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PROGRAM

Arkansas Academy of Science

Seventy-First Annual Meeting
UNIVERSITY OF ARKANSAS AT LITTLE ROCK
Little Rock, Arkansas

Meeting concurrently with sessions of
The Collegiate Academy of Science

Friday, 3 April

SENIOR AND COLLEGIATE ACADEMIES -- Registration
SENIOR ACADEMY -- Executive Board Meeting
SENIOR ACADEMY -- First General Business Meeting
Lunch
SENIOR AND COLLEGIATE ACADEMIES -- Registration
SCIENCE EDUCATION SYMPOSIUM: Basic science education in
Arkansas (Grades K-8): Our common concern.
SENIOR AND COLLEGIATE ACADEMIES: Papers [Concurrent
Sessions]:

Aquatic and Environmental I
Biomedical
Botany
Chemistry I
Geology
Physics

SENIOR AND COLLEGIATE ACADEMIES -- Banquet
POST BANQUET SPEAKER -- Dr. Arch Johnston
Memphis State University
Memphis, TN

Saturday, 4 April

SENIOR AND COLLEGIATE ACADEMIES -- Registration
SENIOR AND COLLEGIATE ACADEMIES -- Papers [Concurrent
Sessions]:
Aquatic and Environmental II
Chemistry II
Microbiology and Cell Biology
Science Education
Zoology
ARKANSAS SCIENCE TALENT SEARCH
SENIOR ACADEMY -- Second General Business Meeting

SECTION PROGRAMS

AQUATIC AND ENVIRONMENTAL I

Session Chairperson: Alan Price (Ark. Dept. Poll. Contr. & Ecol.)

ANALYSIS OF STRIPED BASS (*Morone saxatilis*) SCALES AND DORSAL SPINE SECTIONS BY SCANNING ELECTRON MICROSCOPY.

Barry L. Barnoski and Raj V. Kilambi, Zoology Dept., UAF, Fayetteville, AR.

EVALUATION OF STRIPED BASS (*Morone saxatilis*) AGE FROM BODY SCALES, OPERCULAR SCALES, OPERCLES AND DORSAL SPINES.

Raj V. Kilambi and Thoniot T. Prabhakaran, Zoology Dept., UAF, Fayetteville, AR.

REDISCOVERY OF THE SUCKERMOUTH MINNOW, *Phenacobius mirabilis* (GIRARD), IN ARKANSAS.

W. E. Keith, ADPCE; Thomas M. Buchanan, WestArk Community College; and Henry W. Robison, Biology Dept., SAU, Magnolia, AR.

STATUS REVIEW OF THE THREATENED OZARK CAVEFISH, *Amblyopsis rosae*.

A. V. Brown and C. S. Todd, Zoology Dept., UAF, Fayetteville, AR.

PHYSIOGRAPHY AND HYDROLOGY OF THE UPPER SALINE RIVER, SALINE AND GARLAND COUNTIES, ARKANSAS.

John Rickett, Biology Dept., UALR, Little Rock, AR.

Clinostomum marginatum METACERCARIA: INCIDENCE IN SMALLMOUTH BASS FROM A NORTH ARKANSAS STREAM AND *IN VITRO* SURVIVAL AND OXYGEN CONSUMPTION STUDIES.

James J. Daly, Howard H. Conway, and H. Michael Matthews, Depts. of Microbiology and Immunology and Physiology and Biophysics, UAMS, Little Rock, AR.

DISTRIBUTION OF FISH WITHIN HEADWATER RIFFLES OF THE ILLINOIS RIVER SYSTEM, WASHINGTON COUNTY, ARKANSAS.

Danny J. Ebert and Art V. Brown, Zoology Dept., UAF, Fayetteville, AR.

THE STATUS OF THE INSTREAM FLOW ISSUE IN ARKANSAS - 1987.

Steve Filipek, Ark. Game & Fish Comm., Lonoke, AR.

THE EFFICIENCY OF DIFFERENT STORAGE METHODS FOR PRESERVING LAKE TROUT (*Salvelinus namaycush*) EYE TISSUE.

Basil L. Joiner, Agriculture Dept., UAPB, Pine Bluff, AR and Harold L. Kincaid, Nat. Fish. Res. Dev. Lab., Wellsboro, PA.

ALUMINUM: A POTENTIAL TOXIC PROBLEM IN ARKANSAS?

Robert R. Jespersen and William R. Bowen, Biology Dept., UALR, Little Rock, AR.

EVALUATION OF SEVERAL GRAPHITE BASED ELECTRODES FOR THE MEASUREMENT OF REDOX POTENTIAL OF THE SOIL ENVIRONMENT.

