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PROGRAM

Arkansas Academy of Science

Sixty-eighth Annual Meeting
UNIVERSITY OF ARKANSAS
Fayetteville, Arkansas

Meeting concurrently with sessions of:
The Collegiate Academy of Science

Friday, 6 April

SENIOR AND COLLEGIATE ACADEMIES -- Registration
SENIOR ACADEMY -- Executive Board Meeting
SENIOR ACADEMY -- First General Business Meeting
Lunch
SENIOR AND COLLEGIATE ACADEMIES -- Registration
SENIOR AND COLLEGIATE ACADEMIES -- Paper [Concurrent Sessions]:

Aquatic & Environmental I
Botany
Chemistry I
Chemistry II
Geology
Invertebrate Zoology
Microbiology & Immunology
Vertebrate Zoology

SENIOR AND COLLEGIATE ACADEMIES -- Banquet
POST BANQUET SPEAKER -- Mr. Randall Sabine, EPA, Dallas

Saturday, 7 April

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

Aquatic & Environmental II
Botany II
Chemistry III
Parasitology & Biomedicine
Science Education
Vertebrate Zoology II

ARKANSAS SCIENCE TALENT SEARCH
SENIOR ACADEMY -- Second General Business Meeting

SECTION PROGRAMS

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

AQUATIC AND ENVIRONMENTAL I

Session Chairperson: John K. Beadles

SELECT BIOLOGICAL ASPECTS OF THE YELLOWCHEEK DARTER, *Etheostoma moorei* RANEY AND SUTTKUS.

Roland E. McDaniel and George L. Harp, Arkansas State University, AR 72467 and Henry W. Robison, Southern Arkansas University, Magnolia, AR 71753.

TEMPERATURE PREFERENCE AND TOLERANCE OF GRASS CARP (*Ctenopharyngodon idella*).

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

GROWTH OF LARGEMOUTH BASS FROM HEATED FLINT CREEK RESERVOIR IN NORTHWEST ARKANSAS.

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

EFFECTS OF COMMERCIAL FISH REMOVAL ON SPORT FISH POPULATIONS IN TWO ARKANSAS RESERVOIRS.

Tommie Crawford, Arkansas Game and Fish Commission, No. 2 Natural Resources Drive, Little Rock, AR 72205.

FURTHER DISTRIBUTION RECORDS OF *Fundulus chrysotus* AND *Fundulus notti*.

Alan D. Price, Julia L. Reid, V. Rick McDaniel and C. Renn Tumblison, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

REPRODUCTIVE SUCCESS OF CHANNEL CATFISH IN A FARM SITUATION IN MISSISSIPPI.

William W. Stephens, Sandling and Stephens' Fisheries, Rt. 1, Box 232, Silver City, MS 39166. Larry W. Dorman, Extension Assistant Fisheries Specialist, University of Arkansas Cooperative Extension Service, Drawer D., Lonoke, AR 72086.

DISTRIBUTION AND EFFICIENCY OF HYDROCARBON-OXIDIZING BACTERIA IN A FRESHWATER RESERVOIR.

Carol H. Smedley, Jimmy D. Bragg and Aubrey B. Gosnell, Henderson State University, Arkadelphia, AR 71923.

THE INFLUENCE OF DeGRAY RESERVOIR ON ZOOPLANKTON POPULATIONS IN THE CADDO AND OUACHITA RIVERS.

Ralph B. Roseberg, Dworshak National Fish Hatchery, Box 18, Ahsahka, Idaho 83544 and Mark Karnes, Ross Foundation, 1039 Henderson, Arkadelphia, AR 71923.

BOTANY

Session Chairperson: Gary Tucker

SIZE-DEPENDENT COMPETITIVE ABILITY IN PLANTS.

James B. Grace, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

VEGETATION COMMUNITIES OF PEA RIDGE NATIONAL MILITARY PARK, BENTON COUNTY, ARKANSAS.

Edward E. Dale, Jr., Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

TALLGRASS PRAIRIES OF NORTHWESTERN ARKANSAS: QUANTITATIVE VEGETATIONAL AND SOIL DATA.

