



Scarabaeus

A NEWSLETTER FOR THOSE INTERESTED IN SCARABAEIDAE

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T. W. HARRIS AND CREMASTOCHEILUS (CONTINUED)
(Part One In Scarabaeus #7)

In 1848 Haldeman published the following brief note upon his discoveries concerning Cremastochelilus:

7. *Cremastochilus* in Ant Nests; by S. S. HALDEMAN.—Our ant nests are similar to those of Europe, in harboring various insects. Among these are Aphis, Coccus, Batrisus, Hister, Heterius, and the singular genus of Lamellicornia mentioned above. About the end of April, I found beneath a flat stone, in a cavity occupied by a large flavous species of ant, a living *Cremastochilus variolosus*, but laid no stress upon the occurrence, as I supposed it to be accidental. On the 16th of May, I took three individuals of *C. Harrisii* together, under similar circumstances, and kept them alive for twelve days. On the 25th of May, I found a second individual of *C. variolosus*, in an ant's nest. The locality is a southern hill slope covered with *Castanea*, *Pinus mitis*, *Acer*, *Carya*, and *Kalmia*, the soil siliceous. The genus is extremely rare; although tolerably successful in collecting, and my residence is near the locality, these are the first living individuals I have seen. In confinement they burrow beneath the earth in which they are placed, the head, from its peculiar form, being well adapted for this purpose.

The genus *Chelifer* is also found in ant nests, where it is probably attracted by the immature *Thysanura* which occur there; but I recently found nine individuals apparently parasitic, lodged near the extremity of the abdomen, beneath the wings and elytra of a living *Alaus oculatus*, the early stages of which are passed in ash trees.

Harris wrote the following letter to Haldeman:

"Cambridge, Mass., July 13, 1848"

"Having just seen your note on Cremastochelilus in the last number of Silliman's Journal, and having a little respite just now from the hurry and press of my daily duties in the Library, I will venture to trouble you with a few lines, on the habits of the insects of this genus as observed by me and my friend Hentz.

"I made an acquaintance with C. Hentzi in my boyhood, when I used to see it occasionally in the avenue leading to my father's house in Dorchester, Mass., and the recollection of this large black species, with the white

spots on the wing covers, was distinctly impressed on my memory. Of course, I then knew nothing of the science of Entomology, and the generic name and characters of the insect were unknown to me. It was in the year 1822 or 23, I think, that Mr. Hentz, then living at Round Hill, Northampton, Mass., wrote to me that he had found a small black insect, like Trichius (Gymnodus), in an ant's nest, and described its form, size, and white elytral spots, with the peculiar slope of the mentum. His account not only recalled to my mind the insect that I had seen when a boy in the road to my father's house, but also reminded me of the characters of Cremastocheilus, as given by Latreille, and I wrote back to Hentz that his insect must belong to this genus. Mr. Hentz proposed to call the species piger, on account of its sluggishness and the indifference with which it received the tuggings of the ants at its legs while in the nest. The specimen of C. Sayi, which we found, together, at Round Hill May 16, 1826 was under a stone, among ants and was as sluggish and stupid apparently, as Mr. Hentz's piger. With his consent, therefore, I dropped the name piger and dedicated the species to Mr. Hentz. Since 1824 I have found C. Hentzii almost every year, and C. Sayi repeatedly in Dorchester and Milton. The former also has continued to occur every summer at Cambridge, but I have never seen C. Sayi here, and have not found C. Harrisii myself. Indeed, the latter is known to me only from the specimens, collected by Prof. Hentz in Northampton, saving one specimen taken dead on a beach near Salem, Mass., by my friend Pickering. Of C. Harrisii, I have now only two perfect specimens left, and the same number of C. Sayi; having sacrificed some to dissections, and having sent abroad all my duplicates.

"C. Hentzii is commonly found in dry roads, flying by day and alighting somewhat after the manner of Cicindela, but more heavily and never running after alighting. When approached and touched, it remains immobile, with its legs as stiff as though the insect were dead, even after being taken into the hand; and it does not think proper to show signs of life for a minute or two after being taken up. This also is the habit of C. Sayi, which, however, is of much more rare occurrence. Both these species occur from the middle of May to the end of August.

