

*American  
Malacological  
Society*  
*65<sup>th</sup> Annual Meeting*



*Worthenia tabulata*

*Brian J. Jacobson*

*Program and Abstracts  
4-9 July 1999  
Sheraton Station Square  
Pittsburgh, Pennsylvania, U.S.A.*

*American  
Malacological  
Society  
65<sup>th</sup> Annual Meeting*

*Program and Abstracts  
4-9 July 1999  
Pittsburgh, Pennsylvania, U.S.A.*

**AMERICAN MALACOLOGICAL SOCIETY  
COUNCIL AND COMMITTEES, 1998 – 1999**

**VOTING MEMBERS (current term)**

**PRESIDENT**

Robert S. Prezant (98-99)

**PRESIDENT-ELECT**

Terrence M. Gosliner (98-99)

**VICE PRESIDENT**

Janice Voltzow (98-99)

**SECRETARY**

Roland C. Anderson (97-02)

**TREASURER**

Eugene P. Keferl (96-00)

***BULLETIN* EDITOR**

Ronald B. Toll (94-99)

**COUNCILLORS-AT-LARGE**

Paula M. Mikkelsen (98-00)

Robert H. Cowie (98-00)

Diarmaid O Foighil (99-01)

Jose H. Leal (99-01)

**IMMEDIATE PAST PRESIDENTS**

Robert Hershler

Eugene Coan

Rüdiger Bieler

**PAST PRESIDENTS (5-10 YEARS)**

Carole Hickman

Robert C. Bullock

**PAST PRESIDENTS (10+ YEARS)**

James Nybakken

George M. Davis

**NON-VOTING COUNCIL PARTICIPANTS**

**NEWSLETTER EDITOR**

Donna D. Turgeon

**NEWSLETTER ASSISTANT EDITOR**

Dawn Hard

***BULLETIN* MANAGING EDITOR**

Timothy Pearce

**HONORARY LIFE PRESIDENT**

Ruth D. Turner 1997

**HONORARY LIFE MEMBERS**

Melbourne R. Carriker 1997

William K. Emerson 1987

Richard E. Petit 1997

Robert Robertson 1997

J.Z. Young 1990

## 1998-99 AMS COMMITTEES

### **NOMINATING**

Rüdiger Bieler, Chair  
Robert Hershler  
Robert Bullock  
Harold Murray  
Jose Leal

### **SYSTEMATICS**

Gary Rosenberg

### **AUDITING**

Terry Gosliner, Chair  
Robert Bullock  
Janice Voltzow

### **PUBLICATIONS**

Ronald B. Toll, Chair  
Paula Mikkelsen  
Roland Anderson  
Debbie Wills  
Eugene Keferl  
Robert S. Prezant, *ex officio*

### **STUDENT AWARDS**

Laura Adamkewicz, Chair

Roland Anderson  
David Lindberg

### **ENDOWMENT & FINANCE**

George M. Davis, Chair

### **AMS WEBSITE**

Deborah Wills

### **MEMBERSHIP**

John Wise, Chair  
Heather Bennett

### **CONSERVATION**

Robert Cowie, Chair  
Kevin Cummings  
Terry Frest  
Matt James  
E. Alison Kay  
Chuck Lydeard  
Barry Roth

