

1986

## 70th Annual Meeting, 1986. Program

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# PROGRAM

## Arkansas Academy of Science

Seventyth Annual Meeting  
OUACHITA BAPTIST UNIVERSITY  
Arkadelphia, Arkansas

Meeting concurrently with sessions of  
The Collegiate Academy of Science

*Friday, 4 April*

SENIOR AND COLLEGIATE ACADEMIES -- Registration

SENIOR ACADEMY -- Executive Board Meeting

SENIOR ACADEMY -- First General Business Meeting

SENIOR AND COLLEGIATE ACADEMIES: Papers [Concurrent Sessions]:

Aquatic and Environment I  
Botany  
Vertebrate Zoology I  
Chemistry I  
Biomedical  
Microbiology

SCIENCE EDUCATION COMMITTEE

SENIOR AND COLLEGIATE ACADEMIES -- Banquet

POST BANQUET SPEAKER -- Dr. Martin Rosenberg  
Smith Kline and French Laboratories

*Saturday, 5 April*

SENIOR AND COLLEGIATE ACADEMIES -- Registration

SENIOR AND COLLEGIATE ACADEMIES -- Papers [Concurrent Sessions]:

Aquatic and Environment II  
Vertebrate Zoology II  
Chemistry II  
General  
Invertebrate Zoology  
Science Education

SENIOR ACADEMY -- Second General Business Meeting

## SECTION PROGRAMS

[Papers marked with \* are presentations by Collegiate Academy members]

### AQUATIC AND ENVIRONMENTAL I

Session Chairperson: John Geise

#### SURVEY OF PERIODICAL CICADA EMERGENCE SITES IN WASHINGTON COUNTY, ARKANSAS, AND POSSIBLE ECOLOGICAL IMPLICATIONS.

Douglas A. James, Kimberly G. Smith and Kathy S. Williams, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

#### POPULATION STRUCTURE OF CREOLE (*Etheostoma collettei*) AND REDFIN (*E. whipplei*) DARTERS IN THE UPPER SALINE RIVER, SALINE COUNTY, ARKANSAS.

John D. Rickett, Biology Department, University of Arkansas at Little Rock, Little Rock, AR 72204.

#### TWO ATYPICAL PRECIPITATION SAMPLES AND THE ASSOCIATED AIRQUALITY AND METEOROLOGICAL CONDITIONS.

James C. Petersen, U.S. Geological Survey, 2301 Federal Building, Little Rock, AR 72201.

#### RELATIONSHIP BETWEEN DIAMETER BREAST HIGH AND DIAMETER NEAR GROUND LINE FOR HARDWOOD SPECIES IN ARKANSAS.

Richard A. Kluender and Jimmy L. Yeiser, Arkansas Agricultural Experiment Station, Forest Resources Department, University of Arkansas, Monticello, AR 71655.

#### EFFECTS OF JUGLONE (5-HYDROXY-1,4-NAPHTHOQUINONE) ON THE ALGAE *Anabaena Flos-aquae*, *Nostoc Commune* and *Scenedesmus Acuminatus*.

V. Diane Randall, Jacksonville Wastewater Utility, P.O. Box 623, Jacksonville, AR 72076, and J. D. Bragg, Biology Department, Henderson State University, Arkadelphia, AR 71923.

#### A FOREST DATA BASE FOR ARKANSAS.

Richard A. Kluender and E. Wesley McCoy, Forest Resources Department, University of Arkansas at Monticello, Monticello, AR 71655.

#### TAGGING AND MARKING CRAWFISH (*Procambarus clarkii*) IN A POPULATION ESTIMATION STUDY.

Frank Meriwether, Agricultural Experiment Station, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601.

#### EFFECT OF STUNTING ON THE GROWTH OF BLUE TILAPIA (*Oreochromis aureus*, CICHLIDAE).

Les Torrans and Fran Lowell, Department of Agriculture, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601.