"I believe that C. Harrisii, Kirby (= C. castaneae? Harris, Journ. Acad.) has not been taken in the spring and summer before you found it; but has appeared to be an autumnal species. I have tried, in vain, to obtain specimens through my Northampton acquaintance, but either it has disappeared there or my friends have neglected to search for it at the right time and in the right place.

"Some persons suppose that C. Sayi and C. variolosus are the same species. This is not so; they are distinct from each other. The mentum in the two differs slightly, and the tuberculiform anterior angles of the thorax are more incurved in the variolosus than in the Sayi. The thorax is also somewhat wider behind in the former than in the latter. The variolosus I have from North Carolina; it is not found here.

"Some years ago, my friend Pickering found on the Sea-beach in New Jersey a species of Cremastocheilus, much like C. Hentzii, except in being smaller, &c. It was seen flying and alighting like a Cicindela, and was very active in the middle of a hot day. This insect I recognized as specifically different from all the others, and proposed to call it C.

castaneae of Knoch, which he has seen and examined in the Berlin collection. I have one more very large and fine species from Indiana, differing from all the rest, but in sculpture, &c., approaching nearest to C. Harrisii. I do not think it has yet been described. It has the anal tubercles..."

"Yours, most respectfully and truly,

Thaddeus William Harris"

Dr. Gary Alpert of Harvard University, who has recently completed rather extensive studies upon the life histories of Cremastocheilus, was shown Harris' letter. His reaction:

"After reading the letter by Harris to Haldeman, one can appreciate how even brief collecting notes provide valuable clues to the life history of a group. Unfortunately, as is too often the case, association with ants was mentioned, yet the ants were not described or otherwise identified. With this in mind, I would like to make a contribution to those interested in Cremastocheilus species by sharing information on ant host records gleaned from over 10 years of research on this genus.

"There are more than 35 described species of Cremastocheilus from North America with all but a few considered to be extremely rare. Since most, if not all, are associated with ants, discovering the correct host is the key to understanding each species. In many cases adult beetles are searching for their hosts when in flight, and by following individuals rather than immediately collecting them, valuable data can be obtained. Adult beetles are normally predators on ant brood and beetle eggs are laid in the host nest where beetle larvae develop on vegetable matter stored in the nest. During the winter, adults burrow deep within the nest, making beetle collections at this time very difficult.

"The following table lists host records for many species of Cremastocheilus. Be sure to collect several ants along with each beetle for identification. I will be glad to look at any material sent to me for identification.

"Several techniques are useful for collecting beetles while minimizing damage to the ant colony. Honey ants of the genus Myrmecocystus normally have a single nest opening on the open desert floor. By cutting squares of hardware cloth and placing them over each entrance, several species of Cremastocheilus can be collected as they try to leave or enter these nests. The smaller ants pass freely through the mesh screen and are not disturbed.

"Harvester ants of the genus Pogonomyrmex are hosts for several species of Cremastocheilus in the southwest. Adult beetles lay their eggs in the compost found in the upper galleries of the nest. After carefully protecting yourself from the painful sting of these ants by wearing boots with a sticky band near the top, you can sort through the top three inches of the mound in August for 3rd instars.

"Mound building ants of the genus Formica are hosts for many species of Cremastocheilus throughout temperate North America. Place small pieces of bark or other flat objects on the mound in early spring. On warmer days many rare myrmecophiles as well as Cremastocheilus can be collected from under these objects.

"Please do not over-collect these rare scarabs. You can add to our knowledge of this group by collecting immatures, most of which are undescribed and by collecting records of their host ants."

Preferred or normal hosts are given first, less common hosts are in parentheses, accidental hosts are followed with an asterisk (*), predicted hosts based on author's opinion are followed by a question mark (?), and unknown hosts indicated with only a question mark (?). Hosts not listed in this table but mentioned in the literature are accidental or incorrect.