Ali U. Shaikh, Chemistry Dept., UALR, Little Rock, AR and Roger M. Hawk, GIT, Little Rock, AR.

SELECTED FAMILIES OF TRICHOPTERA IN ARKANSAS.

Veryl V. Board, Health & Sci. Program, Ark. College, Batesville.

DISTRIBUTION OF FISHES AMONG ARKANSAS ECOREGIONS.

William E. Keith, Ark. Dept. Poll. Contr. & Ecol., Little Rock, AR.

BIOMEDICAL

Session Chairperson: Dr. Thomas J. Lynch (UALR)

THE ENZYMATIC CONJUGATION OF 4-NITROQUINOLINE N-OXIDE WITH GLUTATHIONE.

J. Steven Stanley and Ann M. Benson, Biochemistry Dept., UAMS, Little Rock, AR.

THE INFLUENCES OF ATRIAL NATRIURETIC FACTOR ON THE FORCE OF PERISTALTIC CONTRACTIONS AND CYCLIC GMP LEVELS IN THE SMALL INTESTINE.

J. Michael Walters, Robert R. Jespersen, David L. Vesely, and Dennis A. Baeyens, Biology Dept., UALR and Dept. of Medicine, UAMS, Little Rock, AR.

MIGRATION OF ENDOTHELIAL CELLS ONTO VASCULAR GRAFTS OF DACRON MESH.

Brian S. Nichol, Paul Citrin, William R. Bowen, Harry Lubansky, Biology Dept., UALR (BSN, WRB) and Surgery & Res. Serv., McClellan Mem. Hosp., VA Med. Ctr. (PC,HL), Little Rock, AR.

SPECTRAL AND KINETIC STUDIES ON CONFORMATIONAL CHANGES IN HEMOGLOBINS OF *Pseudemys scripta elegans*.

W. R. Parker and R. C. Steinmeier, Chem. Dept., UALR, Little Rock, AR.

BIOCHEMISTRY OF GROWING OLD.

Rheta Scaife and William M. Willingham, Nat. Sci. Dept., UAPB, Pine Bluff, AR.

THE SYNTHESIS AND CHARACTERIZATION OF ANTINEOPLASTIC MANGANESE(II) SALICYLATES.

Stanley Branch, William M. Willingham, Nat. Sci. Dept., UAPB, Pine Bluff, and John R. J. Sorenson, Biopharm. Sci., UAMS, Little Rock, AR.

DETERMINATION OF SIS-RELATED PEPTIDES DURING GESTATION AND IN TUMOR GROWTH.

Jeff Porter and Randall A. Kopper, Chemistry Dept., Hendrix College, Conway, AR.

THE EVALUATION OF THE BIOLOGICAL ACTIVITY OF LEUPEPTIN ANALOGS.

Rose McConnell, UAPB, Pine Bluff, AR.

TRANSPORT AND METABOLISM OF DEXAMETHASONE IN THE *IN VITRO* DUALY PERFUSED HUMAN PLACENTA.

M. A. Smith, P. J. Thomford, D. R. Mattison, W. Slikker, Jr., Nat. Ctr. Tox. Res., Jefferson and Interdis. Tox., UAMS, Little Rock, AR.

INCIDENCE OF *Giardia lamblia* AND INTESTINAL AMEBAE OF HUMANS IN CENTRAL ARKANSAS.

James A. Daly, Mark A. Gross, David McCullough, Thomas McChesney, Eleanora B. Daly, Suzanne Tank, James N. Pasley, and John Clarke.

ELECTROSTATIC INTERACTIONS OF CYTOCHROME C.

David W. Spivey and Randall A. Kopper, Chemistry Dept., Hendrix College, Conway, AR.

Arkansas Academy of Science

BOTANY

Session Chairperson: Dr. Gary Tucker (ATU)

Fothergilla (HAMAMELIDACEAE) NATIVE TO THE BOSTON MOUNTAINS OF ARKANSAS.

Gary E. Tucker, Biol. Sci., ATU, Russellville, AR.

THE EFFECT OF GENETIC FAMILY AND STOCK TYPE OF LOBLOLLY PINE YIELDS FROM WET SITES.

J. F. Dickson, J. L. Yeiser, R. A. Kluender, Forest Econ., UAM, Monticello, and J. L. Paschke, Potlatch Corp., Warren, AR.

ARKANSAS PTERIDOPHYTE FLORA UPDATE: A NEW CHECKLIST AND NOTES ON ADDITIONAL COUNTY-LEVEL OCCURRENCE RECORDS.