#### EVALUATION OF A FIN-RAY SCARRING TECHNIQUE FOR INDIVIDUALLY MARKING FISH.

Les Torrans, Fran Lowell, Department of Agriculture, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601 and Howard Clemens, Department of Zoology, University of Oklahoma, Norman, OK 73069.

#### A NEW RECORD OF PARASITISM IN THE FINTAIL DARTER, *Etheostoma flabellare* (PERCIDAE: ETHEOSTOMATINI).

Stephen R. Moulton II, Lawrence W. Hinck, and George L. Harp, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

### BOTANY

Session Chairperson: Paul Raines

#### REPRODUCTIVE BIOLOGY OF ISOLATED FERN GAMETO-

### PHYTES.

Carol Jacobs Peck, Department of Natural Sciences, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601.

#### ECOLOGICAL ANALYSIS OF DISJUNCT POPULATIONS OF THE RARE SHRUB *Neviusia alabamensis*.

Robert D. Wright and Alice A. Long, University of Central Arkansas, Conway, AR 72032.

#### THE MORPHOLOGY OF *Acremonium coenophialum* SAMUELS, THE SYMBIOTIC FUNGAL ENDOPHYTE OF TALL FESCUE.

Maurice G. Kleve, Thomas J. Lynch and Alvan A. Karlin, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

#### \*PRELIMINARY ISOZYME STUDIES IN TALL FESCUE.

Alvan A. Karlin, Elizabeth A. Rush, Thomas J. Lynch and Maurice Kleve, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

#### PROPOSED CONSORTIUM EFFORT TOWARD CONTINUANCE OF ARKANSAS FLORA PROJECT.

James H. Peck, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204, Steve L. Orzell, Arkansas Natural Heritage Commission, Little Rock, AR 72201, and Edwin L. Bridges, Arkansas Nature Conservancy, Little Rock, AR 72201.

#### BLUE-EYED GRASS (*Sisyrinchium*: Iridaceae) OF ARKANSAS.

Kathleen L. Hornberger, Department of Botany and Microbiology, SE-401, University of Arkansas, Fayetteville, AR 72701.

#### VASCULAR PLANTS OF CROWLEY'S RIDGE IN NORTH-EASTERN ARKANSAS.

Edward L. Richards, Department of Biological Science, Arkansas State University, State University, AR 72467.

#### SECOND LOCALITY FOR *Dryopteris Carthusiana* IN ARKANSAS.

James H. Peck, University of Arkansas at Little Rock, Little Rock, AR 72204.

#### WOODY VEGETATION OF THE CRYSTAL MOUNTAIN REGION.

Durwood Mayo and P. L. Raines, Amity High School, Amity, AR, and Arkansas State University, State University, 72467.

#### THE ROLE OF FLAGELLAR ANCHORAGE IN CELL SWIMMING IN THE AMOEBO-FLAGELLATE CELL OF *Protozoarium articulatum*.

Frederick W. Spiegel, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

#### AUTOTRIPLOIDY IN *ERYTHRONIUM ROSTRATUM* (LILIACEAE): REPRODUCTION, DISTRIBUTION AND ORIGIN.

Bruce L. Carr, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

### VERTEBRATE ZOOLOGY I

Session Chairperson: Peggy Dorris

#### A SURVEY OF THE INTERIOR LEAST TERN ON THE ARKANSAS AND WHITE RIVERS.

Kenneth Lee Smith and William M. Shepherd, Arkansas Natural Heritage Commission, The Heritage Center, Suite 200, 225 East Markham, Little Rock, AR 72201.

## Program

**\*THE EFFECTS OF LOW pH ON LACTATE DEHYDROGENASE KINETICS OF DIVING AND NONDIVING REPTILES.**

Salim R. Hurley and Dennis A. Baeyens, Biology Department, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*INTERSPECIFIC CORRELATIONS OF HARVEST AND PRICE AS PARAMETERS FOR FUR HARVEST ANALYSIS.**

Anita J. Giggelman, James H. Peck, and Gary A. Heidt, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

**FANUAL USE OF ABANDONED MINES IN ARKANSAS: VETEBRATE TAXA.**

Darrel R. Heath, Gary A. Heidt and David A. Saugey, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204, and the U.S. Forest Service, Mt. Ida, AR 71957.