Table compiled by S. Alpert

	<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
<u>Genuchinus</u> Westwood	Neotropical to Arizona		
<u>G. brasiliensis</u> Mos	Brazil	?	
<u>G. nevermanni</u> Schauer	Panama	Banana cargo	AMNH
<u>G. peruanus</u> Mos	Peru	?	
<u>G. sulcipennis</u> Westwood	Columbia	with ants	MCZ
<u>G. velutinus</u> Westwood	Mexico	?	
<u>G. v. notatus</u> Westwood	Mexico to Central America	?	
<u>G. ineptus</u> Horn	Arizona	<u>Dasyllirion wheeleri</u> Watson	G. Alpert
<u>Genuchinus</u> sp.?	Guatemala	Bromeliads	DPI
<u>Cyclidius MacLeay</u>	Neotropical		
<u>C. acherontius</u> Kolbe	Columbia	?	
<u>C. axillaris</u> Percheron & Gory	French Guiana	?	
<u>C. elongatus</u> Oliv	Columbia, Surinam	?	
<u>C. lacordairei</u> Thomas	Peru	?	
<u>C. rohdei</u> Kolbe	Brazil	?	
<u>Paracyclidius</u> Howden	Neotropical		
<u>P. bennetti</u> Howden	Trinidad	arboreal ants	Howden, 1971
<u>Cyclidius</u> Westwood	Neotropical		
<u>C. lugubris</u> (Westwood)	Amazon	?	
<u>Cyclidiellus</u> (Westwood)	Neotropical		
<u>C. velutinus</u> (Westwood)	Brazil	?	

<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
<u>Lissomelas</u> Bates	Nearctic	
<u>L. flohri</u> Bates	Mexico, Arizona	Schwarz
<u>Psilocnemis</u> Burmeister	Nearctic	
<u>P. leucosticta</u> Burm	Mexico, ? southeast U.S.	
<u>Centrochilus</u> Krikken	Nearctic	
<u>C. howdeni</u> Krikken	Mexico	
<u>Cremastocheilus</u> Knoch	Mexico, North America	
subgenus <u>Macropodina</u> Casey	southwest U.S.	
<u>beameri</u> group	southwest U.S.	
<u>C. beameri</u> Cazier	Arizona	<u>Dipodomys spectabilis</u> Merriam
		G. Alpert
<u>C. planatus</u> LeConte	southwest U.S., California	<u>Neotoma albigula</u> Hartley
		G. Alpert
<u>C. puncticollis</u> Cazier	California	<u>Camponotus semitestaceus</u> Emery
		Mann, 1911
subgenus <u>Trinodia</u> Casey	Mexico to Wyoming	<u>Myrmecocystus mexicanus</u> Wasmal*
		Snelling, 1976
<u>hirsutus</u> group	Mexico to Wyoming	<u>Pogonomyrmex</u> spp.
		G. Alpert
<u>C. hirsutus</u> Van Dyke	Arizona, New Mexico	<u>P. barbatus</u> (F. Smith)
		G. Alpert
		(<u>P. rugosus</u> Emery)
		G. Alpert
		(<u>P. maricopa</u> Wheeler)
		G. Alpert
		(<u>P. californicus</u> (Buckley))
		G. Alpert
<u>C. setosifrons</u> Casey	Kansas	<u>P. prob. barbatus</u> (F. Smith)?
		G. Alpert
<u>C. quadricollis</u> Casey	Texas, Mexico	<u>P. prob. barbatus</u> (F. Smith)?
		G. Alpert

<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
<u>C. saucius</u> LeConte	<u>P. occidentalis</u> (Cresson)	Cazier and Mortenson, 1965
	New Mexico, Wyoming Colorado	Lavigne, 1969 Wickham, 1900
<u>C. excavatus</u> Cazier	<u>P. prob. barbatus</u> (F. Smith)?	G. Alpert
<u>planipes</u> group	<u>Novomessor</u> spp.	G. Alpert
<u>C. planipes</u> Horn	<u>N. cockerelli</u> (Andre)	G. Alpert Cazier and Mortenson, 1965
<u>C. mentalis</u> Cazier	<u>N. albisetosus</u> (Mayr)*	Univ. of Arizona
	<u>N. albisetosus</u> (Mayr)	Cazier, 1961 G. Alpert
<u>stathamae</u> group	<u>Myrmecocystus</u> spp.	G. Alpert
<u>C. stathamae</u> Cazier	<u>M. mexicanus</u> Wesmael	Cazier and Mortenson, 1965
	<u>M. depilis</u> Forel (<u>M. mimicus</u> Wheeler)	G. Alpert G. Alpert
	(<u>M. navajo</u> Wheeler)	Cazier and Statham, 1962 G. Alpert
<u>C. spinifer</u> Horn	<u>Myrmecocystus</u> sp.?	G. Alpert
	<u>Pheidole desertorum</u> Wheeler*	Wheeler, 1908
<u>C. lengi</u> Cazier	<u>Myrmecocystus</u> sp.?	G. Alpert
	<u>M. depilis</u> Forel*	G. Alpert
	<u>Pheidole</u> sp.*	Univ. of Arizona
<u>C. opaculus</u> Horn	<u>Myrmecocystus</u> sp.?	G. Alpert
	Mexico, California	
<u>C. constricticollis</u> Cazier	<u>M. mimicus</u> Wheeler	Cazier and Statham, 1962
	(<u>M. depilis</u> Forel)	Cazier and Mortenson, 1965
	(<u>M. mexicanus</u> Wesmael)	G. Alpert
	(<u>M. mendax</u> Wheeler)	Hölldobler