Nancy M. Eyster-Smith, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701-1201.

COMPARISON OF GROUNDCOVER VEGETATION AMONG HABITATS OF THE UPPER BUFFALO RIVER.

Mark A. Paulissen, Department of Zoology, University of Oklahoma, Norman, OK 73019.

SOME STUDIES ON INTRODUCING *Castilleja coccinea*, INDIAN PAINTBRUSH, INTO PRAIRIE VEGETATION.

Robert D. Wright, Department of Biology, University of Central Arkansas, Conway, AR 72032.

Lomariopsis, THE FIFTH GENUS OF TROPICAL FERN KNOWN FROM NORTH AMERICA TO FORM INDEPENDENT, PERENNIAL GAMETOPHYTES.

James H. Peck and Carol J. Peck, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204 and State Plant Board, Little Rock, AR 72203.

FORESTRY IN THE REPUBLIC OF CHINA.

Timothy T. Ku, Department of Forest Resources, University of Arkansas at Monticello, Monticello, AR 71655.

PRELIMINARY STUDY ON THE POISONOUS PLANTS OF ARKANSAS.

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

CHEMISTRY I

Session Chairperson: Neil Allison

CARBON-14 ISOTOPE EFFECT STUDIES OF THE MECHANISM OF THE COPE ELIMINATION REACTION OF SUBSTITUTED 2-PHENYLETHYLDIAMETHYLAMINE OXIDES.

Daniel R. Wright, Leslie B. Sims and Arthur Fry, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

THE SYNTHESIS OF STEROSPECIFICALLY LABELED (+) - B DEUTERODESOXYEPHYDRINE.

Richard B. Walker, Associate Professor, College of the Ozarks, 415 College Avenue, Clarksville, AR 72830.

THE EFFECT OF SOLVENT ACIDITY ON THE ISOMERIZATION OF ALPHA IONONE.

Deanna King, Paul Krause, Jerald Manion, University of Central Arkansas, Conway, AR 72032.

COMPARATIVE ISOMERIZATION RATES OF PSI AND ALPHA IONONE.

Randall Black, Paul Krause, Jerald Manion, University of Central Arkansas, Conway, AR 72032.

METALLACYCLOACYL-CARBENE COMPLEX.

Warnee Yongskulrote and Neil T. Allison, Chemistry Department, Chemistry Building, University of Arkansas, Fayetteville, AR 72701.

METALLAPHENANTHRENE.

R. Ferede, J. Hinton, N. Allison, Chemistry Department, University of Arkansas, Fayetteville, AR 72701.

SYNTHESIS AND CHARACTERIZATION OF A SILYL SUBSTITUTED IRON CARBENE.

Bruce E. Landrum and N. T. Allison, University of Arkansas, Fayetteville, AR 72701.

THE REDUCTION OF ALKYL HALIDES BY METAL HYDRIDE REAGENTS.

Ronald A. Shumate, c/o Dr. Richard Walker, College of the Ozarks, Clarksville, AR 72830.

STEREOCHEMISTRY AND HYDROGENATION OF 2-METHYL-1-METHYLENECYCLOHEXANE OVER A RHODIUM CATALYST.

W. Brian Harrod and Victoria F. Ku, Department of Natural Sciences, University of Arkansas at Monticello, Monticello, AR 71655.

DIECKMANN CONDENSATION OF A DOUBLY BOUND POLYMER-SUPPORTED ADIPATE ESTER.

Warren T. Ford, Department of Chemistry, Oklahoma State University, Stillwater, OK 74078; Paul M. Nave and Michael Wells, Department of Chemistry, Arkansas State University, State University, AR 72467.

IRRADIATION OF DIENES IN THE PRESENCE OF AMINES.

William M. Bednar and Norbert J. Pienta, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

ALKYLATIONS USING OXYPHOSPHONIUM SALTS.