**SURVEY OF BATS IN THE OUACHITA MOUNTAINS OF ARKANSAS.**

David A. Saugey, Gary A. Heidt, and Darrell R. Heath, U.S. Forest Service, Mt. Ida, AR 71957, and Department of Biology, University of Arkansas at Little Rock, AR 72204.

**POPULATION DECLINE OF THE ENDANGERED INDIANA BAT, *Myotis sodalis*, IN ARKANSAS.**

Michael J. Harvey, Department of Biology, Tennessee Technological University, Cookeville, TN 38505, and V. Rick McDaniel, Department of Biological Science, Arkansas State University, State University, AR 72467.

**AN ANALYSIS OF BOBWHITE QUAIL POPULATION TRENDS IN ARKANSAS 1967-1983.**

Charles R. Preston, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

**MODULATION OF THE IMMUNE RESPONSE IN QUAIL BY METHYL PARATHION.**

Dale V. Ferguson and Steve Koehler, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

**TOE PAD MORPHOLOGY IN PLETHODONTID SALAMANDERS FROM ARKANSAS.**

Stanley E. Trauth and J. D. Wilhide, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

**ELEMENTS OF THE BAT FAUNA OF SOUTHWESTERN ARKANSAS.**

V. Rick McDaniel, Tim W. Steward, Department of Biology, Arkansas State University, State University, AR 72467, and David A. Saugey, U.S. Forest Service, P.O. Box 255, Mt. Ida, AR 71957, and Daniel R. England, Department of Biology, Southern Arkansas University, Magnolia, AR 71753.

**ADDITIONAL RECORDS OF THE BAT BUG, *Cimex pilosellus*, ON ARKANSAS BATS.**

V. Rick McDaniel, Tim W. Steward, Department of Biology, Arkansas State University, State University, AR 72467, Renn Tumison, Department of Zoology, Oklahoma State University, Stillwater, OK 74078, and Daniel R. England, Department of Biology, Southern Arkansas University, Magnolia, AR 71753.

### CHEMISTRY I

Session Chairperson: Dee Palmer

**THE PREPARATION OF NOVEL 4-METHYL-5-ARYLOXY PRIMAQUINE ANTIMALARIALS.**

Thomas E. Goodwin, Kevin Raney, Christine D. LaRocca, Department of Chemistry, Hendrix College, Conway, AR 72032.

**MOBILITY OF NEGATIVE ION IMPURITY CENTERS IN NaCl AND THERMOLUMINESCENCE IN  $\alpha$  Al<sub>2</sub>O<sub>3</sub>.**

Louis P. Calderera, Pradip Bandyopadhyay, Chemistry Department, Hendrix College, Conway, AR 72032.

**THE PREPARATION OF POTENTIAL ANTIFUNGAL AGENTS.**

D. Kilgore and T. E. Goodwin, Department of Chemistry, Hendrix College, Conway, AR 72032.

**\*ELECTROCHEMICAL STUDIES OF SOME DIHALOGENATED NICOTINIC ACIDS IN AQUEOUS AND APROTIC MEDIA.**

Tappi A. Dixon, Lourie A. Battles, Ali U. Shaikh and Frank L. Setliff, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*VIBRATION RELAXATION IN A PORPHYRIN RING MODEL.**

Roger L. Lafarlette and Ralph J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*COLLISION INDUCED VIBRATIONAL DEACTIVATION OF METHANE. A COMPARISON BETWEEN GAS PHASE AND GAS-SURFACE COLLISIONS.**

Lisa D. Schreckenoffer and Ralph J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**SEMICLASSICAL EIGENVALUES.**

