The Annual Meeting of the Iowa Academy of Science April 20-21, 2001 [Program, 113th meeting]
GENERAL INFORMATION

PARKING:
7th and Grand Parking Garage
12 Hour Maximum – $4.00
24 Hour Maximum – $5.00

10th and Walnut Parking Garage
12 Hour Maximum – $4.00 Hotel Guests
24 Hour Maximum – $8.00 Non-Hotel Guests

5th and Walnut Parking Garage
12 Hour Maximum – $3.50
24 Hour Maximum – $4.50

4th and Grand Parking Garage
12 Hour Maximum – $3.50
24 Hour Maximum – $4.50

8th and Locust Parking Garage
12 Hour Maximum – $3.75
24 Hour Maximum – $4.75

OVERNIGHT LODGING:
Please make arrangements for overnight lodging directly with the hotel/motel of your choice. The following accommodations are in the downtown Des Moines area:

Hotel Fort Des Moines, Tenth and Walnut Streets 515/243-1161 or 800/532-1466 $79-150
Best Western Starlite Village, 929 Third Street 515/282-5251 or 800/903-0009 $53-73
Des Moines Marriott, 700 Grand Ave. 515/245-5500 or 800/228-9290 $125-200
Embassy Suites on the River, 101 E. Locust 515/244-1700 or 800/EMBASSY $75-125
Holiday Inn Downtown, 1050 Sixth Ave. 515/283-0151 or 800/HOLIDAY $75-125
Holiday Inn Express at Drake, 1140 24th Street 515/255-4000 or 800/252-7838 Under $75
Kirkwood Civic Center Hotel, 400 Walnut Street 515/244-9191 or 800/798-9191 $99
Savery Hotel & Spa, Fourth and Locust 515/244-2151 or 800/798-2151 $72-179

Other Des Moines accommodations:
Comfort Inn Airport, 5231 Fleur Drive 515/287-3434 or 800/221-2222 $59-89
Hampton Inn, 5001 Fleur Drive 515/287-7300 or 800/HAMPTON $69-74
Heartland Inn Airport, 1901 Hackley Ave. 515/256-0603 or 800/334-3277 Under $75
Super 8 Lodge, 4755 Merle Hay Road 515/278-8858 or 800/800-8000 Under $75
Days Inn Merle Hay, 4845 Merle Hay Road 515/278-5511 or 800/325-2525 $36-100

Meals:
We hope you pre-registered to join us for the fine meals planned for the Awards Luncheon, President's Banquet, and Saturday Luncheon.
THE ANNUAL MEETING
OF THE
IOWA ACADEMY OF SCIENCE
April 20 - 21, 2001

THE HOTEL FORT DES MOINES
DES MOINES

THE IOWA ACADEMY OF SCIENCE
175 Baker Hall - U.N.I.
Cedar Falls, IA 50614-0508

Associated with the
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Advancement of Science
ACKNOWLEDGEMENTS

The Iowa Academy of Science and its Board of Directors wish to thank The Hotel Fort Des Moines for providing the excellent service and facilities for the Annual Meeting. The Hotel administration and staff have been most helpful throughout the planning process.
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PROGRAM SUMMARY
THURSDAY, April 19

6:00pm
BOARD OF DIRECTORS
Dinner & Meeting

FRIDAY, April 20

7:30-12:00noon
REGISTRATION

SECTION PROGRAMS
(see Table of Contents for details)

8:00am-10:30am
Agricultural Science

9:30-10:30am
Anthropology and Psychology & Linguistics

3:00-5:30pm
Botany

8:00-10:15am
Engineering

Psychology & Linguistics (refer to Anthropology)

8:30-10:00am
Science Teaching, Chemical Education, Earth Science Teaching, Elementary Science Teaching

3:00-4:30pm
Zoology

8:00am-5:00pm
IAS & IJAS POSTER DISPLAYS

8:30-10:00am
IAS POSTER PRESENTATIONS

8:00-10:00am
SYMPOSIUM (Conservation, Societal Issues & Audubon Iowa)
"Upper Mississippi River Symposium"

10:45-11:45am
BUSINESS MEETING

12:00-1:30pm
AWARDS LUNCHEON
This luncheon will honor groups and individual students who have performed in an exemplary manner in science activities throughout Iowa. Two teachers will be honored as they receive the Iowa Academy's Excellence in Science Teaching Award.