Slaton E. Fry and Norbert J. Pienta, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

CHEMISTRY II

Session Chairperson: Robert Steinmeier

RADIATION LEVELS AROUND A NUCLEAR POWER PLANT AS MEASURED BY DIFFERENT METHODS.

Claude Epperson, Dale Swindle, Orville Cypret, Thomas Rolniak, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

BETA RADIATION ATTENUATION CHARACTERISTICS OF TYPICAL PROTECTIVE EYEWEAR USED AT A NUCLEAR POWER PLANT.

Orville Cypret, Arkansas Power & Light Company, PO Box 551, Little Rock, AR 72203 and C. E. Epperson, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

APPLICATION OF DIFFUSE REFLECTANCE SPECTROSCOPY (DRS) IN HETEROGENOUS CATALYSIS.

Lawrence Orgi and G. Blyholder, University of Arkansas, Fayetteville, AR 72701.

ELECTRON MICROSCOPE STUDY OF THE SOLID-SOLID REACTION BETWEEN POTASSIUM SULFATE AND GRAPHITE.

Jamie Dudley and J. E. Bennett, Department of Chemistry, Arkansas State University, State University, AR 72467.

MASS SPECTROMETRIC STUDIES OF HIGH TEMPERATURE VAPORS FROM THE SOLID-SOLID REACTION BETWEEN SODIUM SULFATE AND GRAPHITE.

Ali Al Ghamdi and J. E. Bennett, Department of Chemistry, Arkansas State University, State University, AR 72467.

FRAGMENTATION PATTERNS IN ENERGETIC COLLISIONS OF ARGON MICROCLUSTERS.

Ralph J. Wolf, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

ROTATIONAL STATE RESOLVED STICKING AND DESORPTION PROBABILITIES IN DIATOM - SURFACE COLLISION PROCESS.

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

GEOLOGY

Session Chairperson: Victor Vere

DEVELOPMENT OF ALGAL-BRYOZOAN-FORAMINIFERA CARBONATE MOUNDS BLOYD FORMATION (MORROWAN-PENNSYLVANIAN), MADISON COUNTY, ARKANSAS.

Jeffrey R. Marsh, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

MORROWAN (LOWER PENNSYLVANIAN) LITHOSTRATIGRAPHIC PROBLEMS, NORTH-CENTRAL ARKANSAS.

Wilson Hawkins, Arkansas Department of Pollution and Ecology Control, Little Rock, AR 72701 and Daniel Murdaugh, Tenneco Oil Company, Lafayette, LA 70501.

AMMONOID BIOSTRATIGRAPHY OF THE GENE AUTRY SHALE (MORROWAN-PENNSYLVANIAN), SOUTH-CENTRAL OKLAHOMA.

Marilyn S. Miller, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

UPPERMOST MORROWAN (PENNSYLVANIAN) CONODONT BIOSTRATIGRAPHY, NORTHWESTERN ARKANSAS AND NORTHEASTERN OKLAHOMA.

Michael G. Gray and Walter L. Manger, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

HYDROGEOCHEMICAL EXPLORATION FOR MISSISSIPPI VALLEY TYPE DEPOSITS, ARKANSAS.

Kenneth F. Steele, Department of Geology, University of Arkansas, Fayetteville, AR 72701 and T. F. Dilday III, Exxon Company, Houston, TX 77001.

FLUID SENSOR TECHNOLOGY - DISCOVERY.

Sedley Joseph Greer, Jr., Geologist, 2500 McCain Street, Suite 121, North Little Rock, AR 72116.

STRATIGRAPHY OF THE MIDDLE ATOKA, SOUTHERN ARKOMA BASIN, ARKANSAS.

Pamela K. Williams, Geology Department, University of Arkansas, Fayetteville, AR 72701.

IMPLICATIONS OF HYDROCARBON AND HELIUM GAS ANALYSES OF SPRINGS FROM THE OUACHITA MOUNTAINS, ARKANSAS.

Tandel T. Cox, Kenneth F. Steele, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

RESISTIVITY PROFILING OF OUACHITA RIVER SAND DEPOSITS IN THE MORO BAY, ARKANSAS AREA.

