

TWO NEW SPECIES OF *KLEPTOCHTHONIUS* (ARACHNIDA, CHELONETHIDA) FROM A CAVE IN TENNESSEE

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Through the courtesy of Dr. T. C. Barr, Jr. I have received five specimens of pseudoscorpions from Dry Cave in Franklin County, Tennessee (Barr, 1961, p. 192). These all belong to the genus *Kleptochthonius*. Two belong in the subgenus *Kleptochthonius*, which includes essentially epigean forms, while the other three can be assigned to the subgenus *Chamberlinochthonius*, which contains more or less highly modified cavernicolous forms (Malcolm and Chamberlin, 1961). Type specimens will be deposited in the collection of the American Museum of Natural History.

Kleptochthonius (*Kleptochthonius*) *magnus*, new species.

Material: Holotype female (WM389.01001) and a female paratype collected from Dry Cave, 1.8 miles north of Sewanee, Franklin County, Tennessee, by T. C. Barr, Jr., the former on 20 November 1960 and the latter on 30 April 1961.

Description: Female: (measurements are given first for the holotype, often followed in parentheses by those of the paratype). Generally similar to *K. (K.) multispinosus* but larger. Carapace longer than broad, the greatest breadth being at the level of the eyes; no epistome, but anterior margin slightly roughened in the middle; surface smooth dorsally, becoming reticulated on the sides. Four well-developed eyes present, the anterior slightly larger than the posterior; anterior eyes about one diameter behind the margin and about one-half diameter from the posterior eyes. Carapacial setae 6-4-4-2-4=20 (6-4-4-2-5=21). Coxal area typical; each coxa I with four to five spines.

Abdomen typical. Tergal chaetotaxy 4:4:6:6:8:9:9:-8:8:6:5:0 (4:5:7:6:7:9:9:9:9:8:6:0). Genital area typical. Sternal chaetotaxy $\frac{3}{7}$:(3)9(3):(3)10(3):15:14:-13:13:13:10:0:mm.

Chelicera shorter than carapace; 2.09 (2.06) times as long as broad. Palm with seven setae; fixed finger with six teeth, the largest ones at the distal end of the row; movable finger with five similar teeth and with an isolated tooth midway between the distal end of the row and the finger tip; galea represented by a prominent elevation of the finger margin; serrula exterior with 19-20 plates; serrula interior with about 14 plates; flagellum of nine unilaterally branched setae.

Proportions of palp and placement of tactile setae typical of the subgenus. Fixed finger with 27 tall, sharp-pointed macrodenticles and 16 small, blunt microdenticles alternating with the distal macrodenticles; movable finger with 15 tall, pointed macrodenticles, followed by 11 low, rounded teeth at the proximal end of the row, and with 13 blunt microdenticles

alternating with the macrodenticles. Trochanter 2.1 (1.9), femur 5.7 (5.4), tibia 2.1 (2.0), chela 4.7 (4.6) and hand 1.9 (1.9) times as long as broad; movable finger 1.46 (1.43) times as long as hand.

Legs typical. Leg I with basifemur 5.7 (5.5) and tibia 5.0 (4.0) times as long as deep. Leg IV with entire femur 3.1 (3.0) and tibia 4.8 (5.0) times as long as deep; tactile setae on tibia 0.45 (0.43), on metatarsus 0.23 (0.26) and on telotarsus 0.23 (0.27) the length of the segment from the proximal end.

Male: unknown

Measurements (in mm.): Body length 2.42 (2.26). Carapace 0.65 (0.61) long, ocular breadth 0.56 (0.48). Diameter of anterior eyes 0.06. Chelicera 0.53 (0.51) long by 0.26 (0.25) broad; movable finger 0.29 (0.27) long. Palpal trochanter 0.30 (0.29) by 0.15 (0.15); femur 0.91 (0.91) by 0.16 (0.17); tibia 0.39 (0.37) by 0.18 (0.18); chela 1.34 (1.31) by 0.29 (0.29); hand 0.55 (0.55) by 0.29 (0.29); movable finger 0.80 (0.78) long. Leg I: basifemur 0.51 (0.48) by 0.09 (0.09); telofemur 0.22 (0.22) by 0.08 (0.08); tibia 0.29 (0.26) by 0.06 (0.07); tarsus 0.55 (0.50) by 0.05 (0.06). Leg IV: entire femur 0.78 (0.79) long; basifemur 0.33 (0.34) by 0.26 (0.26); telofemur 0.56 (0.57) by 0.23 (0.23); tibia 0.53 (0.51) by 0.11 (0.10); metatarsus 0.29 (0.28) by 0.08 (0.08); telotarsus 0.57 (0.52) by 0.05 (0.05).

Remarks: This species, as its name implies, differs notably from other species in the subgenus in its larger size. The measurements are only slightly above the upper limits mentioned by Hoff and Bolsterli (1956) and by Malcolm and Chamberlin (1961), but, as will be shown elsewhere, the specimens considered by these workers are a heterogeneous lot and probably represent two or more species. In addition to size, *K. magnus* differs in having slightly more attenuated palps and a greater number of macro-denticles on the chelal fingers than female specimens of *K. multispinosus*.

Kleptochthonius (*Chamberlinochthonius*) *tantalus*, new species.

Material: Holotype female (WM406.02002) and two female paratypes collected 30 April 1961 in Dry Cave, 1.8 miles north of Sewanee, Franklin County, Tennessee, by T. C. Barr, Jr.