### **CONSTITUTION & BY-LAWS**

Harold Murray  
Eugene Coan

## AMS 1999 ORGANIZATIONAL ASSISTANCE

### **REGISTRATION COORDINATOR**

Fei-Wen Cheng

### **AUCTION & ART**

Richard Petit  
Charles Sturm

### **NEW LOOKS SYMPOSIUM**

Harold Rollins  
Ellis Yochelson

### **MOLLUSCAN GENETICS**

Laura Adamkewicz

### **MOLLUSCS AND EDUCATION**

Patricia M. Morse

### **BIOMINERALIZATION**

Joseph Carter

### **WOMEN/MALACOLOGY**

Louise Russert-Kraemer  
Constace Boone  
Heather Bennett

### **1999 AMS T-SHIRT ART**

Stuart Yellin

### **1999 AMS LOGO**

Brian Jacobson

### **AMS HISTORY/CLENCH TAPES**

Harold Murray

### **FOSSIL FIELD TRIP**

Albert Kollar

### **FRESHWATER TRIP**

Art Bogan

### **CARNEGIE MUSEUM**

John Rawlins  
Charles Sturm

### **REGISTRATION**

Anne Joffee  
Mary Lou Pojeta

### **AMS CONSERVATION BROCHURE**

Chuck Lydeard

### **REGISTRATION DESK**

Anne Joffee  
Mary Lou Pojeta

### **GENERAL ASSISTANCE**

Uma Narayan  
Jennifer Prezant

### **STUDENT TRAVEL AWARDS**

Bernice Barbour Foundation  
Eve Lloyd Thompson

### **CURATION WORKSHOP**

Charles Sturm

### PAST PRESIDENTS

Henry A. Pislbry 1932  
 Paul Bartsch 1933  
 Junius Hendersen 1934  
 William C. Clench 1935  
 Calvin Goodrich 1936  
 Joshua L. Bailey, Jr. 1937  
 Carlos del a Torre 1938  
 Maxwell Smith 1939  
 H. B. Baker 1940  
 Harald A. Rehder 1941  
 Henry van der Schalie 1946-47  
 A. Myra Keen 1948  
 Elmer Berry 1949  
 Fritz Haas 1950  
 J. P. E. Morrison 1951  
 Jeanne Schwengel 1952  
 A. Byron Leonard 1953  
 Joseph C. Bequaert 1954  
 Morris K. Jacobson 1955  
 Allyn G. Smith 1956  
 Ruth D. Turner 1957

Aurele La Roque 1958  
 R. Tucker Abbott 1959  
 Katherine V. W. Palmer 1960  
 Thomas E. Pulley 1961  
 William K. Emerson 1962  
 Albert R. Meade 1963  
 John Q Burch 1965  
 Juan J. Parodiz 1965  
 Ralph W. Dexter 1966  
 Leo G. Hertlein 1967  
 Arthur H. Clarke 1968  
 Joseph Rosewater 1969  
 Alan Solem 1970  
 David H. Stansbery 1971  
 Arthur S. Merrill 1972  
 Dee S. Dundee 1973  
 Harold D. Murray 1974  
 Donald R. Moore 1975  
 Dorothea S. Franzen 1976  
 George M. Davis 1977  
 Carol B. Stein 1978

William E. Old, Jr. 1979  
 Clyder F. E. Roper 1980  
 Richard S. Houbrick 1981  
 Louise Russert-Kraemer 1982  
 Alan J. Kohn 1983  
 Robert Robertson 1984  
 Melbourne R. Carriker 1985  
 James Nybakken 1986  
 William G Lyons 1987  
 Richard E. Petit 1988  
 James H. McLean 1989  
 Rogert T. Hanlon 1990  
 Carole S. Hickman 1991  
 Robert C. Bullock 1992  
 Fred G. Thompson 1993  
 Constaance E. Boone 1994  
 E. Alison Kaye 1995  
 Rüdiger Bieler 1996  
 Eugene Coan 1997  
 Robert Hershler 1998



## **MEETING INFORMATION**

**Hotel Venue:** All papers and posters, as well as Registration, *AMS* Student Reception, the President's and Symposium Reception, Coffee Breaks, Keynote Address and Wine and Cheese Reception, Auction, Book, T-shirt, and Art Sales, and the General Business Meeting, will all be held in the *Sheraton Station Square*. See below or the Schedule Matrix on a following page for the exact times, rooms and locations. Special announcements will be posted in the hotel lobby and on the scrolling monitors.

**Registration:** The registration desk is located in the inside hotel foyer, just outside the meeting rooms. Your registration packets will hold this program as well as your name tag (needed to get into sessions), banquet ticket(s), updated meeting information, and information about the Pittsburgh area.

**Parking:** For those of you with cars, valet parking is available with the hotel or merely park in the hotel parking lot or adjacent lot (less expensive). Ask at the front desk for details.

**Coffee Breaks:** Morning and afternoon session coffee breaks will be held adjacent to the registration desk.

**Student Paper Awards:** The *AMS* will again present awards for outstanding paper/poster presentation. Students participating in this are indicated with an asterisk in the program.

**Station Square:** This area of Pittsburgh is across the River from downtown but offers a full array of restaurants and bars, shops, and small entertainment centers, all within very short walking distance of the hotel. The *Sheraton Station Square* also offers restaurant, bar, a small shop, pool and exercise room. You can take a subway under the river to get downtown or ask the hotel about their shuttle service.

