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**Annual Meeting of the
American Society of Zoologists,
American Microscopical Society,
Animal Behavior Society,
Biological Society of Washington,
Crustacean Society,
and the International Association of Astacology**

**December 27–30, 1983
Franklin Plaza Hotel
Philadelphia, Pennsylvania**

Papers are listed in numerical order by Abstract Number.
The Author Index is given on pages 1029–1034

Abstracts of papers from the American Microscopical Society
will be published in 1984 in

Transactions of the American Microscopical Society.

ACOUSTICAL IMPEDANCE IN FROGS WITH AND WITHOUT TYMPANIC EARS. Alan P. Jaslow, Thomas E. Hetherington, and R. Eric Lombard. Univ. of Chicago, IL.

Acoustical impedance was determined for Hyla cinerea and Atelopus chiriquiensis with an acoustical bridge. Measurements were made on the tympanum and shoulder in H. cinerea, which has a well developed tympanum, middle ear cavity, and stapes. These were compared to measurements on the lateral head and shoulder of A. chiriquiensis, which lacks a tympanum, middle ear cavity, and stapes. The acoustical bridge allows comparison in magnitude and phase angle between the sound wave (100-2000 Hz) projected to and reflected from a surface. Impedance magnitude (IM) of H. cinerea tympans, A. chiriquiensis lateral heads, and shoulders in both species, were generally similar throughout the frequency range. IM is highest at low frequencies peaking at 400 Hz. It decreases between 400 and 1500 Hz and remains constant to 2000 Hz. H. cinerea tympans did show a decrease ($\sim 25\%$) between 800-1300 Hz. Supported by NIH Fellowship NS06833, NS06531 and NSF Grant DEB-8002619.

MOTOR INNERVATION OF THE PROJECTILE TONGUE OF PLETHODONTID SALAMANDERS. D. B. Wake and G. Roth. Univ. of California, Berkeley, and Univ. of Bremen.

Motor innervation of the muscles related to mouth opening and tongue protraction and retraction in several species of plethodontid salamanders was studied by dissection and Palmgren serial sections, and by techniques using horseradish peroxidase. Nerves VII, IX, X, and the first two spinal nerves were investigated. Peripheral pathways were determined, and motor nuclei were localized. A well defined nerve XI was discovered which has the essential features of the nerve of amniotes. Its motor nucleus is far posterior, near the ventral roots of spinal 2, but it leaves the cranium with IX and X. Ramus hyoglossus is formed by spinal 1; fibers of spinal 2 do not reach the tongue. Ramus communicans VII-IX, X contains motor fibers which exit the brain through the second root of the IX, X complex. The motor neurons responsible for the very rapid mouth opening and tongue protraction (which involves VII, IX, and X and takes ca. 10 msec.) are in very close proximity in the same motor nucleus, and they are relatively few in number.