Owen Carpenter and Robert A. Wells, Department of Natural Sciences, University of Arkansas at Monticello, Monticello, AR 71655.

INVERTEBRATE ZOOLOGY

Session Chairperson: Peggy Dorris

INSECT POPULATIONS ASSOCIATED WITH SUNFLOWERS IN NORTHEASTERN ARKANSAS WITH NOTES ON DAMAGE BY *Mecas inornata* (COLEOPTERA: CERAMBYCIDAE).

Julia L. Reid and H. E. Barton, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

LABORATORY REARING OF *Chelysomidea guttata* (HEMIPTERA: SCUTELLERIDAE), WITH DESCRIPTIONS OF IMMATURE STAGES.

Julia L. Reid and H. E. Barton, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

ANATOMY OF THE MALE AND FEMALE REPRODUCTIVE SYSTEMS OF ADULT *Meneles insertus* (SAY) (HEMIPTERA: PENTATOMIDAE).

Linda A. Lee and Harvey E. Barton, Arkansas State University, State University, AR 72467.

COLLECTING, IDENTIFYING AND PRESERVING SPIDERS.

John S. Heiss, Department of Entomology, University of Arkansas, Fayetteville, AR 72701.

A SIMPLIFIED SILVER-STRAIN TECHNIQUE FOR GRASSHOPPER CHROMOSOMES IN FIXED TISSUES.

Jeff Angel and W. L. Evans, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

INFLUENCE OF THE PAYMENT-IN-KIND (P.I.K.) PROGRAM ON *Psorophora columbiae* AND *Anopheles quadrimaculatus* MOSQUITO POPULATIONS IN A NORTHEAST ARKANSAS RICEFIELD COMMUNITY.

Larry A. Olson and Julia L. Reid, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

MICROBIOLOGY AND IMMUNOLOGY

Session Chairperson: A. L. Barron

THE UTILIZATION OF *Pachysolen tannophilus* IN SIMULATED SIMULTANEOUS SACCHARIFICATION AND FERMENTATION PROCESS.

Hunsa Punnapayak and George H. Emert, Biomass Research Center, University of Arkansas, Fayetteville, AR 72701.

EVALUATION OF SUGAR CANE BAGASSE AND RICE STRAW AS PROCESS SUBSTRATES FOR THE PRODUCTION OF ETHYL ALCOHOL.

Douglas B. Rivers, Gisella Zanin, George H. Emert, Biomass Research Center, University of Arkansas, Fayetteville, AR 72701.

METABOLISM OF NITROPOLYCYCLIC AROMATIC HYDROCARBONS BY HUMAN INTESTINAL MICROFLORA.

Carl E. Cerniglia, National Center for Toxicological Research, FDA, Jefferson, AR 72079.

GROUP B STREPTOCOCCAL LIPOTEICHOIC ACID ENHANCES INFECTION AND ALTERS PULMONARY SURFACTANT IN THE MOUSE.

D. E. Wennerstrom, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

INFLUENZA TYPE A VIRUS-MEDIATED ADHERENCE OF TYPE IIA GROUP B STREPTOCOCCI TO MOUSE TRACHEAL TISSUE *In Vivo*.

Jay H. Menna and William T. Jones, Department of Microbiology & Immunology, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

CHLAMYDIAL PNEUMONITIS INDUCED IN NEWBORN GUINEA PIGS.

Roger G. Rank, Aubrey J. Hough, Jr., Richard F. Jacobs, Cynthia Cohen, Almen L. Barron, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

THE BINDING OF BACTERIA TO AVIAN LYMPHOCYTES: RESULTS OF PRELIMINARY INVESTIGATIONS.

G. T. Pharr, L. J. Paulissen, Department of Microbiology, University of Arkansas, Fayetteville, AR 72701 and J. D. Story, Campbell Soup Company, 1100 West 15th, Fayetteville, AR 72701.

EXTRACELLULAR CYCLIC AMP PHOSPHODIESTERASE FROM THE GROWTH MEDIUM OF THE MYXOMYCETE *Physarum flavicomum*.