Ricardo C. Davis and Ralph J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*EFFECT OF STRETCH-BEND INTERACTIONS ON VIBRATIONAL RELAXATION.**

Devinder S. Bhatia and Ralph J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*SYNTHESIS AND INFRARED SPECTRUM OF HBr: A PHYSICAL CHEMISTRY LABORATORY.**

T. A. Dixon, A. F. Gremillion, H. E. Palmer, N. K. Taylor, S. Williams and R. J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*SYNTHESIS OF POLYURETHANE FOAMS FROM WHEY PERMEATE.**

Skip Williams, Tito Viswanathan, University of Arkansas at Little Rock, 33rd & University, Little Rock, AR 72204.

**A CHROMATOGRAPHIC METHOD FOR THE SEPARATION AND PURIFICATION OF TRIARYL PHOSPHATES.**

Kervin Wynn, Michael A. Heitcamp, and Carl E. Cerniglia, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601, and National Center for Toxicological Research, Jefferson, AR.

**IMPLEMENTATION OF THE MICROSCALE ORGANIC CHEMISTRY LABORATORY.**

T. E. Goodwin, Department of Chemistry, Hendrix College, Conway, AR 72032.

### BIOMEDICAL

Session Chairperson: David Straub

**THE NATURE OF BINDING OF CYTOCHROME C TO THE MITOCHONDRIAL MEMBRANE.**

Veronica M. Nehus and Randall A. Kopper, Chemistry Department, Hendrix College, Conway, AR 72032.

**PROBING SECONDARY STRUCTURE OF OVALBUMIN mRNA BY METHYLATION AND REVERSE TRANSCRIPTION.**

James W. Bryan, Randall A. Kopper, Chemistry Department, Hendrix College, Conway, AR 72032, and Charles D. Liarakos,

Arkansas Academy of Science

Biochemistry Department, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

**ELUCIDATION OF SECONDARY STRUCTURE OF OVALBUMIN mRNA USING PSORALEN CROSSLINKING AND REVERSE TRANSCRIPTION.**

Michael D. Kyzer, Randall A. Kopper, Department of Chemistry, Hendrix College, Conway, AR 72032; and Charles D. Liarakos, Biochemistry Department, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

**CHANGES IN PROTEINS AND NUCLEIC ACIDS DURING DEVELOPMENT GROWTH.**

Nora Leou and Randall Kopper, Chemistry Department, Hendrix College, Conway, AR 72032.

**SURFACE PROTEIN EXPRESSION ON *Tetrahymena thermophila*.**

H. D. Love, A. A. Nash, and G. A. Bannon, University of Arkansas for Medical Sciences, Department of Biochemistry, College of Medicine, 4301 W. Markham, Little Rock, AR 72205.

**\*EFFECTS OF BODY WEIGHT ON DRUG DISCRIMINATION IN THE PIGEON.**

Billy W. Massey, Department of Biology, University of Central Arkansas, Conway, AR 72032, and Donald E. McMillan, Department of Pharmacology and Interdisciplinary Toxicology, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

**\*HISTORY AND USES OF EPHEDRINE.**

Michael D. Massey, and Richard Walker, Department of Natural Sciences, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601.

**METHEMOGLOBIN REDUCTION INHIBITION BY DEOXYHEMOGLOBIN.**

Ali Mansouri, University of Arkansas for Medical Sciences and Little Rock Veterans Administration Medical Center, Little Rock, AR 72205.

**DOPAMINE-INDUCED SENSITIVITY CHANGE TO TRH IN PITUITARY LACTOTROPHS.**

John D. Peck and Jimmy D. Neill, Department of Biology, University of Central Arkansas, Conway, AR 72032, and Department of Physiology and Biophysics, University of Alabama in Birmingham, Birmingham, AL 35294.

