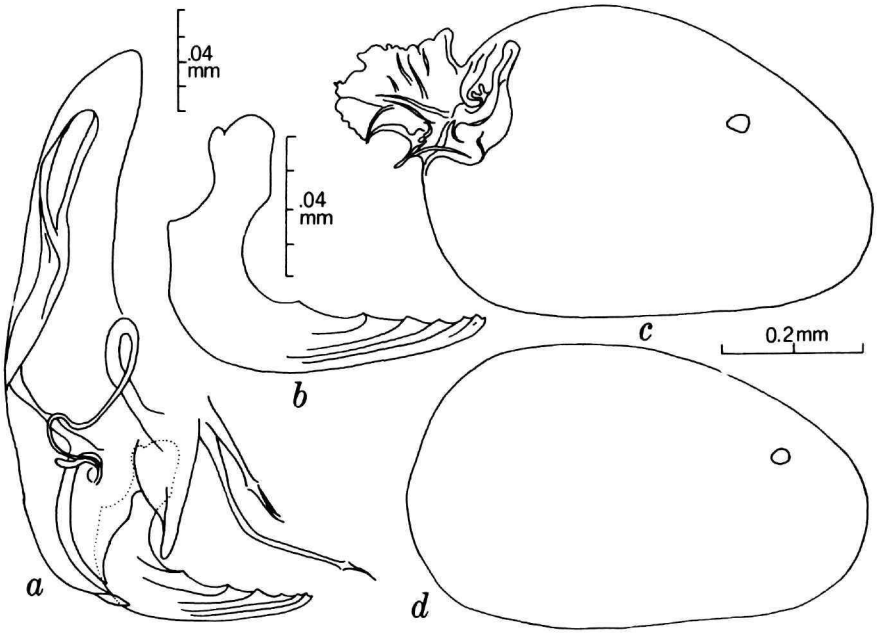

FIGURE 3.—*Dactylocythere macroholca*, type-locality: *a*, copulatory complex of male; *b*, clasping apparatus of male; *c*, shell of female; *d*, shell of male.

TYPE-LOCALITY.—Trammel Creek and tributary (Barren River drainage system), 3.6 miles south of Scottsville on U.S. Hwy. 31E, Allen County, Kentucky. This is the only known locality for the species.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), numbers 126255 and 126256. Paratypes are in the collections of C. W. Hart, Jr. (1♂), H.H.H. III (1♂), and the Smithsonian Institution (1♂, 1♀).

HOSTS.—All specimens were recovered from a collection of crayfishes containing *Orconectes juvenilis* (Hagen), *Cambarus diogenes* subsp., *C. tenebrosus* Hay, *C. striatus* Hay, and an unidentified member of the genus *Cambarus*.

ENTOCYTHERID ASSOCIATES.—*Donnaldsoncythere hiwasseensis* (Hobbs and Walton, 1961:381), *Dactylocythere cooperorum*, and *Uncinocythere zancla* Hobbs and Walton, 1963:456.

RELATIONSHIPS.—Only two other entocytherids have such long accessory grooves in the peniferum as is exhibited by *Dactylocythere macroholca*: *D. amicula* and *D. mecoscapha*. Both of these have similarly constructed finger guards and clasping apparatus, and the amiculum of *D. amicula* protrudes from the shell even more conspicuously than does that of *D. macroholca*. Neither, however, has an angular shoulder on the external border of the vertical ramus of the clasping apparatus, and, although the finger guard of *D. mecoscapha* is broad basally, it terminates in two ventrally directed tubercles and the amiculum of the female is not nearly so conspicuous. Of the three, only *D. amicula* has a prominent sternal spine.

ETYMOLOGY.—Macro (Greek) = large, + holkos = furrow; name chosen because of the extremely long accessory groove of the peniferum.

Dactylocythere pughae, new species

FIGURES 4*a–d*

MALE.—Eye pigmented, located approximately one-fourth shell length from anterior margin. Shell (Figure 4*c*) shaped similarly to those of members of cladoceran genus *Daphnia*, but with posteroventral prominence, and with shallow ventral concavity anterior to midlength. Marginal setae sparse anteriorly, posteriorly, and ventrally, and absent dorsally. Sternal spine well developed and curved with apex directed anteroventrally.

Copulatory complex (Figures 4*a*, *b*) with finger guard slender, elongate, undulate, and slightly concave distally; posteroventral portion of peniferum rounded, not forming sharp apex or rounded prominence; accessory groove short, reaching dorsally only to ventralmost level of spermatic loop; apex of peniferal groove wider than least diameter of vertical ramus of clasping apparatus; penis L-shaped, less than half width of peniferum, and situated in ventral third of peniferum; clasping apparatus, extending ventrally beyond peniferum, not clearly divisible into horizontal and vertical rami, and with proximal and distal portions directed at angle of approximately 60 degrees; external border of vertical ramus strongly convex with distinct bend distal to midlength; external borders of both rami and internal border of vertical ramus entire; internal border of horizontal ramus possessing three teeth, proximal one rounded and distal two acute; distal extremely terminating in three denticles; dorsal and ventral fingers slender, each terminating in single seta, with basal third of ventral finger straight and distal two-thirds gently curved.