Thomas J. Lynch and Mary E. Farrell, Biology Department, University of Arkansas at Little Rock, 33rd & University, Little Rock, AR 72204.

MODE OF SLUG MOTILITY IN *Dictyostellium discoideum*.

F. W. Spiegel, Assistant Professor, Botany & Microbiology, University of Arkansas, Fayetteville, AR 72701.

Streptococcus mutans AND PENICILLIN.

Timothy A. Kral and James W. Norys, University of Arkansas, Fayetteville, AR 72701.

INDUCED MUTATION OF *Colletotrichum gloeosporioides* F. SP. *aeschnomene* FOR TOLERANCE TO BENZIMIDAZOLE FUNGICIDES.

D. O. TeBeest, Department of Plant Pathology, University of Arkansas, Fayetteville, AR 72701.

EFFECTS OF SIDE-CHAIN OXIDATION IN THE FUNGAL METABOLISM OF LIGNIN.

Patrick Fenn, Department of Plant Pathology, University of Arkansas, Fayetteville, AR 72701.

RABBIT FCY RECEPTOR - BEARING BONE MARROW CELLS SUPPRESS THE RELEASE OF A BONE MARROW GROWTH FACTOR.

Lee, S. F. Soderberg, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, AR 72205.

VERTEBRATE ZOOLOGY

Session Chairperson: John A. Sealander

ALTITUDINAL VARIATION IN THE MEXICAN MOLE (*Microtus mexicanus*).

Meredith J. Hamilton and Gary A. Heidt, Department of Biology, Memphis State University, Memphis, Tennessee and Department of Biology, University of Arkansas at Little Rock, Little Rock, AR.

DISEASE SURVEY OF WHITE-TAILED DEER IN ARKANSAS.

Hal Harger, Chuck Harger and Gary A. Heidt, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204; Melody Parsley and Mike Parsley, Arkansas Livestock and Poultry Commission, Little Rock, AR 72205.

DISTRIBUTION, STATUS AND MANAGEMENT OF FOX IN ARKANSAS AS DETERMINED BY FUR HARVEST REPORTS (1941-1983) AND MAIL SURVEY OF TRAPPERS.

Gary A. Heidt and James H. Peck and Lew Johnston, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

POSTNATAL OSTEOLOGY OF THE NORTHERN GRASSHOPPER MOUSE, *Onychomys leucogaster*.

Joe W. Bailey and Gary A. Heidt, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204. Present address for Joe W. Bailey, Fort Roots, V.A. Medical Center, North Little Rock, AR.

THE RIVER OTTER IN ARKANSAS. III. SEASONAL FOOD HABITS IN A SOUTHWESTERN ARKANSAS BEAVER SWAMP.

Renn Tumblison and Mark Karnes, Department of Zoology, Oklahoma State University, Stillwater, OK 74078 and the Ross Foundation, P.O. Box 335, Arkadelphia, AR 71923.

CHARACTERISTICS OF OTTER LATRINES ALONG BEAVER HABITED WATERCOURSES IN SOUTHWEST ARKANSAS.

Mark R. Karnes, The Ross Foundation, P.O. Box 335, Arkadelphia, AR 71923 and Renn Tumilson, Department of Zoology, Oklahoma State University, Stillwater, OK 74078.

HOME RANGE AND DENSITY OF THE BOBCAT, *Felix rufus*, IN ARKANSAS.

Richard A. Rucker, Memphis State University, Route #9, Box 17B, Oden, AR 71961.

PROTECTION OF ENDANGERED GRAY BAT (*Myotis grisescens*) COLONIES IN ARKANSAS.

Michael J. Harvey, Ecological Research Center, Department of Biology, Memphis State University, Memphis, TN 38152.

A SUMMARY ACCOUNT OF THE CAROLINA PARAKEET IN ARKANSAS.