**PLASMA CORTICOSTERONE CONCENTRATIONS IN COCKERELS BEFORE AND AFTER RUNNING.**

Stanley N. David, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

**MICROBIOLOGY**

Session Chairperson: Jimmy Bragg

**ISOLATION OF NUCLEI FROM *Physarum flavicomum*: DEMONSTRATION OF A NUCLEAR CYCLIC AMP PHOSPHODIESTERASE.**

Judith A. Bean, Maurice G. Kleve, and Thomas J. Lynch, Department of Biology, University of Central Arkansas, Conway, AR 72032, and Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

**\*\*CYCLIC AMP AND CYCLIC GMP PHOSPHODIESTERASE ACTIVITY DURING SCLEROTIZATION OF THE MYXOMYCETE *Physarum flavicomum*.**

Keitha R. Smith and Thomas J. Lynch, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

**MODIFICATION OF STREPTOMYCIN BY A SOIL BACTERIUM.** Kyle Weld, Weiner High School, Fisher, AR 72429, and S. Kirkconnell, Arkansas Tech University, Russellville, AR 72801.

**\*INJURED BACTERIA IN POULTRY PRODUCTS.**

Steven Johnson, and S. Kirkconnell, Arkansas Tech University, Russellville, AR 72801, and Robert Waggoner, Tastybird Foods, Russellville, AR 72801.

**THYMIDYLATE SYNTHETASE ACTIVITY DURING GROWTH AND DEVELOPMENT OF THE CELLULAR SLIME MOLD, *Dictyostelium discoideum*.**

Jo Ann Heslip, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601, and Arthur C. Washington and S. M. Hill, Prairie View A&M University, Prairie View, TX 77446.

**ADHERENCE AS A VIRULENCE FACTOR OF *Salmonella enteritidis*.**

Jaber Aslanzadeh and Leo J. Paulissen, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

**EFFECTS OF pH ON THE EXPRESSION OF FLUORIDE RESISTANCE IN *Streptococcus mutans*.**

Karen A. Lau, Susan M. Brussock, and Timothy A. Kral, University of Arkansas, Fayetteville, AR 72701.

**TRANSFORMATION OF FLUORIDE RESISTANCE IN *Streptococcus mutans*.** Peggy E. Chansley and Timothy A. Kral, University of Arkansas, Fayetteville, AR 72701.

**THE EFFECT OF LIVE AND KILLED *Trichomonas vaginalis* ON THE IMMUNE RESPONSE OF MICE.**

Terry Hostetler, Roger Rank, and James Daly, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

**AQUATIC AND ENVIRONMENTAL II**

Session Chairperson: Henry Robinson

**ANOMALOUS APPEARANCE OF Cs-137 and Co-58 IN DARDANELLE RESERVOIR.**

David M. Chittenden, Department of Chemistry, Arkansas State University, State University, AR 72467.

**PARTICULATE MATTER IN FAYETTEVILLE RAINS.**

Pat Thasan and Kenneth F. Steele, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

**AGE AND GROWTH OF REDEAR SUNFISH, *Lepomis microlophus* (GUNTHER), FROM BOB KIDD LAKE.**

Rex R. Roberg, Thoniot T. Prabhakaran and Raj V. Kilambi, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

**USEFULNESS OF MICROFICHE READER/PRINTER FOR STUDYING FISH SCALES.**

Raj V. Kilambi and Marvin L. Galloway, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

**A NEW CAVE CRAYFISH POPULATION IN ARKANSAS.**

Arthur V. Brown and C. Stanley Todd, Department of Zoology, University of Arkansas, Fayetteville, AR 72701, and Kenneth L. Smith, Arkansas Natural Heritage Commission, Suite 200, The Heritage Center, Little Rock, AR 72201.

**CONTINUED DDT PERSISTENCE IN MISSISSIPPI RIVER DELTA STREAMS: A CASE STUDY.**

Stephen A. Sewell and Luther A. Knight, Jr., Department of Biology, University of Mississippi, University, MS 38677.