TRIUNGUIS FEMALE.—Eye pigmented, situated one-fourth shell length from anterior margin. Shell (Figure 4*d*) markedly similar to that of male, but larger. Genital complex posterodorsal and consisting of J-shaped rod and amiculum; J-shaped rod "S-shaped" with horizontal arm long and straight, ends of both arms anteriorly recurved; amiculum suspended from ventral arm.

Measurements (in millimeters) of ten males and ten females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0.56	0.47–0.56	0.60	0.53–0.60
Average		0.53		0.57
Height (range)	0.30	0.26–0.32	0.37	0.34–0.38
Average		0.30		0.36

TYPE-LOCALITY.—Creek and burrows in seepage area (Cumberland River drainage system), 4.8 miles southwest of junction of U.S. Hwy. 25W and Interstate Hwy. 75 on U.S. Hwy. 25W, southwest of Corbin, Whitley County, Kentucky. This is the only locality from which *D. pughae* has been collected.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), number 126257. Paratypes are in the collections of C. W. Hart, Jr. (1♂, 1♀), Daniel J. Peters (1♂, 1♀), H.H.H. III (1♂, 1♀), and the Smithsonian Institution (3♂, 20♀).

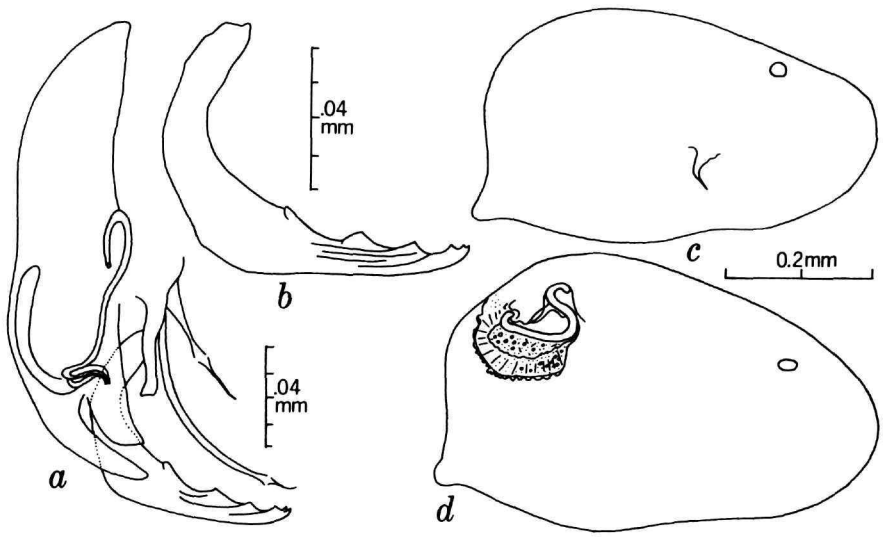

FIGURE 4.—*Dactylocythere pughae*, type-locality: *a*, copulatory complex of male; *b*, clasping apparatus of male; *c*, shell of male; *d*, shell of female.

HOSTS.—*Cambarus sphenoides* Hobbs, *Cambarus diogenes* subsp., and an unidentified member of the genus *Cambarus*.

ENTOCYTHERID ASSOCIATES.—*Ascetocythere lita*, new species, *Donnaldsoncythere tuberosa*, *Dactylocythere coloholca*, new species, and *Lordocythere petersi* (see under the species).

RELATIONSHIPS.—*Dactylocythere pughae* shares with *D. daphnioides* a posteroventral projection of the shell, a prominent sternal spine, and a similar clasping apparatus; however, it differs from the latter, among other features, in possessing a shorter accessory groove, a slenderer and undulating finger guard, and the J-shaped rod of the female is greatly produced horizontally.

ETYMOLOGY.—This species is named in honor of our good friend and one of the collectors of the species, Dr. Jean E. Pugh.

Genus *Entocythere* Marshall (1903)

DIAGNOSIS.—Terminal tooth of mandible not pectinate (except in *E. ruibali* Rioja, 1955, and *E. tyttha*, new species) but occasionally with two or three cusps proximal to apex. Male copulatory complex without finger guard or accessory groove and having variously shaped ventral portion of peniferum; latter usually rounded and partially sclerotized, frequently with sclerotized spine posteroventrally; penis directed anteroventrally or obliquely mesially, simple, with spermatic and prostatic elements contiguous throughout their lengths and much shorter than clasping apparatus. Clasping apparatus well developed, extending ventrally well beyond peniferum, with rami seldom forming angle greater than 90 degrees (except in *E. dorsorotunda* Hoff, 1944: 341); external border of horizontal ramus entire, internal border with three to eight serrations, and distal extremity of ramus with three to six denticles. Triunguis female with second antenna bearing pectinate process on distal podomere; genital area lacking J-shaped rod and amiculum.

TYPE-SPECIES.—*Entocythere cambaria* Marshall, 1903: 120; by monotypy.