## **NON-SESSION EVENTS**

### **Saturday 3 July 7:30-9:30pm**

***AMS* Student Reception:** A reception for *AMS* students only will be held in the Coach Room. Students: don't eat dinner before this reception!

### **Sunday 4 July 11:50am**

**Annual *AMS* group photograph.** Location to be announced.

### **Sunday 4 July 7:30pm**

**President's and Symposium Reception:** This sumptuous repast will be held in the Fountainview Room. The balcony location offers an excellent view over the river of the July 4<sup>th</sup> Three Rivers Stadium Fireworks.

## Monday 5 July 7:30pm

**Keynote Address:** Dr. Richard Lutz will offer the keynote address on “Deep-Sea Hydrothermal Vents: Exciting New Discoveries”. This will be followed by a wine and cheese reception. Both will be held in the P & LE Room.

## Monday 5 July – Wednesday 7 July

**Book sales:** Both Don Dan and Donald Hahn will display relevant books for sale or order.

## Wednesday 7 July 7:30pm

**Auction:** Specially prepared art work, books, reprints, malacomusic and more!! The auction and special art exhibit will take place in the Admiral Room. Early looks start at 7:30pm – auction proper will begin around 8:00pm.

## Thursday 8 July, 3:15pm

**General Business Meeting:** Be sure to attend the annual business meeting of the *AMS* to be held in the Topeka/Santa Fe Room. Reminder, while the 65<sup>th</sup> meeting of our society, this will be the first official meeting of the *American Malacological SOCIETY*.

## Thursday 8 July, 6:30pm

**Banquet Cruise:** The cruise liners are located behind the hotel. Please proceed to the ship no later than 6:30pm and be sure to get on the right ship (as indicated on your ticket).

## Friday 9 July

**Field Trips:** Both fossil and freshwater field trip participants should meet in the hotel lobby at announced time in the morning for van pick-up. Information on pre-field trip meetings will be announced.

**Carnegie Museum of Natural History Collection:** Individuals who have arranged to visit the mollusc collection at the Carnegie should meet at the morning announced time in the hotel lobby. For those of you who have not signed up for this visit, the collection will be open to all. Those who wish to continue to use the collection on Saturday, please notify Charlie Sturm sometime during the meeting.



## SPECIAL PRESENTATION SESSIONS AND WORKSHOPS

### **Sunday 4 July 8:45 – 5:30 The B&O Room.**

**New Looks at Old Molluscs Symposium: Recent Perspectives of Molluscan Evolution.** Organized by Harold (Bud) Rollins and Ellis Yochelson, this symposium will concentrate upon class level controversies with the Mollusca.

### **Monday 5 July 1:30 – 5:00 The Topeka/Santa Fe Room.**

**Molluscs and Education: New Ideas from Museums to the Classroom.** Organized by M. Patricia Morse, this session will examine the use of molluscs in current principles of science education, including K-12 and undergraduate education using interactive programs, Science as Inquiry, new resources for teaching, and molluscs as tools for engaging students.

### **Tuesday 6 July 8:30 – 12:00 The Topeka/Santa Fe Room.**

**Molluscan Genetics.** Organized by Laura Adamkewicz, this session will focus on allozyme and population genetics of molluscs.

### **Tuesday 6 July 8:30-4:30 The Atchinson Room.**

**Posters.** Authors will be present at their posters from 3:00-5:30 but posters can be viewed anytime during the day.

### **Tuesday 6 July 1:30 – 5:00 The B&O Room.**

**Biom mineralization in Molluscs.** A session on shell microstructure and biomineralization organized by Joseph Carter. The session will offer presentations on biochemistry and physiology of shell formation as well as importance of growth lines and shell microstructure in understanding molluscan biology. A separate workshop will be held on Wednesday.

### **Tuesday 6 July 4:45-5:45 The Topeka/Santa Fe Room.**

Open meeting of the **Systematics and Collections Committee.**

### **Wednesday 7 July 9:00-3:30 The Topeka/Santa Fe Room.**

**Malacology Curation Workshop.** Charles Sturm has organized a workshop for amateurs and interested professionals on the “how to” of curation, including looks at curation techniques, resources, and interactions of amateurs and professionals.