J. H. Peck, C. J. Peck, Biol. Dept., UALR, Little Rock, AR and W. C. Taylor, Botany Div., Milwaukee Public Museum, Milwaukee, WI.

FIELD STATUS AND REPRODUCTIVE BIOLOGY OF *Woodsia scopulina* in ARKANSAS.

C. J. Peck, Nat. Sci., UAPB Pine Bluff and J. H. Peck Biology Dept., UALR, Little Rock, AR.

DISCOVERY OF *Lycopodium* COMMUNITIES IN THE GULF COASTAL PLAIN REGION OF ARKANSAS.

J. H. Peck, Biology Dept., UALR, Little Rock; C. J. Peck, Nat. Sci., UAPB, Pine Bluff; S. Orzell, Texas Nat. Herit. Prog., Austin; E. Bridges, Inst. Bot. Res., Austin; and Carl Amason, Calion, AR.

INFECTION RATE OF TALL FESCUE WITH *Acremonium coenophialum*.

B. J. Hankins, Ext. Serv., UAF, Little Rock and Terry Kirkpatrick, Ext. Serv., UAF, Hope, AR.

PHOTOASSIMILATE PARTITIONING IN RELATION TO COTTON BOLL DEVELOPMENT.

Stan D. Wullschleger and Derrick M. Oosterhuis, Agron. Dept., UAF, Fayetteville, AR.

CYLINDER SPEED VERSUS MOISTURE CONTENT OF THE GRAIN ON MILLING QUALITY OF RICE (*Oryza sativa*).

R. H. Dilday, USDA-ARS, Stuttgart, AR.

PENETRATION OF A CHEESE WHEY RESIN ADHESIVE INTO WOOD.

Nicholas DePalo, William R. Bowen, and Tito Viswanathan, Biology and Chemistry Depts., UALR, Little Rock, AR.

EFFECTS OF STOCK TYPE AND PLANTER EXPERIENCE ON THE TIME REQUIRED TO PLANT LOBLOLLY PINE SEEDLINGS.

R. A. Kluender and J. L. Yeiser, UAM, Monticello, AR.

NEW LOCATIONS FOR PONDBERRY (*Lindera mellisifolia*) IN ARKANSAS.

Edward L. Richards, Biol. Sci., ASU, State University, AR and Steve L. Orzell, Texas Nat. Herit. Prog., Austin.

CORTICAL CELL CHANGES THAT ACCOMPANY CORK WING INITIATION IN *Euonymus alatus*.

Wylie E. Cox and William R. Bowen, Biology Dept., UALR, Little Rock, AR.

ADDITIONS TO THE ARKANSAS FLORA.

Donald E. Culwell, Biology, UCA, Conway, AR.

FRUITING BODY FORMATION IN THE SIMPLE SLIME MOLD, *Echinostelium bisporum*.

Frederick W. Spiegel, Bot. & Micro. Dept., UAF, Fayetteville, AR.

SULFUR DEFICIENCY OF WHEAT (*Triticum aestivum*) IN ARKANSAS.

Stanley L. Chapman and Donald Adams, Ext. Serv., UAF, Little Rock, AR.

CHEMISTRY I

Session Chairperson: Dr. Joe Jeffers (OBU)

THE ADDITION OF SIMPLE ESTER ENOLATES TO 2,3-DIHYDRO-4H-PYRAN-4-ONES.

K. K. Conner and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

THE PREPARATION OF A NEW CHIRON FROM D-ARABINOSE.

F. M. Griffin and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

DETERMINATION OF DISSOCIATION CONSTANTS OF SOME DIHALOGENATED NICOTINIC ACIDS.

Robert O. Shaver, Ella M. Gray, Ali U. Shaikh, and Frank L. Setliff, Chemistry Dept., UALR, Little Rock, AR.

THE SYNTHESIS OF 4-METHYL-5-ARYLOXYPRIMAQUINES.

J. C. Byrd and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

SYNTHESIS OF ENKEPHALIN ANALOGUES.

A. N. Voldeng, School of Pharmacy, UAMS, Little Rock; T. Day, David Coussens and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

SYNTHESIS OF NOVEL CARBOHYDRATE-DERIVED CHIRONS.

B. L. Shirkey and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

PREPARATION OF DIAZBORINES FROM AZULENE CARBOXYALDEHYDES.

C. Lichti and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

SYNTHESIS AND REARRANGEMENT OF ISOXAZOLIDINE TOSYLATES.

J. Montgomery, D. Coussens, E. Jacobs, and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

ADDITION OF AROMATIC ALDEHYDES TO A CARBOHYDRATE-DERIVED 2,3-DIHYDRO-4H-PYRAN-4-ONE.