A key to the species of the genus *Entocythere* will be included in a review of the entocytherid ostracods of Mexico and Cuba currently being prepared by the senior author.

Entocythere tyttha, new species

FIGURES 5*a–e*

MALE.—Eye pigmented, located one-fourth shell length from anterior margin. Shell (Figure 5*d*) subovate with margins entire. Marginal setae moderate in number and evenly spaced along anterior, posterior,

and ventral margins. Terminal tooth of mandible pectinate.

Copulatory complex (Figures 5*a–c*) with peniferum sclerotized and truncate ventrally, possessing acute projection at anteroventral extremity and low, rounded protuberance posteroventrally; penis comparatively large, located in distal third of peniferum; clasping apparatus with horizontal and vertical rami joined by gentle arc; vertical ramus convex anteriorly and with longitudinal groove on proximal external border; internal border of vertical ramus and external border of horizontal ramus entire; internal border of horizontal ramus bearing five teeth; distal extremity terminating in three denticles; dorsal and ventral fingers slender; dorsal finger bifurcate distally; ventral finger anteriorly convex proximally and with subangular bend of approximately 90 degrees near midlength, thus paralleling contour of clasping apparatus.

TRIUNGUIS FEMALE.—Eye pigmented, located as in male; shell (Figure 5*e*) slightly larger than that of male but with submarginal setae similarly dispersed. Genital complex consisting of prominent tubercle, partially surrounded by coiled amorphous mass, and long, slender anteroventrally projecting process.

Measurements (in millimeters) of four males and two females:

	Holotype	*Males*	*Allotype*	*Females*
Length(range)	0.46	0.41–0.46	0.48	0.48
Average		0.43		0.48
Height (range)	0.25	0.22–0.26	0.29	0.28–0.29
Average		0.24		0.29

TYPE-LOCALITY.—Tributary of the Obion River, 6.0 miles southwest of Wingo on U.S. Hwy. 45, Graves County, Kentucky. This is the only known locality for the species.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), number 126258. Paratypes are in the collections of C. W. Hart, Jr. (1♂), H.H.H. III (1♂), and the Smithsonian Institution (1♂, 1♀).

HOST.—*Fallicambarus hedgpethi* (Hobbs)

ENTOCYTHERID ASSOCIATE.—*Ankylocythere harmani* Hobbs, 1966:71.

RELATIONSHIPS.—*Entocythere tyttha* has a very close relative in *E. dentata* Crawford, 1965:151. Not only does the latter have a similar clasping apparatus but also has three lateral cusps on the distal tooth of the mandible, thus approaching the pectinate condition found in *E. tyttha*. In addition, the female genital complex in the two is remarkably similar. The two species differ, however, in that the clasping apparatus

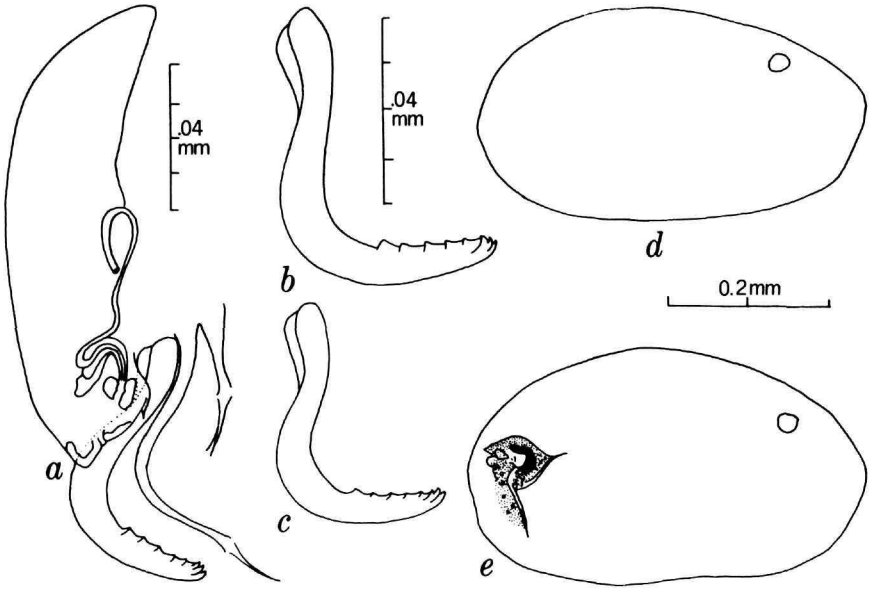

FIGURE 5.—*Entocythere tyttha*, type-locality: *a*, copulatory complex of male; *b*, *c*, clasping apparatus of male; *d*, shell of male; *e*, shell of female.

of *E. dentata* is more angular and lacks a longitudinal groove on the external border of the vertical ramus, and, as pointed out immediately above, the mandible is not pectinate.

ETYMOLOGY.—Tytthos (Greek) = small; name chosen because this species is one of the smallest, if not the smallest, representative of the genus.

