



**475<sup>TH</sup> MEETING**  
*Minutes of the*  
**Connecticut Entomological  
Society**



**20 November, 2009**

Biology-Biophysics Bldg, University of Connecticut, Storrs  
Pre-meeting pizza and beverages were enjoyed by all, 6:30-7:25 p.m.

**Business Meeting**

Meeting was called to order by Vice-President David Marshall at 7:30 p.m.; 13 members and 5 guest were present.

**Reports:** The secretary's report of the 474<sup>th</sup> meeting was based on notes provided by acting secretary Richard Cowles and William Krinsky; these were summarized by Secretary Munstermann and approved as read. Treasurer Cowles presented a complete the treasurer's report—approximately \$2,970 reside in checking, \$5,470 as a Certificate of Deposit and cash-on-hand for a total of \$8,521.

**Old Business:** None

**New Business:**

.The website [www.insectingers.com/CES/CES.html](http://www.insectingers.com/CES/CES.html) is now operational and maintained by Dave Marshall and Kathy Hill. The two described the kinds of materials that may be appropriate for submission by CES membership, including photos, video documents, announcements and society minutes.

**Announcements:**

–Vice president Marshall introduced Dr. Robert Sproule who will lead the insect fossil collection expedition in Plainville MA quarry on 6 December. Sproule described the meeting times, necessary tools, specimen wrapping paper, clothing and nutrients, as well as alternative plans depending on weather. He noted that the research of the evening speaker is based on specimens from this quarry.

**Exhibits:**

–Raul Ferreira presented three groups of insects:

- (a) Odonata to be identified
- (b) Carabidae from the Conn/RI area, including the CES collection at the Munstermann property.
- (c) Collection from East Timor (1964-1966); 25% are new species.

**Evening Presentation:**

The presentation was titled: *Fossil trackways of modern basal insects (Jumping Bristletails and Silverfish)*, and presented by Mr. Patrick Getty.

The insect fossil record is sparse; the insect body was not well preserved. However, they are identifiable by the tracks they left behind. These are sufficiently distinctive to be given genus-species names based on several characteristics—Getty noted that occasionally a real fossil insect can be found at the end of the trail. These fossils can be found in the Narragansett basin, stretching from Rhode Island across southeastern Massachusetts and was formed approximately 370 million years ago (mya). Around 250 mya, pressure from the African subcontinent transformed the sediments into metamorphic rock.

The quarry in Plainville MA is located near the Rhode Island border. It has coal seams and many fossil plants (lycophytes, spherosids, ferns) and footprints (amphibians, early reptiles and

myriapods). One of the hexapods is the archeagnathan, *Tonganoxichuris*, with 6 legs plus abdominal supports.

Characteristics of hexapod trails are as follows: A triple median depression indicates a Stiaria, however some tracks have only a single median depression. Is this a different species or are the trace differences a function of the substrate. Getty noted that Diplurans and Collembolans have an alternating gait, whereas the archeagnathans have an opposite gait (i.e., the front legs go forward at the same time). Modern silverfish make a single median depression (not like the fossils)—the relict silverfish may show “opposite” locomotion. Is this similar to odonate naiad locomotion?

Bristletails: jumping, *Trigoniophthalmus alternatus*, leaves a double median impression. The second is caused by the gonostyli which hold the body off the substrate. Multiple median impressions can be left by living bristletails—cerci, antennae, terminal filaments or styli can leave impressions.

A lengthy question & answer period followed:

- (1) Are the styli moving or dragging? Ans: dragging.
- (2) Are all the markings made by the same structure? Ans: no, the animal flops back and forth.
- (3) Does the gait differ with different speeds, like horses? Ans: for these creatures, that depends on the substrate and the attitude of the insect, e.g., if upside down or upright. Getty pointed out that silverfish can use both gait types.
- (4) Odonates have alternate walk, can the tracks be mistaken for isopods? Ans: no, isopods tracks are very different.
- (5) Why are you studying these particular set of species? Ans: because they are there, and they differ very much from vertebrates. He notes that insects of 200 mya lived mostly in semiaquatic environments.
- (6) Are more trackings made by modern species than seen in the fossils? Ans: yes, the modern species were placed on a more sensitive substrate (experimental conditions).
- (7) What’s the tarsal structure (of bristletails)? Ans: 2 claws, walking on tips of legs.

Submitted: November 21, 2009

Leonard E. Munstermann, Secretary  
Connecticut Entomological Society

**Note: Corrections and additions are welcome—e-mail them to: [leonard.munstermann@yale.edu](mailto:leonard.munstermann@yale.edu) or give Munstermann a call at (203) 785-5533.**