1:30-2:30pm
GENERAL SESSION I
"Darwin Remembers"
Dr. Floyd Sandford, Coe College with support from Humanities Iowa, Cedar Rapids, IA

1:30-4:00pm
REGISTRATION
2:30-3:00pm  STANDING COMMITTEE MEETINGS

4:00-5:00pm  IAS POSTER PRESENTATIONS

5:00-6:00pm  SOCIAL HOUR

6:00-8:00pm  PRESIDENT'S BANQUET

8:00-9:00pm  GENERAL SESSION II
   "The International Space Station: New Opportunities for Research and Educational Outreach"
   Dr. Kamlesh Lulla, Chief Scientist, International Space Station - NASA

SATURDAY, April 21

7:30-10:30am  REGISTRATION

SECTION PROGRAMS: (see Table of Contents for details)

8:30-10:30am  Cellular, Molecular & Microbiology  Room 314
8:00-10:30am  Chemistry: Inorganic, Physical & Analytic  Room 317
8:00-10:20am  Chemistry: Organic & Biological  Room 316
& 1:20-2:30pm
8:00-10:20am  Conservation and Geology  Room 310
& 1:20-2:30pm  3:00pm
9:00-9:30am  Geology (Business Meeting) (Paper - refer to Conservation)  Room 318
8:30-10:30am  Physics (AAPT Meeting)  Room 305
8:30-10:30am  Physiology  Independence Hall
& 1:30-3:30pm
8:00-10:00am  Science Teaching (Joint Symposium with Zoology)  Room 302
8:00-10:00am  Zoology (Joint Symposium with Science Teaching)  Room 302
8:30-11:15am  IAS & IJAS POSTER DISPLAYS  Independence Hall
8:00-10:00am  SYMPOSIUM (Zoology & Science Teaching)  
“Teaching with Invertebrates”

8:30-10:30am  SPECIAL EVENTS: 
AAPT Meeting

9:30-10:30am  COMMERCIAL WORKSHOP 
Capturing Digital Images with a Leica Solution
Mike Roth and Martin Van Orsow, Presenters from Sciscope Instruments Company

10:30-11:45am  GENERAL SESSION III 
“The Orang utan Language Project and Quantity Judgement by Orang utans”
Dr. Robert Shumaker, Coordinator, Orang utan Language Project, National Zoological Park - Smithsonian Institution. Director, Behavioral Cognitive Research Krasnow Institute for Advanced Study, George Mason University.

12:00-1:30pm  SATURDAY LUNCHEON

1:00-3:00pm  SYMPOSIUM (Technology)

1:20pm  “Reflex Control of the Sympathetic Nervous System in Heart Failure”
Dr. Irving H. Zucker, Director of the Cardiovascular Research Center, Department of Physiology and Biophysics, University of Nebraska Medical Center.

1:30pm  “Flora of Iowa Discussion”
Continued planning for the production and publication of the Flora of Iowa.
Dr. Sandford is an Iowa scientist who has taught at Coe College in Cedar Rapids since 1971, has degrees from St. Lawrence University, Southern Illinois University and the University of Oklahoma. He spent two years in Nigeria as a Peace Corps volunteer teaching science and one year at Michigan State University on an NSF Fellowship. A generalist with diverse interests, most of his research is in the area of animal behavior. For the past 10 years his research has focused on the symbiotic association between certain species of hermit crabs and an unusual group of marine sponges. He is a recognized authority on this unusual association.

Dr. Sandford is a strong advocate of the educational value of off-campus study, and has taken Coe students off-campus nearly every January during his 30 years at the College as part of the January Winter Term. Since 1986, he has taken students to Dog Island, Florida, a barrier island in the northern Gulf of Mexico where he teaches the course “Biology of the Seashore” and where the research site for his hermit crab studies is located. At the 112th Annual Meeting of the Iowa Academy of Science, Sandford received the Academy’s Distinguished Iowa Science Teacher Award (collegiate).

Dr. Sandford’s performance is partially supported by Humanities Iowa. The play, written and performed by Sandford, is a living history reenactment in which Charles Darwin reminisces about the events of his life, including the debate between Thomas Huxley, Darwin’s champion and Bishop Samuel Wilberforce.
Dr. Kamlesh Lulla is Chief of the Office of Earth Sciences in the Space and Life Science Directorate at NASA and Director of the Earth Observations Science activities from the Space Shuttle Flights and the International Space Station. Dr. Lulla holds two Ph.D. degrees and combines his expertise in Earth and Space sciences in operational and research activities at NASA. He served as a Senior Professor and Director of the Remote Sensing Research Center at Indiana State University, Terre Haute, IN before joining NASA in 1988. Currently, he is an Honorary Professor at the University of Houston, Kansas State University and the University of Delaware.