Genus *Geocythere* Hart, 1962

DIAGNOSIS.—Terminal tooth of mandible pectinate. Male copulatory complex lacking finger guard and accessory groove; peniferum with ventral portion large, extending ventrally considerably beyond clasping apparatus, and with conspicuous anteriorly or anterodorsally directed projection; projection obliquely truncate and extending from anterior surface rather than being continuous with ventral margin; penis large, U-shaped, extending anteriorly from base but curved with apex directed posteroventrally and with spermatic and prostatic elements contiguous throughout their lengths. Clasping apparatus somewhat L-shaped, but only in *G. nessoides,* new species, clearly divisible into vertical and horizontal rami; internal border entire except near distal extremity where annulate or emarginate; external border with one to four prominences variously situated along distal half of apparatus. Triunguis female with second antenna lacking accessory pectinate process on distal podomere; genital complex without J-shaped rod or amiculum but possessing heavily sclerotized genital papilla posterodorsally.

TYPE-SPECIES.—*Geocythere geophila* Hart, 1959: 159; by designation, Hart, 1962:135.

Key to the Species of the Genus *Geocythere*

1	External border of clasping apparatus with single protuberance (Figure 7*b*) ..... ***G. gyralea*** Hart, 1965:257
1′	External border of clasping apparatus with more than one protuberance.....2
2 (1′)	Clasping apparatus with prominences along external border at apparent junction of vertical and horizontal rami, and distalmost portion annulate (Figure 6*b*) ..... ***G. nessoides,*** new species
2′	Clasping apparatus with prominences along external border restricted to small area distal to midlength of horizontal ramus, and distalmost portion bearing denticles (Figure 7*a*) ..... ***G. geophila*** (Hart, 1959:197)

Geocythere nessoides, new species

FIGURES 6*a–d,* 8

MALE.—Eye pigmented, located one-fourth shell length from anterior margin. Shell (Figure 6*c*) subelliptical with greatest height slightly posterior to midlength. Submarginal setae scarce but somewhat evenly distributed anteriorly, posteriorly, and ventrally.

Copulatory complex (Figures 6*a, b*) with peniferum extending ventrally beyond clasping apparatus for distance greater than length of vertical ramus of apparatus; portion ventral to level of dorsal margin of loop of spermatic duct 1.5 times longer than portion dorsal to loop; ventral swollen portion with (1) heavy, obliquely truncate, and horizontally grooved projection extending anteriorly, and (2) much smaller subacute tuberculiform prominence directed posteroventrally from ventral surface. Clasping apparatus with distinct vertical and horizontal rami forming angle of approximately 90 degrees, former third longer than latter with margins entire (although internal border strongly convex) and slender proximal fourth bent posterodorsally; horizontal ramus with external border bearing four rounded prominences along proximal half, distal half of ramus with three annulations and single apical denticle. Dorsal finger with single apical seta; ventral finger slender and sinuous, resembling contour of anterior margin of peniferum.

TRIUNGUIS FEMALE.—Eye pigmented and situated as in male. Shell (Figure 6*d*) similar to that of male but with concavity on ventral margin anterior to midlength. Genital complex consisting of small posterodorsally situated conical papilla, surrounded by amorphous mass, directed anteroventrally.

Measurements (in millimeters) of ten males and ten females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0.46	0.42–0.47	0.45	0.35–0.50
Average		0.45		0.45
Height (range)	0.27	0.25–0.27	0.25	0.23–0.29
Average		0.26		0.26

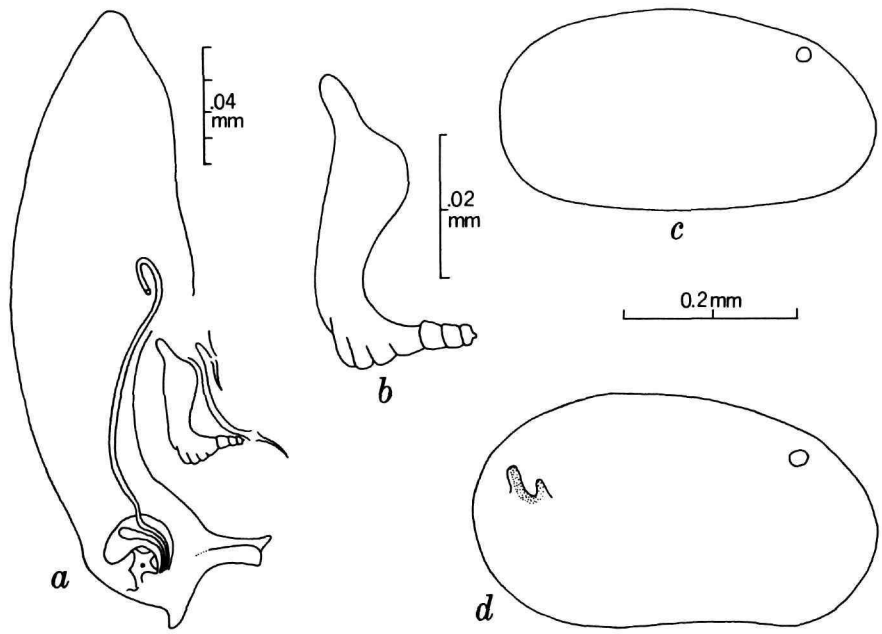

FIGURE 6.—*Geocythere nessoides*, type-locality: *a*, copulatory complex of male; *b*, clasping apparatus of male; *c*, shell of male; *d*, shell of female.

