

**107th Annual Meeting
The Ohio Academy of Science
Hosted by
Miami University-Middletown
April 3-4-5, 1998**

WELCOME . . . !

Miami University-Middletown welcomes you to the 107th Annual Meeting of The Ohio Academy of Science. We invite you to explore our campus and to share in the excitement and opportunities provided in this program.

REGISTRATION: Registration is required for all meeting presenters and attendees. On-site registration will be available at a higher rate. **To assure reservations for meals, forms must be received by The Ohio Academy of Science by March 23, 1998.**

Please use Registration Form on last page. Mail completed forms and fees to:

OAS Annual Meeting Registration
The Ohio Academy of Science
PO Box 12519
Columbus OH 43212-0519
FAX 614/488-2228

Registration by credit card or purchase order only will be accepted by FAX at 614/488-2228. Your packet, tickets, receipt, and name tag will be ready at the meeting registration desk upon your arrival. For further information, please call 614/488-2228.

Friday, April 3 and Saturday, April 4

Registration will be held in Johnston Hall from 1:30 PM-5:00 PM on Friday and 8:00 AM - 3:00 PM on Saturday. On-site registration is possible by check, VISA, or Mastercard. Cash is discouraged.

Special Acknowledgments: The Ohio Academy of Science and Miami University-Middletown express their appreciation to Pharmacia Hepar, Inc. and Metcalf & Eddy for partial financial support for this meeting.

Local Arrangements: Dr. Carolyn Howes Keiffer

Our Host: Miami University-Middletown is a state-assisted regional campus of Miami University. Miami University Middletown offers certificate programs, associate degrees, limited bachelor's degrees, beginning course work for most four-year degrees, and MBA and MEd programs. Enrollment includes nearly 2400 undergraduate students and 330 graduate students. First semester begins late August and ends in early December. Second semester begins in mid-January and ends in mid-May. Summer sessions are also offered.

PARKING. There will be no charge for parking.

SMOKING POLICY. Smoking is not permitted in any building on campus.

MEALS: Friday, April 3. Preregistration required by March 23 for the Joint Ohio Academy of Science-Ohio Biological Survey Dinner off campus at the Manchester Inn.

Saturday, April 4. For lunch, there will be a list of restaurants available near campus. Area maps will be available at registration.

Preregistration required by March 23 for Academy Annual Meeting Banquet at the Manchester Inn.

Please indicate your choice of chicken, beef, or vegetarian on the registration form.

Dinner, Friday, April 3

Chicken Cordon Bleu or
Roast Top Round of Beef or
Vegetable Lasagne

Banquet, Saturday, April 4

Chicken Oscar (contains Crabmeat) or
London Broil or
Pasta Marinara

HOUSING: Please contact hotels and motels directly. The Friday and Saturday night meals will be at The Manchester Inn.

The Manchester Inn & Conference Center

(800) 523-9126 (513) 422-5481 FAX (513) 422-1615

1027 Manchester Ave., Middletown

The OAS conference rate is \$60.00+ tax (8.5%) and incidentals.

Fairfield Inn

(513) 424-5444 FAX (513) 424-5444

6750 Roosevelt Pkwy, Middletown

The Holiday Inn Express

(513) 727-8440 FAX (513) 727-8440

6567 Terhune Dr., Middletown

Ramada Inn

(513) 424-1201 FAX (513) 425-9681

6147 W. St. Rt. 122, Middletown

Best Western Sunset Inn

(800) 528-1234 (513) 727-0440 FAX (513) 727-0440

3510 Commerce Dr., Franklin

Comfort Inn

(800) 228-5150 (513) 420-9378 FAX (513) 422-4387

3458 Commerce Dr., Franklin

Garden Inn & Suite

(513) 424-3551 FAX (513) 424-3551

6475 Culbertson Rd., Franklin

Super 8 Motel

(800) 800-8000 (513) 422-4888 (513) 420-9599

3553 Commerce Dr., Franklin

GENERAL SCHEDULE

Friday, April 3, 1998

- 10:00 AM The Ohio Academy of Science
Board of Trustees Meeting in
Johnston Hall
Commons Conference Room
- 1:30 PM Registration in Johnston Hall
- 2:00 - 5:00 PM Ohio Biological Survey
Executive Committee in
Johnston Hall 107