Daniel McKinley, Department of Biological Sciences, State University of New York, Albany, NY 12222 and Douglas James, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

FIRST RECORDS OF THE POCKET GOPHER (*Geomys bursarius missouriensis*) FROM ARKANSAS.

V. R. McDaniel, J. D. Wilhide, C. R. Tumilson and J. D. Copenhaver, Department of Biological Sciences, Arkansas State University, State University of AR 72467.

AQUATIC AND ENVIRONMENTAL II

Session Chairperson: John K. Beadles

THE CONCENTRATION OF SELECTED IONS IN RAINWATER.

D. M. Chittenden II and J. L. Chittenden, Department of Chemistry, Arkansas State University, State University, AR 72467.

ABSORPTION OF TRACE METALS ON MANGANESE OXIDE COATED GRAVELS.

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

WATER QUALITY CHARACTERISTICS OF AN AGRICULTURAL WETLAND IN EAST CENTRAL ARKANSAS.

Carl R. Stapleton, Biology Department, University of Arkansas at Little Rock, Little Rock, AR 72204.

WATER QUALITY OF GILLHAM LAKE AND ASSOCIATED TAILWATER DURING DRY AND WET PERIODS.

Stephen B. Smith and Thomas E. Moen, U.S. Fish and Wildlife Service, Multi-Outlet Reservoir Studies, Arkadelphia, AR 71923.

FACTORS LIMITING THE REVEGETATION OF BAUXITE MINE SOILS IN ARKANSAS.

Jarvis Harper, Aluminum Company of America, P.O. Box 300, Bauxite, AR 72011 and A. E. Spooner, Plant Science Department, University of Arkansas, Fayetteville, AR 72701.

FLY ASH AS A FERTILIZER AND LIME SOURCE IN ARKANSAS.

Stanley L. Chapman, Cooperative Extension Service, University of Arkansas at Little Rock, Little Rock, AR 72203.

BOTANY II

Session Chairperson: James L. Wickliff

ORIGINS OF CHLOROPLASTS IN *Euglena gracilis*: A PRELIMINARY STUDY OF CHLOROPLAST SOURCES AND RESEARCH METHODS.

Clell J. Ford, Hendrix College, P.O. Box H-330, Hendrix, College, Conway, AR 72032.

MICROSCOPY OF HEAT INDUCED MORPHOLOGICAL CHANGES IN ISOLATED CHLOROPLASTS.

Roy Z. Gehring, Arkansas State University, State University, AR 72467.

EFFECT OF TENTOXIN ON THYLAKOID PROTEINS OF DEVELOPING MUNG BEAN PRIMARY LEAVES.

Judy L.-H. Jwo and J. L. Wickliff, Department of Botany & Microbiology, University of Arkansas, Fayetteville, AR 72701.

EFFECT OF LIGHT ON MICROTUBULES OF MESOCOTYL PARENCHYMA CELLS IN DEVELOPING MAIZE SEEDLINGS.

D. A. deSarcos and J. L. Wickliff, Department of Botany and Microbiology, University of Arkansas, Fayetteville, AR 72701.

GAS CHROMATOGRAPHIC ANALYSES OF POTENTIAL BIOCRUDE-PRODUCING TREES.

Roy Z. Gehring and Bob D. Johnson, Arkansas State University, P.O. Box 92, State University, AR 72467.

CHEMISTRY III

Session Chairperson: Robert Steinmeier

REAL TIME DATA ACQUISITION FOR GAS ELECTRON DIFFRACTION PATTERNS.

David W. Paul, John D. Ewbank, Joel Benston and Lothar Schafer, University of Arkansas, Department of Chemistry, Fayetteville, AR 72701.

MICROBALANCE ELECTROCHEMISTRY, A NEW METHOD FOR STUDYING ELECTROSORPTION AT SOLID ELECTRODES.

Linda Holm Grande and David W. Paul, University of Arkansas, Department of Chemistry, Fayetteville, AR 72701.

EFFECTS OF SPECIFIC ADSORPTION ON ELECTROCHEMICAL REACTIONS.