<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
subgenus <u>Anatrinodia</u> Casey		
<u>wheeleri</u> group	<u>Formica</u> spp.	G. Alpert
<u>C. wheeleri</u> LeConte	<u>F. obscuripes</u> Forel	G. Alpert Wheeler, 1908 Windsor, 1964 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908
Colorado, Montana, Manitoba		
Colorado	(<u>F. oreas</u> Wheeler) (<u>F. criniventris</u> Wheeler) (<u>F. ciliata</u> Mayr) (<u>F. microgyna</u> Wheeler) (<u>F. rasillis</u> Wheeler)	
subgenus <u>Myrmecotonus</u> Mann		
<u>crinitus</u> group	<u>Formica</u> sp. and <u>Lasius</u> sp.?	G. Alpert
<u>C. knochii</u> LeConte	<u>L. alienus</u> (Foerster) <u>L. neoniger</u> Emery	G. Alpert G. Alpert
<u>C. crinitus</u> LeConte	<u>F. xerophila</u> Smith <u>F. neogagates</u> Emery (<u>F. argentea</u> Wheeler) (<u>F. manni</u> Wheeler) <u>F. subintegra</u> Emery	LACM Mann, 1911 Mann, 1911 Mann, 1911a MCZ Wheeler, 1908 G. Alpert Mann, 1914
<u>C. mexicanus</u> Schaum	<u>F. gnava</u> Buckley	G. Alpert Mann, 1914
<u>C. pulverulentus</u>	<u>F. subcyanea</u> Wheeler <u>F. gnava</u> Buckley? <u>F. perpilosa</u> Wheeler?	G. Alpert G. Alpert
<u>schaumi</u> group	<u>Veromessor</u> spp.?	
<u>C. schaumi</u> LeConte	<u>V. andrei</u> (Mayr)? <u>Pogonomyrmex subnitidus</u> Emery*	Mann, 1911 Horn, 1871 Mackay
<u>C. westwoodi</u> Horn	<u>Veromessor</u> sp.?	G. Alpert
<u>C. quadratus</u> Fall	<u>Veromessor</u> sp.?	G. Alpert
California Arizona, California		

<u>armatus group</u>	<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
<u>C. armatus</u> Walker	Washington, Oregon Oregon	Formica spp. & <u>Veromessor</u> sp.? <u>F. obscuripes</u> Forel	Alpert and Ritcher, 1975 Alpert and Ritcher, 1975
	British Columbia	(<u>F. haemorrhoidalis</u> Emery)	Ayre, 1958 Cazier and Statham, 1962
	Oregon	(<u>F. subnitens</u> Creighton) (<u>F. subpolita</u> Mayr) (<u>F. fusca</u> Linnaeus)	Mann, 1911 Alpert and Ritcher, 1975 Mann, 1911a LACM
<u>C. angularis</u> (LeConte)	Washington Idaho California	(<u>F. argentea</u> Wheeler) (<u>F. neorufibarbis</u> Emery) <u>V. andrei</u> (Mayr)?	Horn, 1871 G. Alpert
<u>robinsoni</u> group	Mexico	<u>Formica</u> ?	G. Alpert
<u>C. robinsoni</u> Cazier			
subgenus <u>Cremastocheilus</u> Knoch		<u>Formica</u> spp., <u>Camponotus</u> ? <u>Aphaenogaster</u> ?	
<u>castaneus</u> group			
<u>C. castaneus</u> Knoch	Atlantic states Maine North Carolina Kansas New Jersey New York southeast U.S.	<u>F. exsectoides</u> Forel <u>F. glacialis</u> Wheeler <u>F. subsericea</u> Say <u>F. fusca</u> Linnaeus <u>F. schaufussi</u> Mayr <u>F. pallidefulva nitidiventris</u> Emery <u>F. integra</u> Nylander	Wheeler, 1908 Horn, 1886 Wheeler, 1908 Wheeler, 1908 Cazier and Statham, 1962 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908 Wheeler, 1908 Kloft et al., 1973 G. Alpert
<u>C. variolosus</u> Kirby	North Carolina	<u>A. rudia</u> (Emery) <u>A. fulva</u> Roger	MCZ Schwarz, 1889
<u>C. squamulosus</u> LeConte	Florida	<u>Camponotus</u> sp.?	Wheeler, 1908