M. N. Ford and T. E. Goodwin, Chemistry Dept., Hendrix College, Conway, AR.

SEPARATION OF RIBONUCLEOTIDES AND ASSESSMENT OF INOSINE METABOLISM BY HPLC.

Dwayne Daniels and Randall Kopper, Chemistry Dept., Hendrix College, Conway, AR.

PSORALEN CROSSLINKING UNDER DENATURING CONDITIONS IN THE ELUCIDATION OF mRNA SECONDARY STRUCTURE.

Joseph R. Bishop III, Randal A. Kopper, and Charles D. Liarakos, Chemistry Dept., Hendrix College, Conway, AR.

INVESTIGATION OF PSORALEN PHOTOCHEMISTRY OF NUCLEIC ACIDS.

Kay A. Hilscher, Randall A. Kopper, Charles D. Liarakos, Chemistry Dept., Hendrix College, Conway, AR.

Program

MECHANISM OF COLCHICINE-TUBULIN INTERACTION.
Michael D. Kyzer and Randall A. Kopper, Chemistry Dept.,
Hendrix College, Conway, AR.

ENZYME ACTIVITY IN ORGANIC SOLVENTS.
Steve Byars and Randall Kopper, Chemistry Dept., Hendrix
College, Conway, AR.

**METAL CATION EFFECTS UPON ALDOLASE IN THE ABSENCE
OF S100.**
Dave Deal and Randall A. Kopper, Chemistry Dept., Hendrix
College, Conway, AR.

GEOLOGY

Session Chairperson: Dr. Philip Kehler (UALR)

**THE GEOLOGIC HISTORY OF THE NEW MADRID SEISMIC
ZONE: A SUMMARY.**
Philip Kehler, Earth Science Dept., UALR, Little Rock, AR.

**FLUVIAL RESPONSE TO QUATERNARY GROUND TILTING
IN NORTHEASTERN ARKANSAS.**
R. T. Cox, West Fork, AR.

**TEXTURAL AND LITHOLOGIC DIFFERENCES OF CRE-
TACEOUS, TERTIARY AND QUATERNARY TERRACE AND
FLOODPLAIN GRAVELS OF SOUTH ARKANSAS.**
Lesli J. Wood, Geology Dept., UAF, Fayetteville, AR.

**LIMULID TRACKWAYS IN THE ROOF SHALES OF THE PARIS
COAL.**
Harry L. Barwood, Ark. Mining Inst., ATU, Russellville, AR.

**OCCURRENCE OF THE TRACE FOSSIL BURROW OF *Pelecypodichnus*,
WITH ITS ATTENDANT BODY FOSSIL, FROM THE
SAVANNA SANDSTONE, PARIS, ARKANSAS.**
Victor Vere, Randall Hosey, Merrick, Rotenberry and Glenn Spicer,
Geology Dept., ATU, Russellville, AR.

**PHYSICAL WEATHERING DUE TO RAPID FUNGAL GROWTH,
MT. MAGAZINE, ARKANSAS.**
Victor Vere, Geology Dept., ATU, Russellville, AR.

**NEW MADRID - A GLANCE BACKWARD, A GLIMPSE
FORWARD.**
Daniel Cicirello and David L. Vosburg, Office of Emerg. Serv.,
Conway, AR and ASU, State University, AR.

**BOTANICAL EVIDENCE OF HOLOCENE MOVEMENT OF ROCK
STREAMS IN ARKANSAS.**
S. Marie Lookingbill, Central Jr. H.S., Springdale, AR; Malcolm
K. Cleaveland and Margaret J. Guccione, Depts. of Geography
and Geology, UAF, Fayetteville, AR.

PROJECT GO.
John D. McFarland III, Charles G. Stone, J. Michael Howard,
and William L. Prior, Ark. Geological Comm., Little Rock; David
Vosburg, ASU, State University, AR.

PHYSICS

Sessions Chairperson: Dr. Joe Guenter (UAM)

**APPLICATION OF GELIGAM SOFTWARE TO THE ANALYSIS
OF X-RAY SPECTRA.**
R. S. Sanders, H. L. Pray, and H. B. Eldridge, Physics Dept.,
UCA, Conway, AR.

X-RAY DENSITOMETER.
Paul D. Williams and Hudson B. Eldridge, Physics Dept., UCA,
Conway, AR.

BGO FULL ENERGY PEAK EFFICIENCY.
Michael A. Halter and Hudson B. Eldridge, Physics Dept., UCA,
Conway, AR.