## Program

### ACCELERATED TRANSPORT OF MONOMERIC ALUMINUM IN THE HEADWATERS OF TWO OUACHITA MOUNTAIN STREAMS.

J. Nix, Department of Chemistry, Ouachita Baptist University, Arkadelphia, AR 71923.

### VERTEBRATE ZOOLOGY II

Session Chairperson: Perry M. Johnston

#### MORPHOLOGICAL VARIATION IN A POPULATION OF THE WESTERN LESSER SIREN (*Siren intermedia nettingi* GOIN).

Derrick W. Sugg, D. R. Heath, and A. A. Karlin, University of Arkansas at Little Rock, Biology Department, 33rd & University Avenue, Little Rock, AR 72204.

#### HARVEST TRENDS OF THE BOBCAT (*Felis rufus*) IN ARKANSAS.

Renn Tumblison and V. Rick McDaniel, Department of Zoology, Oklahoma State University, Stillwater, OK 74078, and Department of Biology, Arkansas State University, State University, AR 72467.

#### A MODEL FOR ULTRAVIOLET-INDUCED CHROMATID ABERRATION PRODUCTION IN VERTEBRATE CELLS.

Susan Kulp and H. Gaston Griggs, Department of Biology, John Brown University, Siloam Springs, AR 72761.

#### THE RIVER OTTER IN ARKANSAS. IV. WINTER FOOD HABITS IN EASTERN ARKANSAS.

Renn Tumblison, Anthony W. King, and V. Rick McDaniel, Department of Zoology, Oklahoma State University, Stillwater, OK 74078, Graduate Program in Ecology, University of Tennessee, Knoxville, TN 37996, and Department of Biology, Arkansas State University, State University, AR 72467.

#### OBSERVATIONS OF MALE COMBAT DANCE IN THE COTTON-MOUTH (*A. piscivorus*).

Bart Folgeman, William Byrd, and Earl Hanebrink, Department of Biological Science, Arkansas State University, State University, AR 72467.

### CHEMISTRY II

Session Chairperson: Warfield Teague

#### \*OPTIMIZATION FOR KINETIC STUDY OF SUCCINATE DEHYDROGENASE IN RAT LIVER.

Collie B. Shaw, Tara L. Chronister, and John D. Peck, Department of Biology, University of Central Arkansas, Conway, AR 72302.

#### pH-DEPENDENT SUPEROXIDE DISMUTASE (SOD)-LIKE ACTIVITY OF COPPER(II) ETHYLENEDIAMINE-TETRAACETIC ACID (CuEDTA).

William M. Willingham, John R. J. Sorenson, Darla Long and Anita Groves, Department of Natural Sciences, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601, Department of Biopharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

#### \*SYNTHESIS OF NAPHTHYL CHROMANONES.

Raymond Hawkins and Uttam K. Jagwani, Natural Sciences Department, University of Arkansas at Pine Bluff, AR 71601.

#### THE HIGH TEMPERATURE CHEMISTRY OF THE CALCIUM-OXYGEN-SULFUR SYSTEM ON METAL SILICATE SURFACES.

J. Edward Bennett and Luis Morales, Department of Chemistry, Arkansas State University, State University, AR 72467.

#### CARBON-14 ISOTOPE EFFECTS IN THE BROMINATION OF SUBSTITUTED STILBENES, X-C<sub>6</sub>H<sub>4</sub><sup>α</sup>CH=βCH-C<sub>6</sub>H<sub>4</sub>-Y.

Pandurang Kokil and Arthur Fry, Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR 72701.

#### \*DETERMINATION OF TRACE CHROMIUM IN PLANT MATERIALS AND YEAST BY ELECTROTHERMAL ATOMIC ABSORPTION SPECTROSCOPY.

Terry G. Fletcher and Edmond W. Wilson, Jr., Department of Physical Science, Harding University, Searcy, AR 72143.

#### HYDROGEN TRANSFER CATALYSIS WITH POLYMER BOUND ANTHRANILIC ACID Pd(II) COMPLEXES.

Laurence J. Boucher and Cindy L. Elder, Departments of Chemistry, Arkansas State University, Jonesboro, AR 72401, and Western Kentucky University, Bowling Green, KY 42101.