Dr. Lulla is a widely published author having co-authored four books and authored numerous technical papers in international scientific journals. He is also the Chief Editor of Geocarto International, a major international journal in Earth Science Remote Sensing and as one of the Associate Editors for the journal Photogrammetric Imaging and Astronaut Observations of the American Institute of Aeronautics and Astronautics (AIAA). He also serves as an Adjunct Professor at the University of Houston-Clear Lake.
GENERAL SESSION III

"The Orangutan Language Project and Quantity Judgement by Orangutans"

Dr. Robert Shumaker, PhD.
Coordinator, Orangutan Language Project, National Zoological Park - Smithsonian Institution.
Director, Behavioral Cognitive Research Krasnow Institute for Advanced Study, George Mason University

Robert Shumaker is coordinator of the Orangutan Language Project at the National Zoological Park, Smithsonian Institution. He is the author, designer and researcher for the four million dollar Think Tank Exhibit at the National Zoological Park. This exhibit opened and research began in 1995. Nine Orangutans, ages 5 to 30, are now participating in an ongoing study of Orangutan cognition involving a series of challenging visual, auditory, and tactile experiments designed to assess the cognitive range of the animals. Zoo visitors can watch the activities as researchers work with the Orangutans in tool use, language skills, and social interaction.

Mr. Shumaker holds degrees from George Mason University in Biology related to Primate Taxonomy and Behavior, Evolution, and Cognitive Ethology. He is a Ph.D. candidate at GMU to receive his degree in September. He is Director of Behavioral Cognitive Research at the Krasnow Project at the Smithsonian. Shumaker is an internationally traveled scientist with numerous publications, presented papers and invited lecturers.
2001
IOWA ACADEMY OF SCIENCE
AWARDS

DISTINGUISHED IOWA SCIENCE TEACHING

Dr. Mark Schneider, Grinnell College
and
Dr. Paul Garvin, Cornell College

DISTINGUISHED IOWA SCIENTIST

Dr. Richard Baker, University of Iowa

DISTINGUISHED SERVICE

Dr. Wayne Anderson, University of Northern Iowa
SYMPOSIUM
Friday, April 20

“Upper Mississippi River Symposium”
Room 302 8:00 - 10:00 am
Presiding: Paul Bartelt, Scott Moats & Paul Zeph
Societal Issues Committee,
Conservation Section & Audubon Iowa

SYMPOSIA
Saturday, April 21

“Teaching with Invertebrates”
Room 302 8:00 - 10:00 am
Presiding: Doug Herman & Don Perschau
Science Teaching Section & Zoology Section

“Technology Symposium”
Room 302
1:00 - 3:00 pm
Presiding: Doug Herman
Science Teaching Section

SPECIAL EVENTS
Saturday, April 22

“Capturing Digital Images with a Leica Solution Commercial Workshop”
Room 306 9:30 - 10:30 am
Presiding: Mike Roth and Marin Van Orsow
Sciscope Instrument Company

“Reflex Control of the Sympathetic Nervous System in Heart Failure”
Independence Hall 1:20 pm
Presiding: Dr. Irving H. Zucker
University of Nebraska Medical Center
Dept. of Physiology and Biophysics
Director of the Cardiovascular Research Center

“Flora of Iowa Discussion”
Room 308 1:30 pm
Presiding: Deb Lewis,
Department of Botany
Iowa State University
POSTER PAPERS

On Friday, April 20, IJAS poster papers will be on display in the Independence Hall. The students will give their presentations from 8:30-10:30am in Rooms 305, 306 & 307. Academy members are encouraged to take time to meet these young people and talk to them informally about their research. At least two of these students will be selected to represent Iowa at the American Junior Academy of Science convention in 2002.

IAS posters will be on display all day Friday and Saturday in Independence Hall. Authors will be available Friday from 4:00-5:00 to discuss their work. The Senior papers are listed by section and abstract number (see Table of Contents).

Abstracts of all contributed papers are available in your registration packet. A limited supply may be available at the Annual Meeting Registration Desk.