TYPE-LOCALITY.—Burrows in roadside ditch (Biloxi River drainage) along U.S. Hwy. 49, 0.7 mile north of Harrison, Stone County, Mississippi.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), numbers 126259 and 126260. Paratypes are in the collections of NMNH (1♂), C. W. Hart, Jr. (1♂), Daniel J. Peters (1♂), H.H.H. III (5♂), and the Smithsonian Institution (2♂, 1♀).

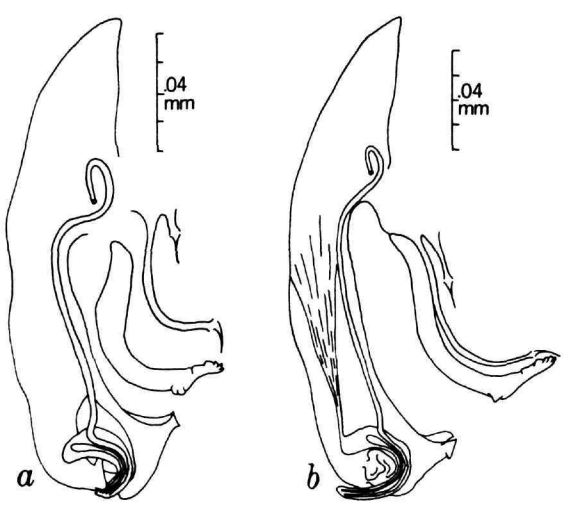

FIGURE 7.—Copulatory complexes of males; *a*, *Geocythere geophila*; *b*, *Geocythere gyralea*.

HOSTS.—*Cambarus diogenes diogenes* Girard, *C. d. ludovicianus* Faxon, and *Fallicambarus hedgpethi* (Hobbs).

ENTOCYTHERID ASSOCIATES.—*Ankylocythere harmani*, an undescribed species of each of the genera *Ankylocythere* and *Ornithocythere*.

RANGE.—This ostracod is associated with one or two of the burrowing crayfishes listed above in several localities in the following: MISSISSIPPI—Amite, Jefferson Davis, Lincoln, Marion, Rankin, Scott, and Stone counties; LOUISIANA—East Feliciana, St. Helena, and Tangipahoa parishes (see Figure 8). All of these localities are in the Lake Pontchartrain, Pearl, and Biloxi drainage systems.

RELATIONSHIPS.—*Geocythere nessoides* is perhaps more closely allied to *G. geophila* than to the only other member of the genus, *G. gyralea;* however, the latter two are distinctly more similar to each other than is either to *G. nessoides*. The most obvious similarities between *G. geophila* and *G. gyralea* are seen in the

much longer clasping apparatus and the longer peniferum in which the portion ventral to the dorsal level of the spermatic loop is approximately 2.5 times longer than the portion dorsal to the loop. The external border of the clasping apparatus with several prominences, instead of only one, and the shorter penis, together with the occasional occurrence of a very small ventral tuberculiform prominence on the peniferum suggest a closer affinity of *G. nessoides* to *G. geophila* than to *G. gyralea*. The distinguishing characters of the three are summarized in the preceding key.

ETYMOLOGY.—Nessa (Greek) = duck + oides = like; alluding to the resemblance of the distal portion of the peniferum to the head of a duck.

Lordocythere, new genus

DIAGNOSIS.—Terminal tooth of mandible pectinate. Copulatory complex of male without finger guard; peniferum extending ventrally slightly beyond clasping apparatus with portion ventral to base of latter slender, its distal fifth tapering to subacute apex, and posterior margin with distinct acute eminence at level of penis. Penis C-shaped, consisting of contiguous prostatic and spermatic elements, and directed posteroventrally. Clasping apparatus slightly curved and tapering from base with one small subapical tooth on internal border and four apical denticles; external border entire. Dorsal finger heavy and two-thirds as long as clasping apparatus; ventral finger slender and disposed subparallel to clasping apparatus. Triunguis female with second antenna lacking accessory pectinate process on distal podomere; genital complex consisting of large vertically disposed acute projection suspended in posterodorsal portion of body.

GENDER.—Feminine.

TYPE-SPECIES.—*Lordocythere petersi*, new species.

ETYMOLOGY.—*Lordos* (Greek) = bent backward, in combination with generic name *Cythere*—referring to the uniquely posteriorly directed penis of the type-species.