**Wednesday 7 July 1:30-4:50 The B&O Room.**

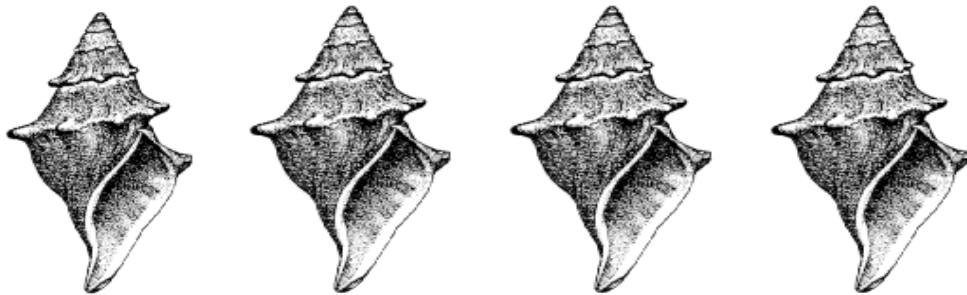
**Biomneralization & Biomneralization Workshop.** A continuation of the Biomneralization Session plus demonstration and discussion of specific techniques. Bring specimens, slides, peels and micrographs for exchange and discussion.

**Thursday 8 July 9:00-12:00 The Topeka/Santa Fe Room.**

**Women in Malacology.** Louise Kraemer, Connie Boone and Heather Bennett have put together an overview and roundtable session on contributions of women to Malacology, past and present. A panel discussion will be followed by open discussion, with an invitation to share points of view, reminiscence, reprints, pictures, etc. The hope is for a shared and growing database. ALL AMS attendees are invited to attend.

**Thursday 8 July 1:30-3:00 The Topeka/Santa Fe Room.**

**History of AMS and the Clench Tapes.** Organized by Harold Murray who will offer insight into our societal history along with the first release of his extensive taped interview with Bill Clench. Juan Jose Parodiz, President of *AMU* in 1965 will offer his interpretation of our early, and sometimes controversial history as well.



**AMERICAN MALACOLOGICAL SOCIETY 1999  
65<sup>TH</sup> ANNUAL MEETING**

	Saturday 3 July	Sunday 4 July	Monday 5 July	Tuesday 6 July	Wednesday 7 July	Thursday 8 July	Friday 9 July
		Registration (8:30-12:00)					
a.m.		Opening Remarks (8:45)	Contributed I 9:00-12:00	Genetics (8:30-12:00)	Contributed III (9:00-12:00)	Contributed IV (9:00-12:00)	Field Trips (van pick-ups) 8:30
		New Looks Symposium I (9:00-11:50)			Curation Workshop I (9:00-12:00)	Women In Malacology Round Table (9:00-12:00)	Carnegie Collection 8:30
		AMS Group Photo 11:50-12:00		Posters (9:00-12:00)			
p.m.	Council Meeting (2:30-5:30)	Registration (1:30-5:30)	Contributed II (2:00-5:00)	Biomineralization (1:30-4:40)	Biomineralization II & Workshop (1:30-4:50)		
	registration (2:00-7:30)	New Looks Symposium II (2:00-5:30)	Molluscs & Education (1:30-5:00)	Posters (1:30-5:30) Authors present: (3:00-5:30)	Curation Workshop II (1:30-3:30)	Clench Tapes & History of AMU/AMS (1:30-3:00)	
						General Business Meeting (3:15-4:30) Open	
		Books Sales	Posters (set up)	Book Sales			
				Open Session (4:45-5:45) Systematics			
	Council Meeting (as needed) (7:30-9:00) Student Reception (7:30-9:30)	President's and Symposium Reception (7:30-10:30)	Keynote & Wine & Cheese Reception (7:30-9:30)		Art Display & Auction Art & Book Sales (7:30 -10:30)	Banquet Cruise (6:30-10:00)	