SECTION PRESENTATION AND POSTER PAPERS

FRIDAY, April 20, 2001

AGRICULTURAL SCIENCES

Presiding: Thomas M. Isenhart

Room 308

Friday, April 20, 2001: 8:00-10:30am

8:30am 1. Water quality of subsurface drainage collected near a swine manure lagoon. PETER A. LAWLOR and J.L. BAKER, T.D. GLANVILLE, S.W. MELVIN, Iowa State University, 111 Davidson Hall, Ames, Iowa 50011.

8:45am 2. Confined soil chemistry: Its potential role in degradation-catalysis of organic pollutants. V.P. (BILL) EVANGELOU, Iowa State University, 2505 Agronomy Hall, Ames, IA 50011-1010.

9:00am 3. Occurrence of common milkweed (Asclepias syriaca) in cropland and adjacent areas. D.E. REFSELL, R.G. HARTZLER and D.D. BUHLER, Iowa State University, 2104 Agronomy Hall, Ames, IA 50011.

9:15am 4. Salt tolerance of sunflower and lettuce in tilled and untilled soil. EMILY M. KISINGER, STEVEN H. EMERMAN and LISA K. ANDERSON, Department of Biology and Environmental Science, Simpson College, Indianola, IA 50125.
5. A new and effective antioxidant for vegetable oils in industrial applications. YONGYI JULIA JIANG and EARL HAMMOND, Iowa State University, Food Science and Human Nutrition Department, Ames, IA 50010


SECTION BUSINESS MEETING

ANTHROPOLOGY and PSYCHOLOGY & LINGUISTICS
Presiding: Mark Anderson
Room 312
Friday, April 20, 2001: 9:30-10:30am & 3:00-5:00pm

7. The Validity of Using Hemastix to test for blood on Lithic Tools. MOLLY DAVIS, Grinnell College, Box 03-37, Grinnell, IA 50112.

8. Examining the Function of Atlatl Weights. JOEL FELKEY, Grinnell College, Box 05-03, Grinnell, IA 50112.


9. Patterns in the Ashes: Cinderella's Metamorphosis from Servant into Global Heroine. LAURELIN MUIR, Grinnell College, P.O. Box 18-02, Grinnell, IA 50112.

10. Preliminary Findings from the Nhomadom Archeological Survey, Namibia. GRANT MCCALL, Grinnell College, Box 08-86, Grinnell, IA 50112.

11. An Analysis of Great Oasis and Mill Creek Ceramics from the Cowan, Broken Kettle, and Phipps Sites, Northeast Iowa. MOLLY A. MALIBORSKI and RICHARD L. FISHEL, Office of the State Archeologist of Iowa, 700 Clinton Street, Iowa City, IA 52242-1030.

SECTION BUSINESS MEETING

Poster 13. Ultra-High Resolution Topographic Mapping of a Briefly Occupied Late Prehistoric Village Site in Northwest Iowa. L.M. ALEX and S.C. LENSINK, Office of the State Archeologist, University of Iowa, 700 Clinton Street Building, Iowa City, IA 52242.

BOTANY
Presiding: Tom Rosburg
Friday, April 20, 2001: 3:00-4:20pm
Room 318


3:40pm 15. Detecting the Invasion of Phragmites australis in a Lake Superior Coastal Wetland. E.A. LYNCH, Loras College, 1450 Alta Vista Street, Dubuque, IA 52004-0178.

4:00pm 16. Age Structure, Species Composition and Succession in a Loess Hills Woodland. PETER C. PHILLIPS, University of Nebraska at Omaha, 6001 Dodge Street, Omaha, NE 68182.

4:20pm 17. Seed Bank Composition of a Reconstructed Prairie. M.Q. OWENS and T.R. ROSBURG, Department of Biology, Drake University, Des Moines, IA 50311.

4:40pm SECTION BUSINESS MEETING

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ENGINEERING
Presiding: Chris Schilling
Friday, April 20, 2001: 8:00am-10:15am

8:00am 39. A Calcium-Based Sorbent for High Temperature Desulfurization. D. HASLER, K. CONSTANT and T.D. WHEELock, Iowa State University, Ames, IA 50011.


8:45am 42. Laser Micromachining of MEMS Packaging Materials. VIJAY KANCHARLA and SHAOCHEH CHEN, Iowa State University, IMSE Department, Ames, IA 50011.

9:00am 43. Dynamic Modeling of Passive Valve PZT Actuation Micropump. SHIFENG LI and SHAOCHEH CHEN, Industry and Manufacturing Engineering, Iowa State University, IA 50011.