#### \*\*DEVELOPMENT OF A SENSITIVE METHOD TO MEASURE AFLATOXIN B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> AND G<sub>2</sub> USING ELECTROCHEMISTRY.

Monica L. Wooley, Benjamin T. Duhart, Stoney E. Shaw and Tina R. Allen, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601.

#### CONCAVALIN A-NONBINDING ENZYMES OF *Crotalus Scutulatus Scutulatus* VENOM.

C. K. Childs, M. W. Hinson, D. H. Sifford, and B. D. Johnson, College of Arts and Sciences, Arkansas State University, State University, AR 72467.

#### ABSOLUTE CONFIGURATION OF THE CACTUS ALKALOIDS ANHALONIDINE AND PELLOTINE.

Richard B. Walker, Department of Natural Sciences, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601, and John C. Craig, Department of Pharmaceutical Chemistry, University of California at San Francisco, San Francisco, CA 94122.

#### \*BOMB CALORIMETRY: THE ENERGY CONTENT OF A HAMBURGER.

Bret Shirley and Edmond W. Wilson, Jr., Department of Physical Science, Harding University, Searcy, AR 72143.

### GENERAL

Session Chairperson: Clark McCarty

#### STYLE AND TIMING OF DISPLACEMENT ALONG THE WASHITA VALLEY FAULT, SOUTHERN OKLAHOMA.

Randy Tom Cox and Roy VanArsdale, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

#### DEPOSITIONAL HISTORY OF THE ST. JOE-BOONE FORMATIONS IN NORTHERN ARKANSAS.

Phillip R. Shelby, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

#### COMPARISON OF THE SYMBIOTIC FAUNA OF THE FAMILY PLETHODONTIDAE IN THE OUACHITA MOUNTAINS OF WESTERN ARKANSAS.

Douglas A. Winter and Wojciech M. Zawada, Hendrix College, Conway, AR 72032.

#### PENETRATING RADIATION IN THE LOWER ARKANSAS AND WHITE RIVER VALLEYS OF ARKANSAS.

C. Epperson, S. Meiners and D. Swindle, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

#### X-RAY FLUORESCENCE SPECTROSCOPY OF TREATED FENCE POSTS.

H. B. Eldridge, Physics Department, University of Central Arkansas, Conway, AR 72032, and N. C. Jacobus, Applications Laboratory, EG&G-ORTEC, Oak Ridge, TN 37830.

## Arkansas Academy of Science

### THE EFFECTS OF THE CORIOLIS FORCE AND AIR RESISTANCE ON FALLING BODIES.

Ananda Shastri, Department of Physics, University of Central Arkansas, Conway, AR 72032.

### LEAST-SQUARES FITTING A SEMI-EMPIRICAL FUNCTION.

Jeff Sharp, Department of Physics, University of Central Arkansas, Conway, AR 72032.

### INVERTEBRATE ZOOLOGY

Session Chairperson: Claudia Bailey

### DISTRIBUTION AND SEASONAL OCCURRENCE OF THE COREOIDEA (INSECTA: HEMIPTERA) OF ARKANSAS.

Harvey E. Barton, Arkansas State University, P.O. Box 501, State University, AR 72467, and Linda A. Lee, Pocahontas High School, Pocahontas, AR 72455.

### \*POST EMERGENCE ASPECTS OF THE LIFE CYCLE OF *Magiicada cassini*.

Johnny T. Stine, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

### ANATOMY OF ADULT MALE AND FEMALE REPRODUCTIVE SYSTEMS OF *Meneclis insertus* (SAY) (HEMPTERA: PENTATOMIDAE).

Linda A. Lee, Pocahontas High School, Pocahontas, AR 72455, and Harvey E. Barton, Arkansas State University, P.O. Box 501, State University, AR 72467.