**SUNDAY 4 JULY 1999**

8:45-9:00 Opening Remarks: R. S. Prezant  
Welcome: J. J. Parodiz

***NEW LOOKS AT OLD MOLLUSKS SYMPOSIUM I***

B&O Room

Harold Rollins & Ellis Yochelson, Conveners

Audio/Visual Aides: Leslie Brooker & Daniel Geiger

- 9:00-9:10 Symposium Introduction. E. Yochelson
- 9:10-9:30 The bellerophont controversy revisited. H. B. Rollins and J. A. Harper
- 9:30-9:50 Multiple lines of evidence supporting the existence of Paragastropoda. K. Bandel
- 9:50-10:10 A higher-order phylogeny of Gastropoda. P. J. Morris
- 10:10-10:30 On the achieving of limpetdom in the history of gastropod molluscs: the ultimate high or low. D. Lindberg
- 10:30-10:50 Break
- 10:50-11:10 Is the Aplacophora monophyletic? A cladistic point of view. G. Haszprunar
- 11:10-11:30 Why the Middle Cambrian *Wiwaxia* may be ancestral to the Mollusca. A. H. Scheltema and C. Schander
- 11:30-11:50 Problems in constructing a phylogeny for Paleozoic polyplacophorans. R.E. Hoare
- 11:50-12:00 **AMS ANNUAL GROUP PHOTOGRAPH**
- 12:00-2:00 Break

***NEW LOOKS AT OLD MOLLUSKS SYMPOSIUM II***

Harold Rollins and Ellis Yochelson, Conveners

Audio/Visual Aides: Leslie Brooker & Daniel Geiger

- 2:00-2:20 Cambrian and Ordovician diasome mollusks. J. Pojeta, Jr.
- 2:20-2:40 Some aspects of the diversification of the Bivalvia from the Ordovician to the Devonian. C. Babin

- 2:40-3:00 DNA evidence on the evolution of the Bivalvia. D.C. Campbell\*
- 3:00-3:20 Break
- 3:20-3:40 Reconstruction of ancestral character states for coleoid cephalopods. M. Vecchione, R.E. Young and D. Carlini
- 3:40-4:00 Re-examination of the history of living and fossil nautilid cephalopods. W. B. Saunders and P.D. Ward
- 4:00-4:20 Through the mud darkly, a neontologist looks at scaphopod evolution. R. L. Shimek
- 4:20-4:40 Monoplacophoran evolution in the Cambrian. J.S. Peel and A. Gubanov
- 4:40-5:00 The issue of extinct classes of Mollusca: or what is and what isn't a class of mollusks. E. L. Yochelson
- 5:00-5:30 Symposium Summary and Discussion
- 

**MONDAY MORNING**  
**CONTRIBUTED SESSION I**

B&O Room

Ronald Toll, Convener

Audio/Visual Aide: Heather Bennett

- 9:00-9:20 Mollusc-sediment relationships at Assateague Island National Seashore, Maryland. Fei-Wen Cheng\*
- 9:20-9:40 Gastropods as prey of octopuses of the deep-sea genus *Graneledone*. J. R. Voight
- 9:40-10:00 Feeding ecology of the bivalve *Rangia cuneata* (Sowerby, 1831): incurrent siphoning in and above the benthic-boundary layer. C. M. Cleveland\*
- 10:00-10:20 Feeding preferences of invasive and native turban snail predators. S. Lonhart\*
- 10:20-10:40 Break
- 10:40-11:00 Age and size of *Mercenaria mercenaria* in a South Carolina tidal creek. A. G. Eversole

- 11:00-11:20 Four year trend in the molluscan community of Hillsborough Bay, Florida. D. J. Karlen
- 11:20-11:40 Molluscan diversity and sediment toxicity in Biscayne Bay, Florida. D. D. Turgeon
- 11:40-12:00 Allometric shell growth, sexual dimorphism and canonical discriminant analysis of the Asian viviparids. Yuh-Wen Chiu, Hon-Chen Chen, Sin-Che Lee and C. A. Chen

## MONDAY AFTERNOON

### CONTRIBUTED SESSION II

B&O Room

Donna D. Turgeon Convener

Audio/Visual Aides: Sarah Watson

- 2:00-2:20 Plio-Pleistocene faunal patterns in the western Atlantic: I. Bivalvia. M. Cambell
- 2:20-2:40 Predation on bellerophonitiform molluscs with special reference to shell morphology. A. Lindström, J. O. R. Ebbestad and J. S. Peel
- 2:40-3:00 *Cochlespira* (Turridae, Gastropoda) in the Cenozoic of the Southeastern United States. M. Campbell, S. Campbell, L. Campbell and D. Campbell
- 3:00-3:20 A comparison of living and dead molluscs on coral reef associated hard substrata in the northern Red Sea. M. Zuschin, J. Hohenegger and F. F. Steininger
- 3:20-3:40 Break
- 3:40-4:00 Do juvenile unionids like sand? A unionid translocation and follow-up at a site with a moderate *Dreissena polymorpha* (Pallas 1771) infestation, Mississippi River Mile 725.8, T.H. 43 bridge, Winona, Minnesota/Wisconsin, U.S.A. M. E. Havlik
- 4:00-4:20 Distributional differences in the freshwater pulmonate snails *Physa gyrina* and *Physa heterostropha*: competitive exclusion or habitat choice? A. R. Wethington\*
- 4:20-4:40 The habitat and distribution of *Thiara granifera* in Kuan-Du wetland, northern Taiwan. Nan-Hsiung Wang, Yuh-Wen Chiu, Da-Ji Huang, M. D. Barnes and Liang-Hsien Chen
- 4:40-5:00 Progress on the taxonomic manual: Shell-bearing Gastropoda of the