**ANALYSIS OF STOCHASTIC VARIATIONS FROM PARTIAL
DIFFERENTIAL APPROXIMATES: ISING MODELS AND TEST
SERIES.**
M. J. George and D. Croom, ASU, State University, AR; J. J.
Rehr, Cornell Univ., Ithaca, NY.

**ELECTRICAL BREAKDOWN WAVES: EXACT NUMERICAL
SOLUTIONS FOR THE QUASI-NEUTRAL REGION.**
Mostafa Hemmati and Richard G. Fowler, Dept. Physical & Life
Sciences, ATU, Russellville, AR and Dept. Physics & Astronomy,
Univ. of Oklahoma, Norman.

AQUATIC AND ENVIRONMENTAL II

Session Chairperson: Dr. George L. Harp (ASU)

**DIMLIN FOR CONTROL OF *Lernaea* IN GOLDEN SHINER
PONDS.**
Gary Burtle and John Morrison, UAPB, Pine Bluff, AR.

**THE EFFECT OF MUNICIPAL SURFACE RUNOFF ON THE
DIVERSITY OF AQUATIC MACROINVERTEBRATES OF SUGAR
CREEK IN CLAY COUNTY, ARKANSAS.**
Kay Cargill and George L. Harp, Biological Sciences, ASU, State
University, AR.

**DISTRIBUTION AND STATUS OF RARE AND ENDANGERED
NAIADES (MOLLUSCA: MARGARITIFERIDAE, UNIONIDAE) IN
ARKANSAS.**
John L. Harris, Env. Division, Ark. Hwy. & Transp. Dept.,
Little Rock, AR.

**FISHERIES MANAGEMENT IMPLICATIONS ASSOCIATED
WITH RELATIVE ABUNDANCES OF LITTORAL AND
LIMNETIC ZOOPLANKTON IN LAKE FAYETTEVILLE,
ARKANSAS.**
Donald C. Jackson, Wildl. & Fish. Dept. Mississippi State Univer-
sity and Eugene H. Schmitz, Zoology Dept. UAF, Fayetteville, AR.

**RECENT COLLECTIONS OF FISHES FROM THE SPRING RIVER
DRAINAGE IN NORTHEAST ARKANSAS.**
Steve C. Baker and Michael L. Armstrong, Ark. Game & Fish
Comm., Little Rock, AR.

**RESIDUAL PESTICIDES IN FISHES FROM LAKE CHICOT,
ARKANSAS.**
C. M. Cooper and S. S. Knight, USDA-ARS Sed. Lab., Oxford,
MS.

**PRODUCTION OF HYBRID SUNFISH (*Lepomis* spp.) IN CAGES
BY ATTRACTING AERIAL INSECTS.**
Ron Moore, Ark. Game & Fish Comm., Little Rock, AR and Scott
H. Newton, Petersburg, VA.

**FEEDING ECOLOGY OF THE FANTAIL DARTER, *Etheostoma
flabellare* RAFINESQUE, FROM AN ARKANSAS OZARK
STREAM.**
Stephen R. Moulton, Cove Corp., Lusby, MD and George L. Harp,
Biol. Sci., ASU, State University, AR.

LOW ALKALINITY STREAMS OF ARKANSAS.
James C. Petersen, USGS, Little Rock, AR.

Arkansas Academy of Science

CURRENT WATER QUALITY MONITORING STRATEGIES OF THE ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY.

Alan D. Price, ADPCE, Little Rock, AR.

ANALYSIS OF SURFACE WATER FOR ORGANOCHEMICAL PESTICIDES AND PCBs AT 121 SAMPLE SITES OF THE NORTHEAST ARKANSAS ENVIRONMENTAL QUALITY MONITORING GRID.

Ahmad Shateri-Mirabadi, William V. Wyatt, and Paul D. Gwinup, Chem. Dept., ASU, State University, AR.

CONTROL OF OFF-FLAVOR IN CHANNEL CATFISH THROUGH POLYCULTURE WITH BLUE TILAPIA.

Les Torrains and Fran Lowell, Agriculture Dept., UAPB, Pine Bluff, AR.

CHEMISTRY II

Session Chairperson: Dr. Ralph Wolf

CATALYTIC HYDROGENATION OF QUINOLINE USING POLYMER ANCHORED Pd(II) ANTHRANILIC ACID COMPLEXES.

Laurence J. Boucher, Thomas Pope, and Robert Metz, Depts. of Chemistry, ASU, State University, AR and Western Kentucky University, Bowling Green, KY.

MASS SPECTROMETRIC STUDY OF THE EQUILIBRIUM VAPORS FROM METAL SULFITE-GRAPHITE MIXTURES AT HIGH TEMPERATURES.