### A PRELIMINARY STUDY OF SPECIES OF SPIDERS COLLECTED IN PIT TRAPS IN DREW COUNTY AND BRADLEY COUNTY, ARKANSAS WATERSHEDS.

Peggy Rae Dorris, Department of Biology, Henderson State University, Arkadelphia, AR 71923, and Lynn Thompson, Forestry Department, University of Arkansas at Monticello, Monticello, AR 71655.

### PROTRACTED OVIPOSITION BY *Hetaerina titia* (DRURY) (ZYGOPTERA: CALOPTERYGIDAE).

George L. Harp, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

### A TECHNIQUE FOR EXAMINING THE ZYGOPTERAN MESOS-TIGMAL COMPLEX OF THREE SPECIES OF *Argia* USING SCANNING ELECTRON MICROSCOPY.

Stephen R. Moulton II, Stanley E. Trauth, and George L. Harp, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

### GENETIC VARIABILITY IN PERIODIC CICADIDS FROM NORTHERN ARKANSAS.

Derrick W. Sugg, A. A. Karlin, E. A. Rush, K. Smith, C. Williams, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204 and Department of Zoology, University of Arkansas at Fayetteville, Fayetteville, AR 72701.

### SPECIAL ADAPTATIONS OF ORB WEAVERS AND PREY.

Peggy Rae Dorris, Henderson State University, Arkadelphia, AR 71923.

### A CHECKLIST OF THE CERAMYCIDAE OF ARKANSAS.

Robert T. Allen and C. E. Carlton, Department of Entomology, University of Arkansas, Fayetteville, AR 72701.

### SELECTED BIOLOGICAL ASPECTS OF *Gomphus ozarkensis* WESTFALL (ODONATA: GOMPHIDAE).

Greg R. Susanke and George L. Harp, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

### SCIENCE EDUCATION

Session Chairperson: Dick Hansen

### A STUDY OF COLLEGE AND UNIVERSITY PROGRAMS IN GENERAL EDUCATION BIOLOGY.

Neal Buffaloe, Department of Biology, University of Central Arkansas, UCA Box 1721, Conway, AR 72032.

### PRELIMINARY REPORT ON THE USE OF A COMPUTERIZED PHYSICAL SCIENCE TUTORIAL AT UCA.

Stephen R. Addison, Maurice Ayers, Ralva Bass, Denver Prince, and Hudson B. Eldridge, Physics Department, The University of Central Arkansas, Conway, AR 72032.

### AN INTERACTIVE DYNAMICS TUTORIAL.

H. B. Eldridge and H. L. Pray, Physics Department, University of Central Arkansas, Conway, AR 72032.

### AN INTRODUCTORY CHEMISTRY COURSE.

Richard S. Mitchell, Department of Chemistry, Arkansas State University, State University, AR 72467.

### NEW STANDARDS FOR ARKANSAS: CONTINUING STUDY (CHEM).

Robbin C. Anderson, Chemistry Department, University of Arkansas, Fayetteville, AR 72701.

### TEACHING ELEMENTARY SCIENCE: A MODEL FOR EFFECTIVE IN-SERVICE TRAINING.

Glenn Good and Joe Jeffers, Departments of Physics and Chemistry, Ouachita Baptist University, Arkadelphia, AR 71923.

### UNIVERSITY OF ARKANSAS AT MONTICELLO'S 1985 SUMMER SCIENCE INSTITUTE.

Eric Sundell, Department of Natural Sciences, University of Arkansas at Monticello, Monticello, AR 71655.

### ACTIVITIES AT UALR IN SUPPORT OF SCIENCE EDUCATION.

Richard Hanson and Fred Watson, University of Arkansas at Little Rock, 33rd and University Avenue, Little Rock, AR 72204.

### A SUMMER SCIENCE PROGRAM THAT LASTS ALL YEAR.

Fred Watson and Richard Hanson, University of Arkansas at Little Rock, 33rd and University Avenue, Little Rock, AR 72204.