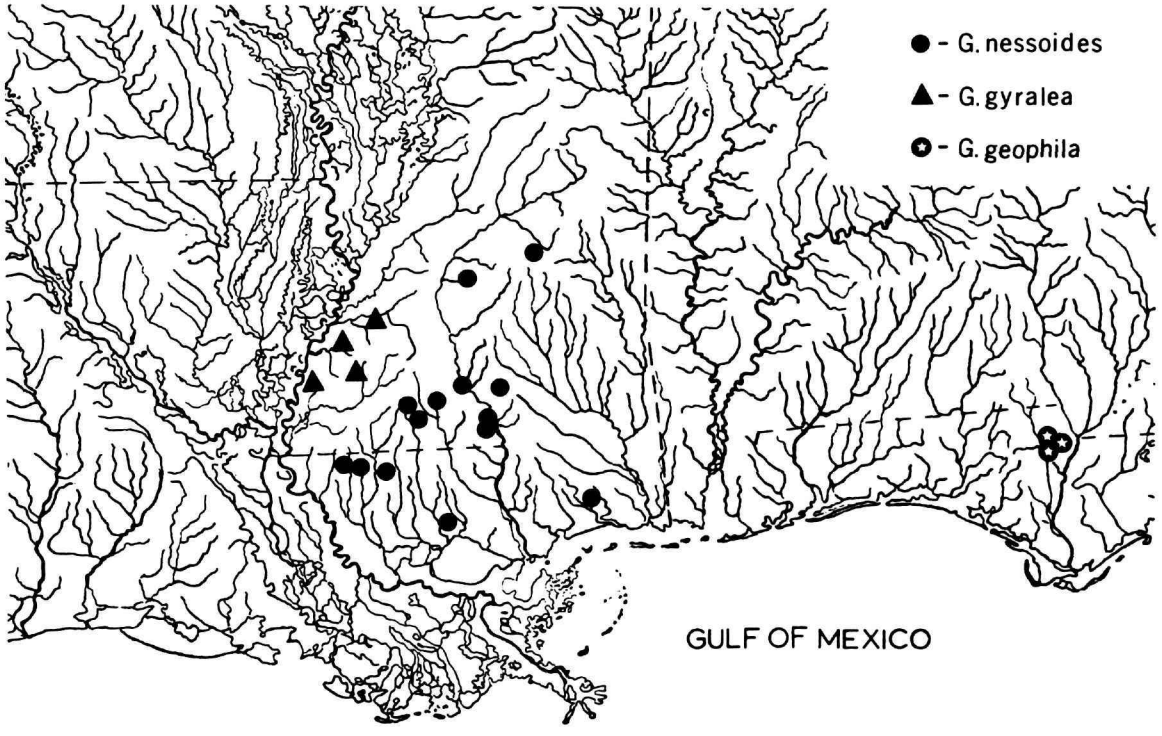

FIGURE 8.—Ranges of the members of the genus *Geocythere; G. gyralea* is also known to occur in southern Illinois and Indiana, and in Marshall County, Kentucky.

Lordocythere petersi, new species

FIGURES 9*a–d*

MALE.—Eye pigmented, located one-fifth shell length from anterior margin. Shell (Figure 9*c*) highly arched dorsally with posterior portion noticeably higher than anterior, and posterior margin sloping rather sharply anteroventrally, thus shortening flattened portion of ventral margin; greatest height almost at midlength. Submarginal setae present anteriorly, ventrally, and posteriorly. Copulatory complex (Figures 9*a, b*) as described in generic diagnosis.

TRIUNGUIS FEMALE.—Eye pigmented, located approximately one-sixth shell length from anterior margin. Shell (Figure 9*d*) more highly vaulted than that of male with posterior margin partially vertically disposed and bearing slight concavity; ventral margin also with shallow concavity anterior to midlength; greatest height posterior to midlength; submarginal setae as in male. Genital complex described in generic diagnosis.

Measurements (in millimeters) of ten males and ten females:

	Holotype	*Males*	*Allotype*	*Females*
Length (range)	0.46	0.43–0.47	0.49	0.43–0.49
Average		0.45		0.46
Height (range)	0.28	0.26–0.38	0.30	0.26–0.29
Average		0.27		0.28

TYPE-LOCALITY.—Creek and burrows in seepage area (Cumberland River drainage system), 4.8 miles southwest of junction of U.S. Hwy. 25W and Interstate Hwy. 85 on U.S. Hwy. 25W, southwest of Corbin, Whitley County, Kentucky.

DISPOSITION OF TYPES.—The holotypic male and allotype are deposited in the National Museum of Natural History (Smithsonian Institution), numbers 126262 and 126263. Paratypes are in the collections of C. W. Hart, Jr. (1♂, 1♀), Daniel J. Peters (1♂, 1 ♀), H.H.H. III (1♂, 1 ♀), and the Smithsonian Institution (3♂, 7♀).

HOSTS.—*Cambarus sphenoides* Hobbs and *Cambarus diogenes* subsp. served as hosts in the type-locality. In the only other known locality, it was associated with *C. diogenes* subsp. and an undescribed member of the same genus.

ENTOCYTHERID ASSOCIATES.—In the type-locality it was collected with *Ascetocythere lita, Donnaldsoncythere tuberosa, Dactylocythere coloholca,* and *D. pughae,* and in the Tennessee locality with *Donnaldsoncythere tuberosa* and *Dactylocythere brachystrix.*

RANGE.—*Lordocythere petersi* is known from only two localities, that cited above and a tributary of the Big South Fork of the Cumberland River, 8.6 miles north of Oneida on U.S. Hwy. 27, Scott County, Tennessee.