<u>Locality</u>	<u>Host/Association</u>	<u>Authority/Coll'n</u>
<u>nitens</u> group	<u>Formica</u> ?	G. Alpert
<u>C. nitens</u> LeConte	ants under fallen logs	Hays and McColloch, 1928
<u>C. chapini</u> Cazier	?	
<u>canaliculatus</u> group	<u>Formica</u> spp.	G. Alpert
<u>C. canaliculatus</u> Kirby	<u>F. subsericea</u>	Wheeler, 1908
	<u>F. fusca</u> Linnaeus	Hamilton, 1889
	<u>F. rubicunda</u> Emery	Cazier, 1962
	<u>F. schaufussi</u> Mayr	Wheeler, 1908
<u>C. harrisii</u> Kirby	<u>F. schaufussi</u> Mayr	Wheeler, 1908
		G. Alpert
<u>C. retractus</u> LeConte	<u>F. pallidefulva nitidiventris</u>	Wickham, 1908
	<u>F. gnava</u> Buckley*	Wheeler, 1908
	<u>Formica</u> sp.?	G. Alpert
<u>C. incisus</u> Casey	<u>F. ciliata</u> Mayr	Wheeler, 1908

OBITUARY

Oscar L. Cartwright

Oscar Ling Cartwright, 82, emeritus curator of beetles in the Museum of Natural History Department of Entomology, died March 21 of heart failure at his home in Falls Church, Va.

Mr. Cartwright, who joined the museum in 1948, specialized in research on a group of beetles which includes the sacred scarab of the Egyptians. He published more than 75 scientific papers and his administrative work earned him a commendation and a plaque from the late Smithsonian secretary, Leonard Carmichael. After Mr. Cartwright retired in 1970, he continued his active research at the museum for a decade. Mr. Cartwright was born in Sharpsville, Pa., and held a bachelor of science degree from Allegheny College and a master's degree from Ohio State. He worked on the staff of the South Carolina Experiment Station at Clemson University for 21 years prior to joining the Smithsonian, except from 1945 through 1947, when, as a captain in the U.S. Public Health Service, he worked on malaria control.

He is survived by his wife, Sara Marie, of Falls Church. (Reprinted with permission from "The Torch" 83:5, May 1983.)

CORRECTION AND ADDITION: In SCARABAEUS No. 6, the distributions of the two species of Oniticellus have been transposed (p.8). Also, on the third line from the bottom (Ouiticellus) should read (Oniticellus). In addition to the four listed introduced species, Onthophagus binodis, O. sagittarius and Euoniticellus africanus have been introduced or have been planned for introduction. We are uncertain of any success with these species.

BOOKS FOR SALE: Hayes (1929) Morphology, Taxonomy, and Biology of Larval Scarabaeoidea - \$3.00; Lunginbill and Painter (1953). May Beetles of the United States and Canada - \$5.00; Vaurie (1958). Revision of the genus Diplotaxis, pts. I and II - \$5.00. Didier and Seguey (1953) Catalogue of the Lucanidae of the world, 220 pp., 112 plates, 1 in color - \$65.00; Blatchley, The Coleoptera of Indiana, New cover, inked copy - \$80.00; Hatch; The Beetles of the Pacific Northwest. Vols. I-V. Excellent condition \$100.00; Bill Gavin, 835 N. E. Woodcrest Avenue, Corvallis, Oregon 97330.

"When I hear of the capture of rare beetles, it is like the sound of a trumpet to an old war horse...." Charles Darwin, as quoted by G. E. Ball, Bull. Entomol. Soc Canada 12(4):69, 1980.

"I suspect that a modern day entomological field party is only superficially different from a group of Stone Age Mastodon hunters." G. E. Ball, *ibid.*

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