9:15am 44. Continuous Flow, Submicro-Liter Scale PCR for the Analysis of Plant Genomes. WEI ZHENG and CHENSHAO CHEN, Iowa State University, 3023 Black Bldg., Ames, IA 50011.

9:30am 45. Laser Glass-Silicon Bonding by Localized Heating. HUI GUO and SHAOCHEH CHEN, Dept. of Industrial and Manufacturing Systems Engineering, Iowa State University, Ames, IA 50010.

9:45am SECTION BUSINESS MEETING

PYSCHOLOGY & LINGUISTICS (refer to Anthropology)
Presiding: Mark Anderson
Room 312

Friday, April 20, 2001: 8:00-10:15am

8:30am 77. Implementation of Concept-Oriented Curricula into Introductory Physics Courses. P.E. RIDER, Grand View College, 1200 Grandview Ave., Des Moines, IA 50316-1599.

8:50am 78. Particulate Theory of Matter: How it can Inspire Physical Science Educators. S.M. AL-BALUSHI, The University of Iowa, 450 Van Allen, Iowa City, IA 52240.

SECTION BUSINESS MEETING

ZOOLOGY
Presiding: Don Perschau
Friday, April 20, 2001: 3:00-4:30pm

3:00pm 79. A Cladistic Analysis of the Genus Seira. D.R. ROSENTHAL and K.A. CHRISTIANSEN, Grinnell College, Box 18-81, Grinnell, IA 50112.


3:30pm 81. Home Range Fidelity in Ornate Box Turtles at Hawkeye Wildlife Area in Johnson County, Iowa. R.J. RICHTSMEIER¹, B. COMIDA², CULLEN DEVRIES³, ROBERT BLACK², and NEIL BERNSTEIN¹, ¹Mount Mercy College, Cedar Rapids, IA 52402-4797; ²Cornell College, Mt. Vernon, IA 52314; ³College of St. Rose, Albany, NY.

3:45pm 82. A Crisis in Iowa's Blanding's Turtle Populations. J.L. CHRISTIANSEN and TERRY VANDEWALLE, Department of Biology, Drake University, Des Moines, IA 50311.
4:00pm 83. The Effect of Gibberellin, Metronidazole, and Gibberellin Plus Metronidazole on Population Growth of *Trichomonas Vaginalis*. D. SOLEYMANI, K.X. SHI and G. MCCARTHY, Department of Biology, California State University, Dominguez Hills, Carson, CA 90747.

4:15pm SECTION BUSINESS MEETING


Poster 85. Effect of Water Temperature and Chemistry on Brook trout Spawning Patterns. KATIE MARSKE, Luther College, Decorah, IA 52101.
SECTION PRESENTATION AND POSTER PAPERS

SATURDAY, April 24, 2000

CELLULAR, MOLECULAR & MICROBIOLOGY
Presiding: David M. Grant
Saturday, April 21, 2001: 8:30-10:30am

8:30am 19. Nitrates/Nitrites Alter Lymphocyte Functions. L. USTYUGOVA and L. BELTZ, Dept. of Biology, University of Northern Iowa, Cedar Falls, IA 50614.

8:50am 20. Genetic Analysis of Fusarium Graminearum. ERIC BERNS and JAMES E. JURGENSON, Department of Biology, University of Northern Iowa, Cedar Falls, IA 50614.

9:10am SECTION BUSINESS MEETING

Poster 21. Evidence for the Common Origin of Melanomacrophages. ADAM D. BOON1, JAMES L. CHRISTIANSEN1, and JAMES C. JOHNSON2; 1Department of Biology, Drake University, Des Moines, IA 50311; 2Department of Microbiology, Des Moines University, Des Moines, IA 50311.

Poster 22. Identification of SST markers Linked to Root Necrosis Genes in Soybean [Glycine Max (L.) Merr.]. ERIC WESTIN, ANGELA HEIL, MIN XU and REID G. PALMER, USDA-ARS-CIGR Unit, Iowa State University, Ames, IA 50011.

Poster 23. The Effects on Mitochondrial Integrity in the Yeast Saccharomyces Cerevisiae when Grown in Chemicals Collected from Smoked Cigarettes. L.L. FRANZEEN and K.S. SHAFER, Buena Vista University, 610 W. 4th St., Storm Lake, IA 50588.

8:20am

49. Density of Cation Exchanged Nafion. D.C. DUNWOODY, K.J. OBERBROECKLING and J. LEDDY, Department of Chemistry, University of Iowa, Iowa City, IA 52242.