Northeastern Pacific. J. H. McLean

***MOLLUSCS & EDUCATION: NEW IDEAS***

Topeka/Santa Fe Room  
M. Patricia Morse, Convener  
1:30-5:00pm

A panel of molluscan science educators will present short scenarios and projects that are based on the following principles:

- Effective science education includes interactive, hands-on activities that mirrors the way scientists do science
- Talks and activities presented will reflect the National Science Education Standards (URL) that call for all students to understand Science as Inquiry and recognize that students actively asking questions, constructing their own testable hypotheses, gathering and analyzing data, and communicating the results among peers leads to student learning
- Databases, up-to-date research tools, new ideas that work, new resources for information and an understanding of what teaching inquiry means helps teachers to be more effective in their classrooms
- Molluscs offer a terrific subject to engage students and the larger public, and serve as a basis to connect students with new ways of learning about the biology of the molluscan organisms and the environments in which they live
- New tools, such as computers, databases, research tools, new forms of software for data analysis and telecommunications allow new classroom activities

**TUESDAY MORNING**

***GENETICS***

Topeka/Santa Fe Room  
Laura Adamkewicz, Convener  
Audio/Visual Aides: Renee Avery

- |             |  |
|-------------|--|
| 9:00-9:20   | Molecular phylgeography of the eastern Pacific and Caribbean Patellogastropoda. W. B. Simison      |
| 9:20-9:40   | Molluscan aquaculture genetics and molecular breeding: Mapping the way? P. Gaffney                 |
| 9:40-10:00  | Origin of polyploidization in the North American Sphaeriidae (Mollusca: Bivalvia). T. Lee          |
| 10:00-10:20 | Conservation genetic study of the freshwater mussel, <i>Cumberlandia monodonta</i> . Hsiu-Ping Liu |
| 10:20-10:40 | Break  |

- 10:40-11:00 Clonal persistence in *Lasaea* – inferences from single-copy nuclear gene trees. D. O’Foighil
- 11:00-11:20 The molecular phylogeny of *Bivalvia* is highly dependent on the alignment of *Helix* E-10. S. L. Adamkewicz
- 11:20-11:40 Speciation, gene flow and hybridization of hydrothermal vent endemic mussels from the mid-Atlantic ridge. G. O’Mullan
- 11:40-12:00 Wood, whales and hydrothermal vents: unexpected connections among little known mussels of the deep. D. L. Distel

## **TUESDAY AFTERNOON**

### ***BIOMINERALIZATION SESSION I***

B&O Room

Joseph Carter, Convener

Audio/Visual Aide: Daniel Geiger

- 1:30-1:40 Greeting. J. G. Carter
- 1:40-2:00 Biomineralization in the radula teeth of the chiton genus *Acanthopleura* (Mollusca: Polyplacophora) and its significance to systematics within the group. L. Brooker\*
- 2:00-2:20 Gastropod larval shell mineralization. C. S. Hickman
- 2:20-2:40 Conellate biomineralization in belemnoid rostra. A. Seilacher and J. S. Pignatti
- 2:40-3:00 The composition of the mollusc shell as a proxy for molluscan physiology. G. D. Rosenberg
- 3:00-3:20 Discussion and break
- 3:20-3:40 Organic matrix preparations as tools for understanding stress-related variations in bivalve shells. G. R. Clark II
- 3:40-4:00 Climatic variations recorded in the shell of the freshwater pearl mussel *Margaritifera margaritifera*. E. Dunca.
- 4:00-4:20 Influence of thermal environment on shell microstructure. R. S. Prezant, A. Tan and E. Chapman