Doni G. Grande and David W. Paul, University of Arkansas, Department of Chemistry, Fayetteville, AR 72701.

GLC DETERMINATION OF STREPTOMYCIN IN INJECTABLE PREPARATION.

Joaquin Jessup and A. M. Hoyt, Jr., University of Central Arkansas, Conway, AR 72032.

CONSTRUCTION OF A MICROCOMPUTER CONTROLLED pH TITRATOR.

Edmond W. Wilson, Jr. and James E. Mackey, Department of Physical Science, Harding University, Searcy, AR 72143.

SOFTWARE DESIGN FOR A MICROCOMPUTER CONTROLLED TITRATION APPARATUS.

Dennis K. Thompson and Edmond W. Wilson, Jr., Department of Physical Science, Harding University, Searcy, AR 72143.

THE MICROCOMPUTER AS A LABORATORY INSTRUMENT: A MICROCOMPUTER POLAROGRAPH.

Kenneth E. England and Edmond W. Wilson, Jr., Department of Physical Science, Harding University, Searcy, AR 72143.

DIFFERENCE IN ASSOCIATION OF THALLOUS ION WITH GRAMICIDIN A AND GRAMICIDIN B IN LY SOPHOSPHATIDYL CHOLINE MICELLES DETERMINED BY TL-205 NMR.

William L. Whaley, Dikoma Shungu, James F. Hinton, Roger E. Koeppe II, and Francis S. Millett, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

THE HEMORRHAGIC COMPONENT FROM THE VENOM OF THE SOUTHERN COPPERHEAD.

Randal K. Tucker and Collis R. Geren, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

LOXOSCELES SPIDER VENOMS.

Mary Rekow, Elizabeth Wilder and Collis R. Geren, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

A HEMORRHAGIC COMPONENT OF EASTERN COTTON-MOUTH VENOM.

H. Raymond Allen, Patrick Dopp and Collis R. Geren, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

PARASITOLOGY AND BIOMEDICINE

Session Chairperson: John Sorenson

HELMINTHS OF ARKANSAS *Quiscalus quiscula*.

Arthur A. Johnson, Professor of Biology, Hendrix College, Conway, AR 72032.

SURVIVAL OF *Trypanosoma cruzi* IN DEAD CHRONICALLY INFECTED MICE.

Lawrence W. Hinck and James L. Stevens, Department of Biological Sciences, Arkansas State University, State University, AR 72467 and Roger Dale Meurer, Merck Institute for Therapeutic Research, Rahway, New Jersey.

THE LIFE CYCLE OF *Aganthidium pipistrelli* MACY 1941 (TREMATODA: LECITHODENDRIIDAE) FROM NEWTON AND JOHNSON COUNTY IN NORTHWEST ARKANSAS.

John F. Bridgman and Mark Hardgrave, Department of Biology, College of the Ozarks, Clarksville, AR 72830.

A COMPARISON OF HEART RATE RESPONSES DURING SINGLES AND DOUBLES COMPETITION IN RACQUETBALL.

Leland F. Morgans, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204; James A. Scovill, Kay M. Bass, Department of Medicine, Non-Invasive Cardiology Laboratory, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

IN SEARCH OF THE TRANSCRIPTION TERMINATION REGION OF THE GALACTOSE OPERON FROM *Escherichia coli*.

Joe S. Jeffers, Department of Chemistry, Ouachita Baptist University, Arkadelphia, AR 71923.

ULTRAVIOLET LIGHT REACTIVATION OF GAMMA-RAY INDUCED CHROMOSOME ABERRATIONS IN G1 PHASE *Xenopus* CELLS.

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

NITROSAMINE FORMATION VIA NITRITE ESTERS.

Robert W. Allen, Assistant Professor of Chemistry, Arkansas Tech University, Russellville, AR 72801.

THE EFFECT OF *Edwardsiella ictaluri* INFECTION ON PLASMA CORTICOSTERONE LEVELS IN CHANNEL CATFISH (*Ictalurus punctatus*).