8:40am

50. Magnetic Field Effects on Carbon Monoxide Oxidation. W.L. GELLETT and J. LEDDY, Department of Chemistry, University of Iowa, Iowa City, IA 52242.

9:00am

51. Magnetically Enhanced Oxygen Reduction. C. HETTIGE and J. LEDDY, Dept. of Chemistry, University of Iowa, Iowa City, IA 52242.

9:20am

SECTION BUSINESS MEETING

52. High Performance quasicrystal-reinforced polmer composites. VALERIE V. SHEARES¹, PAUL BLOOM¹, and K.G. BAIKERAKAR², ¹Department of Chemistry, Iowa State University, Ames, IA 50011 & ²Ames Laboratory, Ames, IA 50011.

8:40am


9:00am

55. Palladium-Catalyzed Synthesis of B- and g-Carbolines. HAIMING ZHANG and RICHARD C. LAROCK, Department of Chemistry, Iowa State University, Ames, IA 50011.


57. A Synthetic Approach to Thysanone. HERBERT O. OGUTU and GEORGE A. KRAUS, Department of Chemistry, Iowa State University, IA 50011.

58. Encapped Poly(P-Phenylenes): Building Blocks for Coil-Rod-Coil Triblock Copolymers. ERIK C. HAGBERG and VALERIE V. SHEARES, Department of Chemistry, Iowa State University, Ames, IA 50011.

SECTION BUSINESS MEETING

Poster


CONSERVATION and GEOLOGY

Presiding: Scott Moats
Saturday, April 21, 2001: 8:00-10:20am & 1:20-3:00pm

24. Determination of Diversity Through the Genomic Makeup of Native Iowa Prairie Plants. C.A. HILKER, 2438 McCollum Science Hall, University of Northern Iowa, Cedar Falls, IA 50614.

25. The Decline of the Dakota Skipper Hesperia Dacotae at Prairie Coteau in Pipestone County, Minnesota. DENNIS W. SCHLICHT, Iowa Lepidoptera Project, 1108 First Ave., Center Point, IA 52213.

26. The Control of Infiltration as a Mechanism for the Self-Regulation of Prairie Ecosystems: Further Studies at Rolling Thunder Prairie State Preserve, Warren County, Iowa. STEVEN H. EMERMAN, JEFFREY R. PARMELEE, AMBER L. KINGERY and DANIEL C. KELTNER, Department of Biology and Environmental Science, Simpson College, Indianola, IA 50125.
27. The Unionid Mussels of the Upper Iowa and Turkey River. JIM ECKBLAD, BRETT OSTRY and KARIS TENNESON, Department of Biology, Luther College, Decorah, IA 52101.

28. The Effects of Pokeweed (*Phytolacca Decandra*) as a Molluscicide for Zebra Mussel (*Dreissena Polymorpha*). T. GUNDERSON and B.E. LIEDL, Department of Biology, Central College, Pella, IA 50219.

29. Seed Production and Seedling Competition in Garlic Mustard (*Alliaria Petiolata* (Bieb.) Cavers & Grande): Implications for Management. AMY C. BLAIR and DIANA HORTON, Biological Sciences Department, 312 CB, University of Iowa, Iowa City, IA 52242-1297.


31. Ecology of Avian Communities on Kopjes in Serengeti National Park. MATTHEW D. TRAGER, Grinnell College, 805 Park St., Grinnell, IA 50112.


46. Folding in the Oakley Shale in Dallas, Polk and Warren Counties, Iowa. DANIEL C. KELTNER and STEVEN H. EMERMAN, Department of Biology and Environmental Science, Simpson College, Indianola, IA 50125.

SECTION BUSINESS MEETING
34. Comparisons of Prairie Productivity Over a Summer Growing Season. N. WEISS and N. WEST, Wartburg College, Waverly, IA 50677.

35. Using Randomly Amplified Polymorphic DNA (RAPD) Markers to Examine the Lifesysle of Morels. L.P. GUTIER-REZ and K.M. JACOBSON, Grinnell College, P.O. Box 805, Grinnell, IA 50112.

36. An Analysis of Genetic Variation of Three Geographic Populations of Aspergillus Niger Var. Phoenicus, a Pathogen of Welwitschia Mirabilis. A.K. DONOVAN and K.M. JACOBSON, Department of Biology, Grinnell College, Grinnell, IA 50112.