PROFESSIONAL WORKSHOPS

- 2:00-5:00 PM Johnston Hall 106

Teaching the Nature of Science and Evolution in the Classroom

Presented by SPENCER E. REAMES, DAVID M. WEANER, AND RUTH WILLEY

This 2.5 hour hands-on workshop will give teachers classroom-tested methods of teaching students about the nature of science and evolution. Teaching about evolution poses a predicament for teachers. Although the concepts and principles of evolution are central to modern biology, few topics—in the mind of the public—are more controversial in all of science. It is essential that students understand the nature of science, including evolution, if we are to have a literate citizenry capable of supporting modern science and engaging in public dialogue concerning scientific issues. Workshop topics will include: the nature of science, evolution of the universe, biological and human evolution.

- 2:00-5:00 PM Johnston Hall 103

Introduction to the General Linear Model: Applications for Individual Research Questions and Decision Making

Arranged and Conducted by ISADORE NEWMAN
The University of Akron

Goal 1: To demonstrate the flexibility, power and ease of using the General Linear Model to reflect research questions.

- A. To demonstrate how to state research questions in common language.
- B. To teach how to write models to reflect these research questions.
- C. To demonstrate the set up of a SAS program and interpretation of the printout.
- D. To explain the relationship between regression and t tests, ANOVA, ANCOVA, dependent t tests, repeated measures, trend analysis, curvilinear relationships and path analysis.

Goal 2: To demonstrate application of the General Linear Model by having the audience share their research questions

and developing models which will reflect those questions.

Value: This workshop will show how the multiple linear regression technique frees the researcher from wondering if an analysis can be done and refocuses him or her back to the central concern: the research question itself.

Instructional Methods and Techniques: The workshop leader will use material from the book McNeil, K., Newman, I, & Kelly, F. (1996). *Testing Research Hypotheses with the General Linear Model*. Southern Illinois University Press. Carbondale IL. In addition he will use simulated computer setups and printouts.

Presenter's Experience: Isadore Newman received his PhD in educational psychology with a specialty in statistics and measurement from Southern Illinois University in 1971. He has been a professor at the University of Akron since 1971. During his professional career he has served on over 300 dissertation committees and has presented hundreds of papers at state, national and international meetings. He has written 9 books and monographs and has served on many editorial boards, in addition to being the editor of *Multiple Linear Regressions Viewpoints* and the *Midwestern Educational Researcher*.

- 6:00 PM Joint OBS-OAS Dinner off
campus at the Manchester Inn.
(reservations by March 23)

Saturday, April 4, 1998

- 7:30 AM Special Environmental Sciences
breakfast (by invitation only;
must be pre-registered) off campus
at the Manchester Inn. Hosted by
Metcalf & Eddy.
- 8:00 AM - 3:00 PM Registration in Johnston Hall
- 9:00 AM - 11:00 AM Morning poster and podium
presentations.
- 9:00 AM - 11:00 AM Johnston Hall 116

SYMPOSIUM: THE NATURE OF SCIENCE AND CREATIONISM

The teaching of evolution, a cornerstone of biology education, is under attack in schools across the country. This symposium will (1) explore some of the issues of this controversy, (2) discuss why the scientific community supports the teaching of evolution and (3) why they consider it an essential topic. DR. TIM M. BERRA, author of *Evolution and the Myth of Creationism*, will **set the stage** for the discussion. DR. DANIEL J. CRAWFORD will discuss the **views of professional societies** on the teaching of evolution and creationism. Dr. WILLIAM D. HUMMON will give the **perspectives of the religious community**. MR. MIKE MCNABB, MR. DAVID WEANER, MS. RUTH WILLEY, AND MR. SPENCER REAMES will discuss teaching of evolution from the **classroom teacher's perspective**. This will be followed by a panel discussion and question and answer period involving all of the presenters.