Description: Female: (measurements are given first for the holotype, often followed in parentheses by those of the paratypes). With general characteristics of the subgenus. Carapace a little longer than broad. No epistome present; anterior carapacial margin straight and smooth or with a few tiny serrations at

the center. Two well-developed, corneate eyes in the anterior position, about two diameters from the anterior carapacial margin; no posterior eyes in the holotype and one paratype, but in the other paratype there are present very small and faint eyespots about one diameter behind the anterior eyes. Carapacial setae 6-4-4-2-2=18 (6-3-4-2-2=17 in one paratype). Coxal area typical; each coxa I with eight to ten spines.

Abdomen typical. Tergal chaetotaxy 2:2:4:4:6:6:7:-9:8:8:7:0 (paratypes similar, but one with three setae on tergum 2). Genital area typical. Sternal chaetotaxy %:(3)8(3):(3)9(3):12:10:14:14:13:12:0:mm.

Chelicera slightly shorter than carapace; 2.28 (2.24-2.26) times as long as broad. Palm with seven setae (only six setae on right palm of one paratype); fixed finger with 12-13 teeth, the largest being at the distal end of the row; movable finger with six or seven similar teeth and without an accessory tooth between the end of the row and the finger tip; galea represented by a low elevation on the margin of the finger; serrula exterior with about 18 plates; serrula interior with about 15 plates; flagellum of eight unilaterally branched setae.

Proportions of palps and placement of the tactile setae generally typical of the subgenus. Fixed finger with a row of 41(40-42) tall, sharp-pointed macrodenticles and a small, rounded denticle at the proximal end of the row, and with 14(11-12) small, pointed or rounded microdenticles alternating with the distal macrodenticles; movable finger with 29(27-28) similar macrodenticles followed proximally by row of 10(10-12) low, rounded denticles and with 7(8-9) tiny microdenticles alternating with the distal macrodenticles; proximal end of movable finger with a broad elevation on dorsal edge. Trochanter 1.9 (2.0), femur 6.4 (6.2-6.6), tibia 2.2 (2.2-2.3), chela 6.0 (5.8-6.1), and hand 2.2 (2.1-2.2) times as long as broad; movable finger 1.68 (1.65-1.70) times as long as hand.

Legs typical. Leg I with basifemur 6.2 (6.5-6.7) and tibia 4.0 (4.0-4.2) times as long as deep. Leg IV with entire femur 4.4 (4.2) and tibia 5.1 (5.4) times long as deep; tactile setae on tibia 0.40 (0.41-0.43), on metatarsus 0.26 (0.25) and on telotarsus 0.33 (0.31-0.38) the length of the segment from the proximal end.

Male: unknown

Measurements (in mm.): Body length 2.35 (2.55-2.57). Carapace 0.63 (0.65-0.67) long, ocular breadth about 0.55. Diameter of anterior eyes 0.040. Chelicera

0.58 (0.61-0.62) long by 0.26 (0.28) broad; movable finger 0.33 (0.31-0.34) long. Palpal trochanter 0.37 (0.37) by 0.19 (0.18-0.19); femur 1.16 (1.20-1.26) by 0.18 (0.18-0.19); tibia 0.47 (0.48) by 0.21 (0.21-0.22); chela 1.71 (1.74-1.90) by 0.29 (0.30-0.31); hand 0.65 (0.66-0.67) by 0.29 (0.30-0.31); movable finger 1.09 (1.09-1.14) long. Leg I: basifemur 0.68 (0.72-0.74) by 0.11 (0.11); telofemur 0.26 (0.27-0.28) by 0.10 (0.09-0.10); tibia 0.32 (0.34-0.35) by 0.08 (0.08-0.09); tarsus 0.64 (0.68-0.69) by 0.07 (0.07). Leg IV: entire femur 0.99 (1.01-1.03) long; basifemur 0.39 (0.39-0.41) by 0.23 (0.24-0.25); telofemur 0.66 (0.69-0.70) by 0.20 (0.21-0.23); tibia 0.60 (0.63-0.64) by 0.12 (0.12); metatarsus 0.34 (0.35) by 0.10 (0.10); telotarsus 0.77 (0.80-0.83) by 0.07 (0.07).

Remarks: Geographically the nearest known species in the subgenus is *K. (C.) barri* from caves in southern Warren and northern Grundy Counties, Tennessee. However, the present species can readily be distinguished from *K. barri* and from other members of the genus by the following combination of characters:

- 6-4-4-2-2=18 carapacial setae;
- 2:2:4:4:6 setae on the first five terga;
- Eight to ten spines on each coxa I;
- Movable finger of chelicera without isolated tooth near the tip;
- Length/breadth ratio of palpal femur 6.2-6.6 and of chela 5.8-6.1;
- Broad elevation on dorsal edge of proximal end of movable chelal finger;
- Fixed and movable chelal fingers with 40-42 and 27-29 macrodenticles, respectively.

It is interesting to note the occurrence in this single cave of two distinct species of *Kleptochthonius*. *K. (C.) tantalus*, well modified for subterranean life, represents an ancient invasion of the cave while *K. (K.) magnus*, only slightly modified if at all, is certainly a recent migrant from the surface. Unfortunately, no specimens belonging to this genus are known from the surface litter of southern Tennessee so that at present no estimate can be made of the relationship of these two species to epigeal forms.

LITERATURE CITED

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