J. L. Cooper, S. N. David and J. K. Beadles, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

FACTORS CONTROLLING THE METHEMOGLOBIN REDUCTION IN THE RED CELL.

A. Mansouri, VA Medical Center and University of Arkansas for Medical Sciences, 111G, 300 E. Roosevelt, Little Rock, AR 72206.

SCIENCE EDUCATION

Session Chairperson: Neal Buffaloe

TEACHING AND TESTING IN LARGE SECTIONS OF GENERAL CHEMISTRY.

A. W. Cordes, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

TOWARD A CONCISE DEFINITION AND PERSPECTIVE FOR BIOLOGY.

Arthur V. Brown and Kristine Basinger Brown, Department of Zoology, University of Arkansas, Fayetteville, AR 72701 and West Fork High School, West Fork, AR 72774.

JUNIOR HIGH SCIENCE AND HUMANITIES SYMPOSIUM - AN ENRICHMENT PROGRAM FOR THE GIFTED HIGH SCHOOL SCIENCE STUDENT.

Tom Palko, Arkansas Tech University, Russellville, AR 72801.

ARKANSAS BIOLOGICAL CURRICULUM DEVELOPMENT CONFERENCE - 1983.

Arthur A. Johnson, Professor of Biology, Hendrix College, Conway, AR 72032.

PHYSICS TEACHERS VISIT RUSSIA AND CHINA.

Paul C. Sharrah, University of Arkansas, Department of Physics, Fayetteville, AR 72701.

THE USE OF MICROCOMPUTERS AS LABORATORY INSTRUMENTS.

James A. Wisman, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

SCIENCE OUT OF CONTEXT: PRESCRIPTION FOR DISASTER.

Art Hobson, Department of Physics, University of Arkansas, Fayetteville, AR 72701.

THE WATER CRISIS - AN APPROACH FOR TEACHERS IN GRADES 7-12.

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

MICHAJLO VASILIEVIC LOMONOSOV WHO?

Billie G. Broach, Department of Chemistry, University of Arkansas at Little Rock, 33rd and University, Little Rock, AR 72204.

VERTEBRATE ZOOLOGY II

Session Chairperson: Gary Heidt

AGE STRUCTURE AND REPRODUCTIVE RECRUITMENT OF ARKANSAS RACCOONS (*Procyon lotor*) AS DETERMINED FROM HARVEST DATA OF 1981-83.

J. D. Copenhaver, J. D. Wilhide, V. R. McDaniel, J. S. Hudspeth and C. R. Tumilson, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

A REGIONAL ANALYSIS OF FOOD CONSUMED BY RACCOONS (*Procyon lotor*) HARVESTED DURING THE 1981-83 ARKANSAS FUR-TRAPPING SEASONS.

J. D. Wilhide, J. S. Hudspeth, V. R. McDaniel and C. R. Tumilson, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

FIRST RECORDS OF THE EASTERN HARVEST MOUSE, *Reithrodontomys humulis*, AND THE BLACK RAT, *Rattus rattus*, FROM SOUTHERN ARKANSAS.

D. R. England, Department of Biological Science, Southern Arkansas University, Magnolia, AR 71753; V. R. McDaniel, J. D. Copenhaver and C. R. Tumilson, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

A COMPARATIVE STUDY OF THE DIVING PHYSIOLOGY OF REPTILES.

Robert Rountree, Dennis Baeyens and Alvan Karlin, Biology Department, University of Arkansas at Little Rock, 33rd & University, Little Rock, AR 72204.

MINE UTILIZATION BY HERPTILES IN THE OUACHITA MOUNTAINS.

Darrell Heath, Gary A. Heidt, Department of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204 and David Saugey, U.S. Forest Service, Hot Springs, AR 71901.

ADDITIONAL ECO-REPRODUCTIVE OBSERVATIONS ON A POPULATION OF SLIMY SALAMANDERS, *Plethodon glutinosus glutinosus* (GREEN) FROM THE OUACHITA MOUNTAINS OF ARKANSAS.

David A. Saugey, U.S. Forest Service, Hot Springs, AR 71901.