DR. TIM M. BERRA
Emeritus Professor of Zoology
The Ohio State University-Mansfield

DR. DANIEL J. CRAWFORD
Professor of Plant Biology
The Ohio State University
President, Botanical Society of America

DR. WILLIAM D. HUMMON
Emeritus Professor of Zoology
Ohio University

Panel of Teachers

MR. SPENCER E. REAMES
Benjamin Logan HS
Bellefontaine, OH

MR. DAVID M. WEANER
Westerville North HS
Westerville, OH

MS. RUTH WILLEY
Fremont Ross HS
Fremont, OH

MR. MIKE MCNABB
Ballard HS
Louisville, KY

General Panel Discussion

All Academy Lecture

11:15 AM Dave Finkelman Auditorium
DR. GENE WILLEKE
Director, Institute of Environmental Sciences
Miami University

Resource Utilization and Responsible Stewardship

Resource utilization and responsible stewardship of the state's resources have been issues for Ohioans since the founding of the state. Until recent years, we have had a less than stellar historic record in pollution control and in conserving the State's plants, animals and soils. While we have made substantial improvements, especially in pollution control, we still ravage the landscape with unwise and inadequately planned and supervised development of land, and have not been careful and as discerning as we should be about invasive plant and animal species. A call for personal ethic of environmental responsibility will be given along with a vision for education, research and action for environmental preservation and restoration.

DR. GENE E. WILLEKE is Director of the Institute of Environmental Sciences at Miami University. His academic background includes an A.B. in Mathematics and the B.S. in Civil Engineering from Ohio Northern University, M.S. and Ph.D. in Civil Engineering from Stanford University, and

specialized education in water resources at the University of Illinois. At Miami University, he is also the Graduate Program Director for the Master of Environmental Science, one of the oldest environmental professional degree programs, which has been in existence since 1971. He has worked for the U.S. Public Health Service on water quality studies of the Great Lakes major resource planning projects for the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, and on transportation planning for the Georgia Department of Transportation, and the Atlanta Regional Commission. He is the past Vice-Chairman of the Georgia Conservancy, a statewide environmental organization, and has been a member of the Fernald Citizens Advisory Board from 1993 to the present.

12:00 noon	Lunch available on your own at several off-campus locations.
12:30 PM	Meeting of Parent Advisory Council Johnston Hall 110
1:30 PM	Division Business Sessions (See abstracts for locations.)
1:30 PM - 5:00 PM	Afternoon poster and podium presentations
5:15 PM	OFFICIAL NOTICE of Annual Business Meeting for Academy Members Only Johnston Hall 116
6:00 PM	Reception and Banquet off campus at the Manchester Inn

President's Address

The Problem with Relying on Technology
LEE A. MESERVE, PhD

LEE A. MESERVE, Distinguished Teaching Professor of Biological Sciences, Bowling Green State University, has been a member of The Ohio Academy of Science for 24 years, Fellow since 1989, served *The Ohio Journal of Science* as Special Editor of the Abstracts Issue 1986-88 and as Editor 1989-95, was Vice President for Medical Sciences 1983-84 and 1988-89, and served on the Personnel Committee 1996. He has been the first author or co-author of at least one research presentation at each Annual OAS Meeting since joining in 1974. He and his wife Marge hold Life Family Membership in the Academy. Meserve received the BS degree in animal sciences from the University of Maine in 1966 and the Ph.D. in zoology (endocrinology) from Rutgers University in 1972. He was Visiting Assistant Professor of Biology at Vassar College for one year, before coming to Bowling Green in 1973. At BGSU he has served the Department as Pre-Health Professions Advisor 1983-present and the University at Coordinator of the Pre-Physical Therapy Program 1980-89. He has chaired the Radiation Safety Committee 1985-1997, the United Way Steering Committee 1990-91, the Distinguished Teaching Professor Selection Committee 1994-96, and the Intercollegiate Athletics Committee 1996-present.