- 4:20-4:40      Constructional morphology of microscopic features in bivalve shells. T. Ubukata
- 4:40-5:00      How shells are formed, and how they are not. C. Hedegaard

### **POSTERS**

1:30-5:30 [Authors Present 3:00-5:30]  
Atchinson Room

1. Climatic variations recorded in the shell of the freshwater pear mussel *Margaritifera margaritifera* (L.). U. Nordlund, E. Dunca, J. Sorelius and H. Mutvei.
2. Evaluation of the geochemical and physical properties of molluscan material used for AAR analysis. K. L. Davis, J. F. Wehmiller, T. H. O'Donnell and S. A. Macko.
3. Allochthonous shell concentrations in a thyasirid facies from the early Middle Miocene (Badenium) of Austria. M. Harzhauser, O. Mandic, M. Zuschin, P. Pervesler and R. Roetzel.
4. Gastropod torsion – new data on an old problem in malacology. A. Wanninger, B. Ruthensteiner, B. Josffe and G. Haszprunar.
5. The early evolution of the Cirroidea (Gastropoda) still remains mysterious. Jiri Fryda, R. B. Blodgett and A. C. Lenz.
6. *Progoscutula* – oldest caenogastropod limpet. J. Fryda.
7. Suggestions for polyphyletism of Paleozoic bellerophontiform molluscs inferred from their protoconch morphology. J. Fryda.
8. Taxonomic revision and zoogeography of Magellanic Nudibranchia (Gastropoda: Opisthobranchia). M. Schrödl.
9. Rediscovery of *Phyllidiopsis sinaiensis* (Nudibranchia: Doridoidea) with a brief review of the Red Sea Phyllidiidae. A. Fahrner and M. Schrödl.
10. Microstructure of the periostracum of *Solemya velum* (Bivalvia: Cryptodonta). H. Bennett.\*
11. Comparison of aesthete canal morphology in several chiton species. C. Fernandez, M. Vendrasco and B. Runnegar.
12. Not just another dingy dee-sea limpet: a new *Copulabyssia* (Gastropoda: “Cocculiniformia”: Pseudococculinidae) from off eastern Brazil. J. Leal and L. R. Lopes de Simone.

13. Anatomy of *Seguenzia mirabilis* Okutani with phylogenetic reevaluation of Seguenziidae (Vetigastropoda: Seguenzioidea). T. Sasaki, E. Tsuchida and T. Okutani.
14. Rare legacy: freshwater mollusks from the Charles M. Wheatley collection at the Milwaukee Public Museum. J. Jass and J. Glenn.
15. Phylogeny of *Lyratoherpia* (Ampineura, Dondersiidae) and problems concerning types. C. Schander and A. H. Scheltema.
16. Effects of latitude and zonation on shell parameters in the limpet, *Tectura testudinalis*. E. Chapman\*

## **WENESDAY MORNING**

### ***CONTRIBUTED SESSION III***

B&O Room

Marian Havlik, Convener

Audio/Visual Aide: Steve Lonhart

- |             |   |
|-------------|---|
| 9:00-9:20   | Effects of a digenetic trematode parasite on feeding and physiology of the snail <i>Elimia flava</i> (Lea). K. K. Lenertz*  |
| 9:20-9:40   | Morphology and metabolism of the enigmatic <i>Xenoturbella</i> (Bivalvia, Protobranchia; formerly phylum unknown). O. Israelsson*   |
| 9:40-10:00  | Radula and shell morphometry of Thai micro-snails. S. Panha and P. Tongkerd   |
| 10:00-10:20 | Crossed-lamellar structure and its connection to shell strength in <i>Nucella lapillus</i> . R. Avery*  |
| 10:20-10:40 | Break   |
| 10:40-11:00 | Tapping the unexplored: midgut morphology of cerithioidean gastropods (Caenogastropoda) – Preliminary results and implications for homology and phylogeny. E. E. Strong and M. Glaubrecht |
| 11:00-11:20 | Development of the reproductive system in <i>Nassarius vibex</i> (Neogastropoda: Buccinidae: Nassariinae). M. J. deMaintenon  |
| 11:20-11:40 | What do squid signal with a Zebra display? I. The formal challenge. J. Mather   |

**CURATION WORKSHOP I**

Topeka/Santa Fe Room  
 Charles F. Sturm, Jr., Convener  
 Audio/Visual Aide: Renee Avery