J. E. Bennett, Colin Hester, and Thomas Black, Chemistry Dept., ASU, State University, AR.

EFFECT OF BOND STRETCH EXCITATION ON THE ATTENUATION OF BENDING FORCES.

Devinder S. Bhatia and Ralph J. Wolf, Chemistry Dept., UALR, Little Rock, AR.

THE SYNTHESIS OF OXAZOLIDINES FROM EPHEDRINE AND PSEUDOEPHEDRINE.

Michael D. Massey and Richard B. Walker, Nat. Sci., UAPB, Pine Bluff, AR.

A NOVEL PATHWAY FOR THE METABOLIC ACTIVATION OF QUINOLINE.

David R. Cross, Robert H. Heflich, and Denzil L. Tullis, Chemistry Dept., UALR, Little Rock, AR.

THERMAL ANALYSIS OF WHEY-BASED THERMOSETTING RESINS USING DIFFERENTIAL SCANNING CALORIMETRY.

Tito Viswanathan and Hal Palmer, Chemistry Dept., UALR, Little Rock, AR.

RICE HULL REINFORCED PARTICLE BUILDING BOARDS USING ADHESIVES DERIVED FROM WHEY.

Tito Viswanathan and Mona Smith, Chemistry Dept., UALR, Little Rock, AR.

COMPARISONS OF METHODS TO MEASURE AFLATOXINS B₁, B₂, G₁, G₂, UTILIZING HPLC WITH ELECTROCHEMICAL DETECTION.

Tina R. Allen, LaWanda D. Jones, and Benjamin T. Duhart, UAPB, Pine Bluff, AR.

SYNTHESIS OF OXIDIZED DERIVATIVES OF NITRO-POLYCYCLIC AROMATIC HYDROCARBONS.

D. T. C. Yang, P. P. Fu, Y. C. Wu, C. C. Lai, and J. S. Lai, Depts. of Chemistry, UALR, Little Rock, AR and Providence College, Taichung, Taiwan, ROC.

SYNTHESIS OF 5-METHYLBENZ(A)ANTHRACENE AND ITS OXIDIZED DERIVATIVES.

Jia Che and D. T. C. Yang, Chemistry Dept., UALR, Little Rock, AR.

HIGH TEMPERATURE CHEMISTRY OF METAL CARBONATES AND CARBONATE-GRAPHITE MIXTURES, THE SODIUM CARBONATE-GRAPHITE SYSTEM.

Maria Hammond and J. E. Bennett, Chemistry Dept., ASU, State University, AR.

CATALYTIC PRODUCTION OF HIGH-GRADE FUEL (GASOLINE) FROM *Juniper virginiana* (EASTERN RED CEDAR) ETHER EXTRACTS.

Kathy Plaster, Dewey H. Sifford, and Bob D. Johnson, Chemistry Dept., ASU, State University, AR.

THE STRUCTURAL CHARACTERIZATION OF COPPER(II) HALIDE COMPLEXES OF PYRAZINE, QUINOXALINE AND PHENAZINE.

Mark Draganjac, ASU, State University, AR and Jeffery Armstrong, Abdas-Sami Malik and Elizabeth M. Holt, Chemistry Dept., Okla. St. Univ., Stillwater.

THE PREPARATION OF A SERIES OF BENZAMIDO PYRIDINES OF POTENTIAL AGRICULTURAL INTEREST.

Frank L. Setliff, Steve H. Rankin, and Hal E. Palmer, Chemistry Dept., UALR, Little Rock, AR.

MICROBIOLOGY AND CELL BIOLOGY

Session Chairperson: Dr. Dale Ferguson (UALR)

PHOTOREACTIVATION OF LETHAL DAMAGE INDUCED IN HAMSTER X *Xenopus* HYBRID CELLS AND THEIR PARENTAL CELLS BY U-V LIGHT.

David Bohlender, Stuart Williams, Emir Cruz, and Gaston Griggs, Biology Dept., JBU, Siloam Springs, AR.

SURFACE WATER QUALITY OF THREE SOUTHWEST ARKANSAS RESERVOIRS ACCORDING TO BACTERIAL INDICATORS.

J. D. Bragg, Biology Dept., HSU, Arkadelphia, AR.

THE ULTRASTRUCTURE OF RUBBER FORMATION IN GUAYULE.

R. A. Goss, Biology Dept., UALR, Little Rock, AR; M. A. Foster and C. R. Benedict, Dept. of Biochemistry & Biophysics, Texas A&M Univ., College Station.