He has served the profession as President of the BGSU Chapter of Sigma Xi 1983-84, 1995-96, Chair of the Endocrine Society Membership Committee 1993-96, and served on the editorial boards of *Growth, Development and Aging* 1989-present and *Journal of Sex Research* 1992-present. He has published three book chapters and 26 papers in peer-reviewed journals, including three in *The Ohio Journal of Science*. He has received the Hollis A. Moore University Service Award 1990, the BGSU Master Teacher Award 1992, and a BGSU Distinguished Teaching Professorship 1993.

Sunday, April 5, 1998

Geology Field Trip

Ordovician Localities on Indiana Route 101

between Brookville and Liberty

09:00 AM Sunday, April 5, 1998

Shideler Hall

MAIN CAMPUS

Miami University, Oxford, Ohio

Arranged by WAYNE MARTIN and JOHN POPE,

Miami University

Field trip leaders will direct lively discussion and spectacular fossil collecting in Upper Ordovician limestones and shales just west of Miami University along Indiana Route 101.

The carbonate sediment which formed these limestones accumulated for the most part in and around benthic communities of organisms developed on the terrigenous mud bottom of a shallow epeiric sea. The model is a gently sloping carbonate ramp, open marine environment, with sedimentation generally below surf base.

The most abundant limestone is a coarse, poorly sorted rock containing 30% to 40% fossil allochems which were originally deposited with calcareous ooze. The ooze matrix has been largely converted by neomorphism to microspar and pseudospar. The average limestone is approximately a borderline rock between a biomicrosparrudite and biospseudospar, a skeletal wackestone, or packstone, more commonly a wackestone.

A wave-current baffle was produced in the denser parts of the benthic communities by the abundant growth of bryozoans and crinoids creating low energy conditions favorable for the simultaneous accumulations of unsorted allochems and ooze. The community spread laterally as skeletal debris, swept from atop the growing centers, stabilized the peripheral muds. Carbonate accumulation terminated when mobilized, muddy bottom-sediment, thrown into suspension under storm conditions, settled and smothered the community. The model proposed for the accumulation of these carbonate sediments is independent of bottom topography and conditions of accumulation of terrigenous mud.

Field trip participants should arrive by 9:00 AM at Shideler Hall on the MAIN CAMPUS of Miami University, in Oxford. Shideler Hall is just west of the intersection of US routes 73 and 27. Free parking is available in lots northeast of the intersection and probably on Spring Street on the south side of Shideler Hall. The museum will be open to view fossils that may be found on the field trip in nearby Indiana. Coffee, soft drinks and donuts will be provided. Travel is by private cars. The trip may end in early afternoon, however, some partici-

pants may wish to remain in the field until later. Lunch is not provided but there is a convenience store near the outcrops. **Attendance is limited to the first 25 registered participants.** Cost \$5.00 payable to The Ohio Academy of Science at time of registration. For more information call: MR. SCOTT BROCKMAN at 614-265-7054 or DR. WAYNE MARTIN at 513-529-1361.

Contributed Papers: More than 285 contributed papers will be presented on Saturday, April 4, 1998. See Program Abstracts issue of *The Ohio Journal of Science* for details including schedule.

Animal Molecular Biology

Application & Utility of Molecular Markers in Systematic Biology

Aquatic Science: Fish, Frogs, Turtles; Mussels and Other Invertebrates

Clinical & Experimental Physiology

Education: Applications for Effectiveness of Instructional Delivery

Engineering: Stimulation, Chemistry & Communication

Environmental Sciences & Resource Management

Experimental Physiology

Floristics & Ethnobotany

Forest Ecology

Geography

Geology: Till Revisited and Other Geology

Gestational & Neonatal Development

Land Animal Ecology

Plant Ecology

Plant Physiology

Plants: Molecular Systematics

Plants: Invasive Species

Pre-college Student Presentations

Social & Behavioral Science

Wetland Ecology