- 9:00-9:15 Introduction to Session. C. S. Sturm, Jr.
- 9:15-9:45 Archival and curatorial practices for the amateur malacologist. C. S. Sturm
- 9:45-10:45 Database design for mollusk collections. G. Rosenberg
- 10:45-11:00 Break
- 11:00-11:30 Donating amateur collections to museums. T. A. Pearce
- 11:30-12:00 Non-professional assistance in scientific collections: prospects and payoffs. J. H. Leal

**WEDNESDAY AFTERNOON****BIOMINERALIZATION II**

B&O Room  
 Joseph Carter, Convener  
 Audio/Visual Aide: Kristin Lenertz

- 1:30-1:40 Greeting, J. Carter
- 1:40-2:00 Shell microstructure analysis of eight vesicomid clams: evolutionary implications. M. Tieger
- 2:00-2:20 Structure and growth of the ventral hinge system of *Pandora wardiana* A. Adams, 1859. A. M. Bush\*
- 2:20-2:40 Phylogenetic significance of cardioidean shell microstructure. J. A. Schneider and J.G. Carter
- 2:40-3:00 Evolutionary trends in bivalve shell and ligament microstructure. J. G. Carter
- 3:00-3:20 Break

**BIOMINERALIZATION WORKSHOP**

B&amp;O Room

3:20-4:50

3:20-3:30 Introduction. J. G. Carter

3:30-4:50 Displays, demonstrations, discussions, drinks

Microscopes, petrographic & biological, will be provided.  
 Microstructure reference sets and glossaries will be distributed.  
 All attendees are invited to bring specimens, slides, acetate peels,  
 And photographs for exchange and/or discussion.

**CURATION WORKSHOP II**

Topeka/Santa Fe Room

Charles S. Sturm, Jr., Convener

Audio/Visual Aide: Ellen Strong

1:30-2:00 Collecting, identifying, and curating freshwater mollusks. K. S. Cummings

2:00-2:30 The molluscan literature: its usage and limitations. R. E. Petit

2:30-3:15 Panel Discussion

**THURSDAY MORNING****WOMEN IN MALACOLOGY**

Topeka/Santa Fe Room

Louise Kraemer, Convener

9:00- 12:00 Overviews from Louise Kraemer, Constance Boone and Heather Bennett followed by round-table/panel discussion.

**CONTRIBUTED SESSION IV**

B&amp;O Room

Jennifer Mather, Convener

Audio/Visual Aide: Carol Cleveland

9:00-9:20 Experimentation in the early chitons and the building of a body plan.  
M. Vendrasco and B. Runnegar

- 9:20-9:40 Muteloidea Schmuteloidea: a re-evaluation of the relationships of the Hyriidae (Bivalvia: Unionoida). D. L. Graf\*
- 9:40-10:00 Phylogenetic relationships of the introduced freshwater clam *Corbicula*. S. Siripattawan
- 10:00-10:20 Molecular systematics, hidden diversity, and forgotten species: a case study of the genus *Potamilus* Rafinesque 1818. J. M. Serb, K. J. Roe and C. Lydeard
- 10:20-10:40 Break
- 10:40-11:00 Phylogenetic utility of mitochondrial gene order in gastropods. W. E. Holznagel and C. Lydeard
- 11:00-11:20 A phylogenetic overview of *Tryonia* springsnails: molecular and morphological perspectives. R. Hershler, Hsiu-Ping Liu and M. Mulvey
- 11:20-11:40 An insight into the biogeography, speciation, and evolution of some of the freshwater snail *Elimia* species within the southeastern U.S. river drainages [Pleuroceridae: Gastropoda]. E. L. Mihalcik
- 11:40-12:00 *Puperita tristis* (D'Orbrigny, 1842) is an ecotype of *Puperita pupa* (Linnaeus, 1767). R. Minton and R. Gundersen

**THURSDAY AFTERNOON**  
***HISTORY AMU/AMS-CLENCH TAPES***

Topeka/Santa Fe Room  
 Harold Murray, Convener  
 Audio/Visual Aide: Steve Lonhart

- 1:30-2:00 Reminiscences on Malacology in the Twentieth Century. J. J. Parodiz
- 2:00-3:00 William J. Clench on tape. H. D. Murray
- 3:15-4:30 AMS General Membership Open Business Meeting

