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PROGRAM

Arkansas Academy of Science

Sixty-seventh Annual Meeting
UNIVERSITY OF CENTRAL ARKANSAS
Conway, Arkansas

Meeting concurrently with sessions of:

The Collegiate Academy of Science

Friday, 1 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 -- Papers [Concurrent Sessions]:

Chemistry I
Aquatic Environment I
Geology
Biomedical Sciences
Vertebrate Zoology
Geography
Physics-Math

SENIOR AND COLLEGIATE ACADEMIES -- Banquet

POST BANQUET SPEAKER -- Mr. Randall Sabine, EPA, Dallas

Saturday, 2 April

SENIOR AND COLLEGIATE ACADEMIES -- Registration

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

Botany
Chemistry II
Aquatic Environment II
Invertebrate Zoology
Science Education

ARKANSAS SCIENCE TALENT SEARCH

SENIOR ACADEMY -- Second General Business Meeting

SECTION PROGRAMS

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

CHEMISTRY I

Section Chairman: Robert Steinmeyer

EFFECT OF pH, SALT AND COUPLING STATE ON THE INTERACTION OF FERREDOXIN WITH THE CHLOROPLAST MEMBRANE.

Kim Colvert and Danny J. Davis, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

CHEMICAL MODIFICATION OF SPINACH FERREDOXIN WITH DIETHYLPYROCARBONATE (DEPC).

Barbara J. Vieira and Danny J. Davis, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

FRIEDEL-CRAFTS REACTIONS OF OXALYL CHLORIDE WITH SEVERAL POLYCYCLIC AROMATIC HYDROCARBONS.

Dominic T. C. Yang and W. M. Trie, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

ELECTROCHEMICAL STUDIES OF SOME COPPER COMPLEXES HAVING SUPEROXIDE DISMUTATIVE ACTIVITY IN BIOLOGICAL SYSTEMS.

Lonnie E. Harrison and Ali U. Shaikh, Department of Chemistry, University of Arkansas at Little Rock, AR 72204.

A THROMBIN-LIKE ENZYME FROM TIMBER RATTLESNAKE VENOM.

Collis R. Geren and Yu-Yan Shu, 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.

THE SYSTEMIC E TOXIN OF TIMBER RATTLESNAKE VENOM.

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

SYNTHESIS AND PURIFICATION OF ALLYL-ENKEPHALINS AS MORPHINE ANTAGONISTS.

A. N. Voldeng and S. A. Essawy, College of Pharmacy, University of Arkansas for Medical Sciences, Little Rock, AR 72204.

ANALYSIS OF PESTICIDES BY LOW TEMPERATURE PHOSPHORIMETRY.

Norman L. Trautwein, Department of Chemistry, Arkansas State University, State University, AR 72467, and John C. Guyon, Department of Chemistry, Southern Illinois University, Carbondale, IL 62901.

NOBLE SYNTHESIS OF 6-HYDROXYBENZO(a)PYRENE AND 7-HYDROXYBENZ(a)ANTHRACENE.

Dominic T. C. Yang, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR, and Leo Huang, Natural Science Department, Truman College, Chicago, IL.

NEUTRAL SUGARS FROM VARIOUS VENOMS.

Ahmed El-Sherif, Paul Gwinup, Bob Johnson, and Dewey H. Sifford, Departments of Biology and Chemistry, Arkansas State University, State University, AR 72467.

SYNTHESIS OF TETRATHIAFULVALENE (TTF); CONDUCTIVITY STUDIES OF SELECTED CHARGE-TRANSFER COMPLEXES.

C. M. Means, W. S. Taylor, T. E. Goodwin, and M. W. Teague, Department of Chemistry, Hendrix College, Conway, AR 72032.

SYNTHESIS AND RESISTIVITY EVALUATIONS OF CHARGE-TRANSFER COMPLEXES OF 7,7,8,8-TETRACYANOQUINODIMETHAN.

M. W. Teague, W. S. Taylor, C. M. Means, Department of Chemistry, Hendrix College, Conway, AR 72032.

A SYNTHETIC ROUTE TO 3,7-DIDEAZAGUANINE.

Michael W. Rapp and Michael D. Wood, University of Central Arkansas, Conway, AR.

CLONING OF ADENOVIRUS TYPED DNA FRAGMENTS.