37. Using Molecular Techniques to Identify Mycorrhizae in Dryland Riparian Forests: Initial Studies with Tricholoma Populinum. L. STEINMETZ and K. JACOBSON, Department of Biology, Grinnell College, Grinnell, IA 50112.

38. Dendrochronological Studies of Hydrology-Productivity Relationships in Dryland Riparian Forests. T. JANSON and P. JACOBSON, Department of Biology, Grinnell College, Grinnell, IA 50112.

GEOLOGY (with Conservation - Room 310)
(Section Business Meeting - Room 318)
Presiding: Steve Emerman
Saturday, April 21, 2001: 8:00-10:20am & 1:20-3:00pm

2:20pm 46. Folding in the Oakley Shale in Dallas, Polk and Warren Counties, Iowa. DANIEL C. KELTNER and STEVEN H. EMERMAN, Department of Biology and Environmental Science, Simpson College, Indianola, IA 50125.

47. Proboscidean Fossil Remains in Iowa. ADAM HOLVEN, Department of Earth Science, University of Northern Iowa, Cedar Falls, IA 50614-0508.

9:00am SECTION BUSINESS MEETING - Room 318
8:30 - 10:30am SECTION BUSINESS MEETING

PHYSIOLOGY
Presiding: Piper Wall
Saturday, April 21, 2001: 8:30-10:00am & 1:20-3:30pm Hall Independence
8:30am SECTION BUSINESS MEETING

8:45am 60. Enalaprilat Administration During Resuscitation Improves Systemic and Mesenteric Blood Flow. R. VINCENT, J. ALBRIGHT, B. FREEMAN, R. STANFILL, E. WEATHERFORD, L. HENDERSON, C. BUISING, S. BELL, O. COUTURE, C. MITTELSTEDTER, G. SKERRETT, and P. WALL, Iowa Methodist Medical Center, and Drake University, Des Moines, IA 50311.


9:05am 62. Effect of Enalaprilat on Arterial Blood Flow and Gastric \( P_{i}CO_{2} \) During Resuscitation. S. BELL, B. FREEMAN, R. VINCENT, C. MITTELSTEDTER, E. WEATHERFORD, R. STANFILL, G. SKERRETT, O. COUTURE, R. ROPER, H. DUDA, A. FIELDLER, S. DALE, L. HENDERSON, C. BUISING and P. WALL, Iowa Methodist Medical Center and Drake University, Des Moines, IA 50311.

9:15am 63. Correlation of Esophageal, Gastric and Duodenal \( P_{i}CO_{2} \) Responses to Hemorrhage and Resuscitation. L. DECKER, B. FREEMAN, A. FIELDLER, R. VINCENT, S. BELL, T. FISCHBACH, K. RENSBERGER, L. SCATCHELL, L. HENDERSON, C. BUISING and P. WALL, Iowa Methodist Medical Center and Drake University, Des Moines, IA 50311.
9:25am  64. An In Vitro Comparison of Air-Flow and Fiber Optic Methods of CO₂ Monitoring.  R. VINCENT, B. FREEMAN, E. WEATHERFORD, L. HENDERSON, C. BUISING and P. WALL, Surgical Education & Trauma, Iowa Methodist Medical Center, Des Moines, IA 50309 and Drake University, Des Moines, IA 50311.


10:05am  67. Use of Micro CT Imaging as a Tool to Diagnose Osteoporosis in Rats.  M.L. GIESLER, Department of Biology, Mount Mercy College, 1330 Elmhurst Drive NE, Cedar Rapids, IA 52402.

10:25am  68. Modulation of PIGF and flt-1 mRNA Expression in Preeclamptic Placenta.  A. ARLEN, D.S. TORRY, T. SMITH and R.J. TORRY, College of Pharmacy, Drake University, Des Moines, IA 50311.

10:25am  69. Differences in VEGF Receptor, Ang-1, Ang-2 mRNA Expression After Microvascular Fibrin Deposition in Human Cardiac Allografts.  J. SCHWARTZ, K. SNYDER, J. HELMREICH, C. LABARRERE and R.J. TORRY, College of Pharmacy, Drake University, Des Moines, IA 50311.


1:50pm  71. APS Keynote Speaker: Reflex Control of the Sympathetic Nervous System in Heart Failure.  I. ZUCKER, Department of Physiology & Biophysics, University of Nebraska Medical Center, Omaha, NE 68198-4575.