PROTECTIVE IMMUNITY TO *Trichomonas vaginalis* IN THE MOUSE VIRULENCE MODEL.

Terry L. Hostetler (1), Timothy J. O'Brien (2), Roger G. Rank (1) and James J. Daly (1); (1) Dept. of Microbiology/Immunology and (2) Dept. of Obstetrics/Gynecology, UAMS, Little Rock, AR.

THE A85 *Xenopus* CELL LINE: A REMARKABLY ADAPTABLE TISSUE CULTURE LINE.

Haris Macris, Tecleab Gebre and Gaston Griggs, Biology Dept., JBU, Siloam Springs, AR.

THE APPLICATION OF ENERGY DISPERSIVE SPECTROMETRY FOR ELEMENTAL MICROANALYSIS OF LICHENS.

Deborah J. Prince, Lisa A. Nichol, and William R. Bowen, Biology Dept., UALR, Little Rock, AR.

INHIBITION OF IMMUNE RESPONSES BY METRONIDAZOLE: FACT OR ARTIFACT?

Tonya M. Preston (1), Terry Hostetler (2), Dale V. Ferguson (1) and James J. Daly (2); (1) Biology Dept., UALR and (2) Dept. of Microbiology/Immunology, UAMS, Little Rock, AR.

Program

FUNGAL METABOLISM AND DETOXIFICATION OF POLYCYCLIC AROMATIC HYDROCARBONS USING THE BIOTRANSFORMATION OF 9-METHYL ANTHRACENE BY THE FUNGUS *Cunninghamella elegans*.

LaTonya A. Williams, Dept. of Natural Sciences, UAPB, Pine Bluff; Carl E. Cerniglia, Gail L. White, and Robert H. Heflich, Dept. of Microbiology, NCTR, Jefferson, AR.

LABORATORY GROWTH OF THE FUNGAL ENDOPHYTE *Acremonium coenophialum* SAMUELS.

Sandra E. Jacobi and Thomas J. Lynch, Biology Dept., UALR, Little Rock, AR.

ISOLATION OF A NUCLEAR MEMBRANE BOUND CYCLIC GMP PHOSPHODIESTERASE FROM THE PLASMODIUM OF THE MYXOMYCETE *Physarum flavicomum*.

C. Kay Holtman and Thomas J. Lynch, Biology Dept., UALR, Little Rock, AR.

FURTHER STUDIES ON A NUCLEAR CYCLIC AMP PHOSPHODIESTERASE FROM *Physarum flavicomum*.

Judith A. Bean, Biology Dept., UCA, Conway and Thomas J. Lynch, Biology Dept., UALR, Little Rock, AR.

SCIENCE EDUCATION

Session Chairperson: Dr. Leo H. Bowman (ATU)

A VISITING FACULTY PROGRAM AT UAMS.

C. Liarakos, G. Bannon and E. Peck, Biochemistry/Molecular Biology, UAMS, Little Rock, AR.

WOODY PLANTS OF SOUTH ARKANSAS: COMPUTER AIDED INSTRUCTION IN DENDROLOGY. J. F. Dickson and J. L. Yeiser, Forestry Dept., UAM, Monticello, AR.

POLARIZATION OF FLUORESCENCE: A LIFE SCIENCES PHYSICAL CHEMISTRY EXPERIMENT.

R. C. Steinmeier, Chemistry Dept., UALR, Little Rock, AR.

VISCOSITY MEASUREMENTS ON NATIVE AND DENATURED PROTEINS: A LIFE SCIENCES PHYSICAL CHEMISTRY EXPERIMENT.

R. C. Steinmeier, Chemistry Dept., UALR, Little Rock, AR.

COMMON SCIENCE: A NEWSPAPER COLUMN FOR SMALL TOWNS.

Joe Jeffers, Chemistry Dept., OBU, Arkadelphia, AR.

1987 (YEAR OF NEW STANDARDS): WHAT GOALS FOR "SCIENCE"?

Robbin C. Anderson, Chemistry Dept., UAF, Fayetteville, AR.

ELEMENTARY SCIENCE EDUCATION IMPROVEMENT WORKSHOPS AT THE UNIVERSITY OF ARKANSAS AT PINE BLUFF.

Sheldon Fitzpatrick, Dept. of Natural Sciences, UAPB, Pine Bluff, AR.

ASSESSMENT OF ENTERING FRESHMEN CHEMISTRY STUDENTS.

Marian S. Douglas and Fred H. Watson, Jr., Chemistry Dept., UALR, Little Rock, AR.

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Ralph J. Eichenberger, SAU, Magnolia, AR.

SCIENCE FOR ELEMENTARY TEACHERS — SOME INNOVATIVE IDEAS.