RELATIONSHIPS.—This ostracod has no close affinities with any other, and while the arclike clasping apparatus of the male somewhat resembles that of certain members of the genera *Ascetocythere, Plectocythere,* and *Donnaldsoncythere,* in the former two, not only is the penis directed anteriorly rather than posteriorly, but also it consists of widely separated prostatic and spermatic elements. Whereas the members of the genus *Donnaldsoncythere* have a penis in which the two elements are combined as they are in *L. petersi,* it is much more massive, highly sclerotized, and directed anteriorly or anteroventrally (at least basally); furthermore, only in the monotypic *Rhadinocythere serrata* (Hoff, 1944:322) is the peniferum nearly so attenuated ventrally. This, to us, seems to be a very superficial resemblance, for the serrate condition of the internal border of the clasping apparatus, the highly sclerotized ventral portion of the peniferum of the latter, together with the anteriorly directed penis pose a combination of characters which together are pose a combination of characters which together are as unique as are those of *L. petersi.* As has been indicated above, *L. petersi* is the only entocytherid known in which the penis is, from its base, directed posteriorly.

ETYMOLOGY.—We are pleased to name this species in honor of our mutual friend, Daniel J. Peters, who assisted in collecting the specimens on which this species is based.

Genus *Thermastrocythere* Hobbs and Walton, 1966

DIAGNOSIS.—Terminal tooth of mandible pectinate. Male copulatory complex lacking finger guard and accessory groove; peniferum never extending ventrally beyond clasping apparatus, and, although slightly swollen ventrally, never with conspicuous terminal or subterminal process or barbed point; penis large, undulating, somewhat S-shaped, consisting of contiguous spermatic and prostatic elements, and directed anteroventrally; penis together with acute thickening of posteroventral margin of peniferum rendering forcipate appearance to ventral portion of peniferum. Clasping apparatus well developed with distinct vertical and horizontal rami; external border of both rami

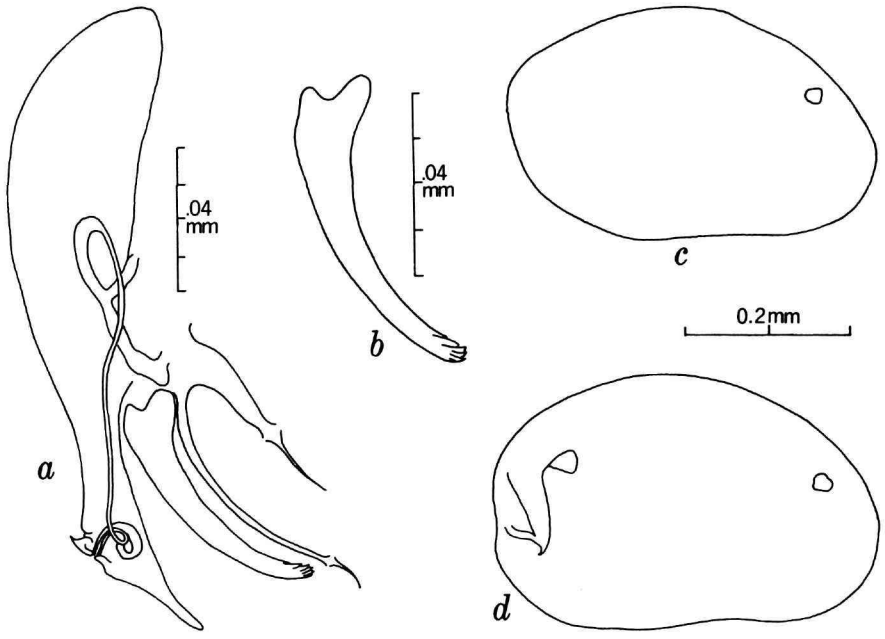

FIGURE 9.—*Lordocythere petersi*, type-locality: *a*, copulatory complex of male; *b*, clasping apparatus of male; *c*, shell of male; *d*, shell of female.

and internal border of vertical ramus entire, internal border of horizontal ramus with two widely separated teeth and apex of apparatus with four denticles. Triunguis female with second antenna lacking accessory pectinate process on distal podomere; genital complex consisting of slender ductule bearing hyaline cap suspended from sclerotized area with large, apparently delicate, tuberculiform lobe anteriorly.

TYPE-SPECIES.—*Thermastrocythere harti* Hobbs and Walton, 1966:8 [=*Thermastrocythere riojai* (Hoff, 1943:276)].