R. K. Padmanabhan, Department of Biochemistry, University of Kansas Medical Center, Kansas City, KS, and D. M. Coussens, Department of Chemistry, Hendrix College, Conway, AR 72032.

METHEMOGLOBIN AND METMYOGLOBIN REDUCTION BY POTASSIUM FERROCYANIDE IN THE PRESENCE OF CARBON MONOXIDE.

A. Mansouri, VA Medical Center and University of Arkansas for Medical Sciences, Little Rock, AR 72206.

AQUATIC ENVIRONMENT I

Section Chairman: John K. Beadles

A PRELIMINARY REPORT ON THE ZYGOPTERA OF ARKANSAS.

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

ZOOPLANKTON COMMUNITY STRUCTURE IN DARDANELLE RESERVOIR, 1975-1982.

John D. Rickett and Robert L. Watson, Biology Dept., University of Arkansas at Little Rock, Little Rock, AR 72204.

PHYTOPLANKTON COMMUNITY STRUCTURE IN DARDANELLE RESERVOIR, 1975-1982.

John D. Rickett and Robert L. Watson, Biology Dept., University of Arkansas at Little Rock, Little Rock, AR 72204.

EFFECTS OF TREATED WASTEWATER FROM THE CITY OF FAYETTEVILLE, ARKANSAS ON WATER QUALITY OF THE WHITE RIVER.

Arthur V. Brown, Larry D. Willis, and Peter P. Brussock, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

AEROBIC DIGESTION OF SWINE WASTELAGE WITH RECOVERY OF SOLIDS FOR CATTLE FEED.

B. D. Lowe and G. H. Emert, Biomass Research Center, University of Arkansas, Fayetteville, AR 72701.

THE STUDY OF D-XYLOSE FERMENTATION BY *Pachysoletan tannophilus*.

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

PRODUCTION OF PROTOPLASTS FROM *Trichoderma STRAINS*.

S. J. Gracheck and G. H. Emert, Biomass Research Center, University of Arkansas, Fayetteville, AR 72701.

AQUATIC MACROINVERTEBRATES OF THE HIATT PRAIRIE REGION: FRANKLIN COUNTY, ARKANSAS.

Julie A. Huggins and George L. Harp, Arkansas State University, State University, AR 72467.

Program

ZOOPLANKTON POPULATION STRUCTURE IN THREE RESERVOIRS NEAR THE OUACHITA MOUNTAIN-GULF COASTAL PLAIN INTERFACE.

Stephen B. Smith and Thomas E. Moen, U. S. Fish and Wildlife Service, Multi-Outlet Reservoir Studies, Box 705 OBU, Arkadelphia, AR 71923.

NEW AND UNCOMMON ANISOPTERA RECORDS FOR ARKANSAS.

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

AN ECOLOGICAL ASSESSMENT OF FAULKNER LAKE, PULASKI COUNTY, ARKANSAS.

Loretta Gates and Robert Wright, Dept. of Biology, University of Central Arkansas, Conway, AR 72032.

GEOLOGY

Section Chairman: Ken Steele

ORIGIN OF THE EARTH'S MAGNETIC FIELD.

Laymont V. Woodruff, Hendrix College, Conway, AR 72032-3080.

LIME MUD MOUNDS IN THE ST. JOE LIMESTONE.

L. A. Gandl, #3 Broadview Dr., Little Rock, AR 72207.

SHORT CREEK OOLITE DEPOSITION, WAR EAGLE QUARRY, MADISON COUNTY, ARKANSAS.

Barbara A. Lisle, Fayetteville, AR 72701.

EARLY PENNSYLVANIAN CONODONT-AMMONOID BIOSTRATIGRAPHY AND THE WITTS SPRINGS PROBLEM.

Mary Ann Eccher, Daniel J. Murdaugh, and Wildon D. Hawkins, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

LIGNITES OF THE ARKANSAS GULF COASTAL PLAIN.

William L. Prior, Arkansas Geological Commission, 3815 West Roosevelt Road, Little Rock, AR 72204.

DEPOSITIONAL ENVIRONMENT OF THE CANEY POINT MEMBER, WHITE BLUFF FORMATION (EOCENE) OF SOUTHEAST ARKANSAS.

James E. Edson, Department of Natural Sciences, University of Arkansas, Monticello, AR 71655.

PETROLOGY OF LOWER ATOKA SANDSTONE UNITS AT THE NORTHERN MARGIN OF THE ARKOMA BASIN OF NORTHWEST ARKANSAS.