David L. Vosburg, ASU, State University, AR.

COMPUTER ASSISTED INSTRUCTION IN INTRODUCTORY PHYSICAL SCIENCE.

Mattie M. Glover and William M. Willingham, Dept. of Natural Science, UAPB, Pine Bluff, AR.

THE RESOURCE CENTER IN THE NATURAL SCIENCES AT UAPB: A VALUABLE ASSET.

Gloria Holden, Syed M. Aijaz, and William M. Willingham, Dept. of Natural Sciences, UAPB, Pine Bluff, AR.

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Session Chairperson: Mr. David A. Saugey (U.S. Forest Service)

MELANISTIC YELLOW RAIL (*Coturnicops novaboracensis*) FROM ARKANSAS.

Douglas A. James, Zoology Dept., UAF, Fayetteville, AR.

REPOPULATION BY THE PRAIRIE VOLE (*Microtus ochrogaster*) IN AN ACCIDENTALLY BURNED FIELD IN CENTRAL ARKANSAS.

Belinda Raybon, Gary A. Heidt, and Mark Kirchner, Biology Dept., UALR, Little Rock, AR.

ULTRASTRUCTURAL SURFACE TOPOGRAPHY OF THE TONGUE IN THE NINE-BANDED ARMADILLO.

Robert R. Jespersen, William R. Bowen, and Gary A. Heidt, Biology Dept., UALR, Little Rock, AR.

LEAD SHOT INGESTION BY BALD EAGLES WINTERING ON HOLLA BEND NATIONAL WILDLIFE REFUGE.

Thomas A. Nelson and Carla Mitchell, ATU, Russellville, AR.

REPORTED ANIMAL RABIES IN ARKANSAS: 1982-96.

Susan R. Bradford and Gary A. Heidt, Biology Dept., UALR, Little Rock, AR.

REPORTED BAT RABIES IN ARKANSAS.

Susan R. Bradford, Gary A. Heidt, Biology Dept., UALR, Little Rock and David A. Saugey, U.S. Forest Service, Mt. Ida, AR.

THE *Hyla versicolor-chrysosecelis* COMPLEX OF TREE FROGS IN ARKANSAS: HISTOLOGICAL AND ULTRASTRUCTURAL EVIDENCE.

Phyllis Chaffin and Stanley E. Trauth, Dept. of Biological Sciences, ASU, State University, AR.

SPECIES COMPOSITION AND DIVERSITY OF WATER SNAKE (*Nerodia* spp.) POPULATIONS IN NORTHEAST ARKANSAS.

Earl Hanebrink and William Byrd, Dept. of Biological Sciences, ASU, State University, AR.

THE BATS OF HOT SPRINGS NATIONAL PARK.

David A. Saugey and Darrel R. Heath, U.S. Forest Service, Mt. Ida and Biology Dept., UALR, Little Rock, AR.

OBSERVATIONS ON THE NATURAL HISTORY OF THE CADDO MOUNTAIN SALAMANDER, *Plethodon caddoensis* (POPE & POPE).

Darrel R. Heath and David A. Saugey, Biology Dept., UALR, Little Rock and U.S. Forest Service, Mt. Ida, AR.

SPECIATION AND DISTRIBUTION OF FREE-LIVING CHIGGERS (ACARINA: TROMIBULIDAE) IN ARKANSAS.

M. C. Wicht, Jr. and Anne C. Rowland, Arkansas College, Batesville, AR.

A CARTOGRAPHIC TREND ANALYSIS OF FURBEARER HARVEST DISTRIBUTIONS IN ARKANSAS.

Renn Tumblison and Mark Trail, Zoology Dept., Okla. State Univ.,

Arkansas Academy of Science

Stillwater and V. Rick McDaniel, Dept. of Biological Sciences, ASU, State University, AR.

USE OF BOBCAT CANINES WITH OPEN ROOT FORAMINA TO DISTINGUISH AGE CLASSES AND ESTIMATE PARTURITION SEASON.

Renn Tumblison, Zoology Dept., Okla. State Univ., Stillwater and V. Rick McDaniel, Dept. of Biological Sciences, ASU, State University, AR.

MORE EVIDENCE OF A COMMENSAL RELATIONSHIP BETWEEN THE RIVER OTTER AND THE BEAVER.

Paul J. Polechla, Zoology Dept., UAF, Fayetteville, AR.

FUR HARVEST RECORDS FROM ARKANSAS POST, LOUISIANA TERRITORY, 1805-1810.

Paul J. Polechla, Zoology Dept., UAF, Fayetteville, AR.