REMARKS.—Recently, Dabney G. Hart and the senior author were examining some of the type-specimens of entocytherids deposited in the Smithsonian Institution by C. Clayton Hoff and discovered that among the paratypes of his *Entocythere riojai* are two species. Because the holotype is the male member of a copulating pair, certain features of the copulatory complex are somewhat obscured, and in the mount of Hoff's partially dissected male, from which his illustrations of the species were made, the penifera are not arranged so that a lateral view can be obtained, thus giving an erroneous impression of the details of the peniferum. Consequently, our previous concept of the species was based partially on the other two paratypic males in the series, both of which are members of an undescribed species of the genus *Uncinocythere*. The holotype and the partially dissected paratypic male were discovered to be almost identical to the holotype of *Thermastrocythere harti*, which, therefore, becomes a subjective junior synonym of Hoff's *Entocythere riojai*. Because we feel that the generic designation of Hobbs and Walton is appropriate, we offer the following synonymy for the single species of this genus.

Thermastrocythere riojai (Hoff, 1943)

Entocythere (*Cytherites*) *riojai* Hoff, 1943:276–282, fig. 1 *A–L*.

Uncinocythere riojai.—Hart, 1962:138.

Thermastrocythere harti Hobbs and Walton, 1966: 8–9, figs. 2*e–g*.

For complete references to the species prior to 1962, see Hart, 1962:138. To our knowledge, no reference to the species has appeared in any publication since Hart's generic revision.

RANGE.—*Thermastrocythere riojai* is now known to occur from Minnesota and Wisconsin southward to New Mexico, Louisiana, and Tennessee.

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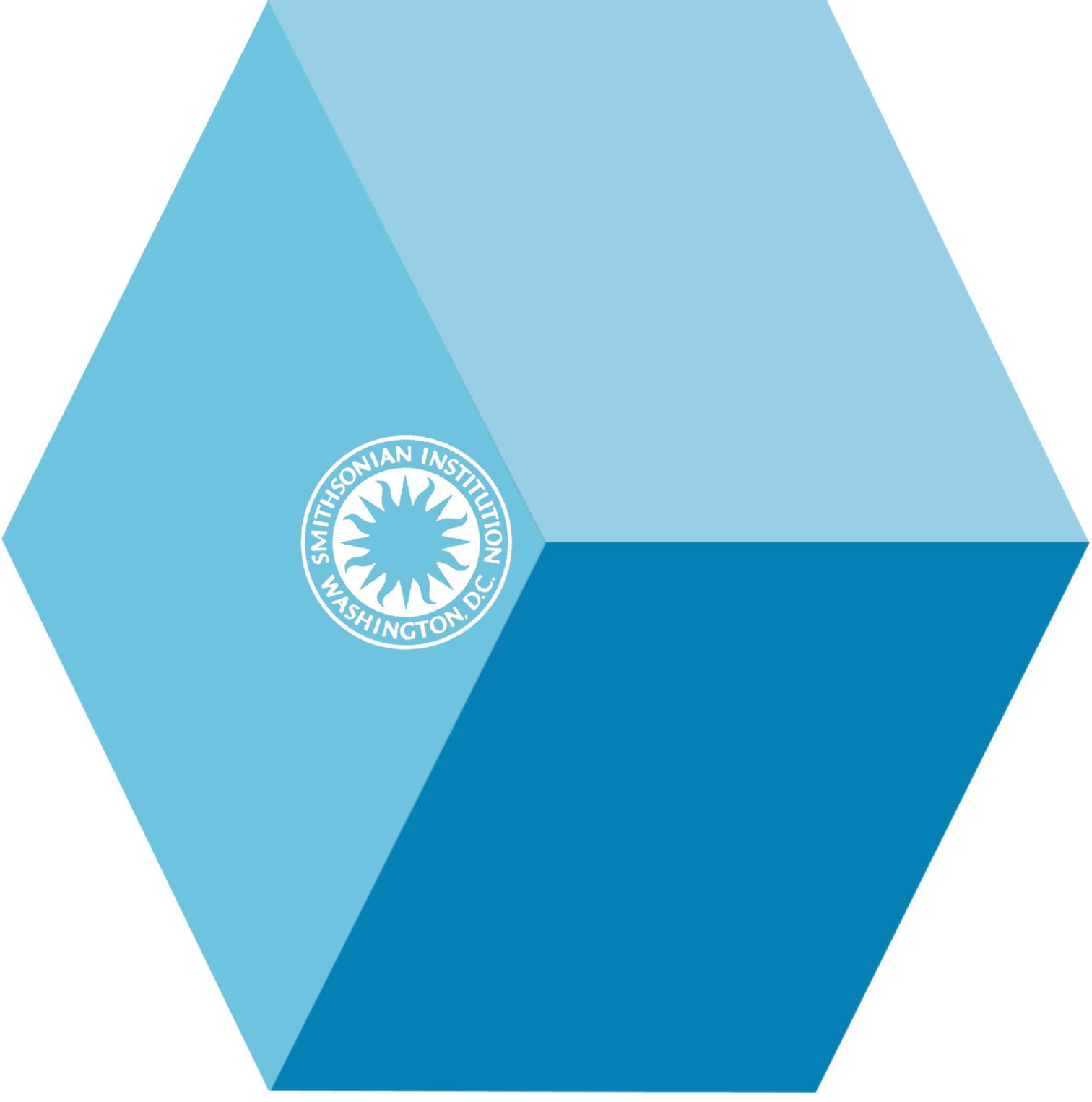
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