Doy L. Zachry, Dean A. Ramsey, and Gary D. Harris, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

POSSIBLE CAUSES OF CHANNEL PATTERN CHANGES OF THE RED RIVER, ARKANSAS.

Margaret J. Guccione, Geology Department, University of Arkansas, Fayetteville, AR 72701.

A REPORT ON THE CONTINUING STUDY OF THE ROCK STREAMS AND ADJACENT CLIFFS ON MT. MAGAZINE, ARKANSAS.

Victor Vere, Department of Physical Science - Geology, Arkansas Tech University, Russellville, AR 72801.

TEXTURES OF CHERT AND NOVACULITE: A PRELIMINARY REPORT.

Walter D. Keller, University of Missouri-Columbia, Columbia, MO 65211; Charles G. Stone, Arkansas Geological Commission, Little Rock, AR 72204; and Alice L. Hoersch, LaSalle College, Philadelphia, PA 19141.

A COMPARISON OF CARBONATITES AT MAGNET COVE AND POTASH SULFUR SPRINGS, ARKANSAS.

John R. Bales, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

CREATIONISM, THE ARKANSAS STORY.

P. L. Kehler, Department of Earth Science, UALR, Little Rock, AR 72204.

ARKANSAS' CONTRIBUTION TO THE D N A G FIELD-GUIDE PROJECT.

John David McFarland III, Arkansas Geological Commission, 3815 W. Roosevelt Rd., Little Rock, AR 72204.

A PALEOCURRENT AND PETROLOGICAL ANALYSIS OF THE MIDDLE BLOYD SANDSTONE (PENNSYLVANIAN, MORROWAN).

Richard S. Luker, P.O. Box 337, Dardanelle, AR 72834.

BIOMEDICAL SCIENCES

Chairman: James Daly

ALTERATIONS IN IMMUNE FUNCTION IN MICE DOSED WITH DMSO.

Dale Ferguson, Don Deems, and James Hughes, University of Arkansas at Little Rock, Little Rock, AR 72204; D. Roberts, National Center for Toxicological Research, Jefferson, AR 72079.

EFFECT OF PHENOTYPE ON IMMUNOCOMPETENCE IN *A_vy/a* MICE.

W. Campbell and D. Roberts, National Center for Toxicological Research, Jefferson, AR 72079.

ROLE OF NON-RT1 LINKED GENES IN IMMUNE RESPONSES OF RATS TO LEUKEMIA VIRUS.

W. Jean Matchett, Deborah A. Watson, and Joe M. Jones, Department of Pathology, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

CHANGES IN IMMUNE FUNCTION IN THE RAT DUE TO FEEDING OF A PURIFIED DIET.

V. Kishore¹, D. W. Roberts², J. B. Barnett³, and J. R. J. Sorenson^{1, 4}, ¹Department of Biopharmaceutical Sciences,; ²Department of Microbiology and Immunology, ³Department of Pharmacology, University of Arkansas for Medical Sciences, Little Rock, AR., ⁴Immunotoxicology Branch, National Center for Toxicological Research, Jefferson, AR 72079.

EFFECT OF ANTITHYMOCYTE SERUM ON THE COURSE OF CHLAMYDIAL GENITAL INFECTION IN FEMALE GUINEA PIGS.

R. G. Rank and A. L. Barron, Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

POTENTIATION OF GROUP B STREPTOCOCCAL PNEUMONIA IN MICE BY INFLUENZA TYPE A VIRUS.

J. H. Menna and W. T. Jones, Department of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

Arkansas Academy of Science

COMPARISON OF cAMP PHOSPHODIESTERASE FROM THE HAPLOID AND DIPLOID STAGES OF THE MYXOMYCETE *Physarum flavicomum*.

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

THE EFFECT OF ORIENTATION AND LOCATION ON RESPONSE OF ISOLATED RAT AORTA.

Kyle Hardy and H. Frederick Dalske, Department of Biology, University of Central Arkansas, Conway, AR 72032.

CHANGES IN GLUCOSE TOLERANCE AND SEIZURE THRESHOLD IN THE RAT DUE TO FEEDING OF A PURIFIED DIET.

V. Kishore¹, Stella Greenlee¹, R. G. Dotson¹, and J. R. J. Sorenson², ¹Department of Biopharmaceutical Sciences, ²Department of Pharmacology, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

THE EFFECT OF AN AEROBIC EXERCISE REGIMEN ON HIGH DENSITY LIPOPROTEIN LEVELS.