2:50pm  72. Analysis of Cardiovascular Variability and Baroreflex Sensitivity in Conscious Mice Using Spectral Analysis.  M.W. CHAPLEAU, C.A. WHITEIS, R. FAZAN, and F.M. ABBOUD, University of Iowa and Veterans Affairs Medical Center, 602 MRC, Iowa City, IA 52242.
3:00pm  
73. The DEG/ENaC Ion Channel Family Member BNC1 Mediates Mechanical Transduction of Arterial Baroreceptor Nerve Activity in Vivo. XIUYING MA, MARGARET P. PRICE, HEATHER A. DRUMMOND, MICHAEL J. WELSH, MARK W. CHAPLEAU and FRANCIS M. ABBOUD, The Cardiovascular Center, Department of Internal Medicine, The University of Iowa College of Medicine and Veterans Affairs Medical Center, Iowa City, IA 52242.

3:10pm  
74. Altered Baroreceptor- and Chemoreceptor Activities in Apo-E Knockout Mice. WEI SUN, FRANCIS M. ABBOUD, and MARK W. CHAPLEAU, University of Iowa and Veterans Affairs Medical Center, Iowa City, IA 52242.

3:20pm  
75. Distinction Between Activation of Mechanosensitive Channels and Membrane Excitability in Isolated Nodose Sensory Neurons. VLADISLAV SNITSAREV, CAROL A. WHITEIS, MARK W. CHAPLEAU and FRANCOIS M. ABBOUD, Department of Internal Medicine, University of Iowa, 602 MRC, Iowa City, IA 52242.

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**SCIENCE TEACHING AND ZOOLOGY SYMPOSIUM**

Presiding: Doug Herman and Don Perschau  
Saturday, April 21, 2001: 8:00-10:00am  
Room 302

8:00am  86. The Suspense of Suspended Animation. C. DREWES, Zoology & Genetics, 339 Sci-II, Iowa State University, Ames, IA 50011.

8:20am  87. Collecting, Culturing and Using Tardigrades for Classroom Use. AMBER HOHL, Central Lee High School, 2642 Hwy 218, Donnellson, IA 52625.

8:40am  88. McWorm: Invertebrate Fast Food. K. CAIN, East High School 815 E. 13th St., Des Moines, IA 50316.

9:00am  89. Snail Trails: Using Terrestrial Snails in the Lab. K. WINGALL, North High School, 501 Holcomb Ave., Des Moines, IA 50322.
UPPER MISSISSIPPI RIVER SYMPOSIUM
Presiding: Paul Bartelt, Scott Moats & Paul Zeph
Societal Issues Committee, Conservation Section & Audubon Iowa
Friday, April 20, 2001: 8:00-10:00am

8:10am 90. The Upper Mississippi River: Can We Have a Healthy River and a Wealthy Watershed? DAN MCGUINESS, Director, Upper Mississippi River Campaign, National Audubon Society, 26 East Exchange Street, Suite 110, St. Paul, MN 55101.

8:30am 91. UMR Habitat and Wildlife Issues. JON STRAVERS, PO Box 309, McGregor, IA 52176.

9:15am 92. UMR Water Issues. JOHN OLSON, Iowa DNR, Water Quality Bureau, Wallace State Office Building, Des Moines, IA 50319.

3:00pm 93. UMR Transportation Issues. HAROLD HOMMES, Chief, Marketing Bureau, Iowa Dept. of Ag. and Land Stewardship, Wallace State Office Building, Des Moines, IA 50319.

3:45pm Panel Discussion: “Policy Implications and Opportunites”. Panelist: Jon Stravers, John Olson, Harold Hommes
Moderator: Dan McGuiness.

TECHNOLOGY SYMPOSIUM
Presiding: Doug Herman
Saturday, April 21, 2001: 1:00-3:00pm

1:00pm 94. Cool Teachers and DVD. GAIL WORTMAN, Ottumwa High School, 501 W. 2nd St., Ottumwa, IA 52501.

1:20pm 95. Building a Science Lab Using Grants and Surplus Property. RON WILMOT, Akron-Westfield High School, PO Box 850, Akron, IA 51001.

1:40pm 96. No Title Available at Printing. RON NEWLAND, College Community Schools, 401 76th Ave. S.W., Cedar Rapids, IA 52404.

2:00pm 97. Using Remote Sensing and Imaging in the Science Classroom. CHRISTOPHER SOLDT, 810 Roosevelt Street, Iowa City, IA 52240.
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FUTURE MEETING LOCATION

2002 April 19-20
Hotel Fort Des Moines, Des Moines, IA