Leland F. Morgans and Dennis A. Baeyens, University of Arkansas at Little Rock, Little Rock, AR 72204, and Manford D. Morris, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

COMPUTER PATTERN RECOGNITION OF ACTION POTENTIALS.

Ronald S. Rimmel, Dept. of Physiology and Biophysics, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

EFFECT OF TRYPSIN INHIBITOR ON PANCREAS AFTER 85% PANCREATECTOMY IN RATS.

N. Baba, T. Suzuki, T. Tohe, Arkansas Medical Science, Department of Physiology, Little Rock, AR, and Kyoto University, Faculty of Medicine, 1st Department of Surgery, Japan.

PROLONGED RESPONSE OF IMMUNOREACTIVE GASTRIN, CHOLECYSTOKININ (CCK) AND PANCREATIC POLYPEPTIDE (PP) IN DOGS AFTER FOOD INGESTION.

P. Chowdhury, K. Inoue, D. McKay, E. Harper, L. Neldon and P. L. Rayford, University of Arkansas for Medical Sciences, Little Rock, AR 72205.

THE DEVELOPMENT OF TISSUE CULTURE SYSTEMS FOR THE EVALUATION OF CANCER CHEMOTHERAPEUTIC AGENTS.

Clifton Orr, J. E. Stone, and M. L. Polk, Department of Pharmacology, Coll. Med. University of Arkansas for Medical Sciences, Little Rock, AR 72205.

TRAZODONE IN THE MANAGEMENT OF OBSTRUCTIVE SLEEP APNEA: A CASE REPORT.

E. A. Lucas, V. Wooten, F. Wilson, University of Arkansas Medical School, Little Rock, AR.

REPRODUCTIVE HEALTH MONITORING: REPORT OF AN ARKANSAS PILOT STUDY.

M. A. Brewster, C. J. R. Hogue, H. M. Arrighi, and L. Bilheimer, Department of Pathology and Division of Biometry, University of Arkansas Medical Sciences, Little Rock, AR, and Centers for Disease Control, Atlanta, GA, Arkansas Department of Health, Little Rock, AR.

VERTEBRATE ZOOLOGY

Chairman: Henry Robison

RESULTS OF A CRANIO-MORPHOMETRIC EXAMINATION OF THE GENUS *Peromyscus* IN ARKANSAS.

V. Rick McDaniel, Renn Tumilson, and Phil McLarty, Dept. of Biological Science, Arkansas State University, State University, AR 72467.

Dracunculus IN ARKANSAS FURBEARERS.

Renn Tumilson, Ron Smith, Jana Hudspeth, and Anthony W. King, Dept. of Biological Science, Arkansas State University, State University, AR 72467.

SUCCESS OF NATIVE-TRAPPED COMPARED TO CAPTIVITY-RAISED BIRDS IN RESTORING WILD TURKEY POPULATIONS TO NORTHWESTERN ARKANSAS.

Douglas James, Department of Zoology, University of Arkansas, Fayetteville, AR 72701, L. Glen Fooks, Division of Natural Sciences, Southern Baptist College, Walnut Ridge, AR 72476, and John R. Preston, Educational Services, Oklahoma City Zoo, Oklahoma City, OK 73111.

DENTAL PATHOLOGY IN SOME ARKANSAS FURBEARERS.

Renn Tumilson, J. D. Wilhide, and V. Rick McDaniel, Department of Biological Science, Arkansas State University, State University, AR 72467.

AGE STRUCTURE OF ARKANSAS RACCOON (*Procyon lotor*) POPULATIONS.

Jana Hudspeth and V. Rick McDaniel, Department of Biological Science, Arkansas State University, State University, AR 72467.

STATUS OF THE BAT *Myotis keenii* IN THE ARKANSAS OZARKS.

Michael J. Harvey and V. Rick McDaniel, Ecological Research Center, Dept. of Biology, Memphis State University, Memphis, TN 38152, and Dept. of Biological Sciences, Arkansas State University, State University, AR 72467.

RANGE EXTENSION FOR THE SEMINOLE BAT (*Lasurus seminolus*) AND ADDITIONAL COUNTY RECORDS FOR FOUR SPECIES OF VESPERTILIONID BATS IN ARKANSAS.

Darrell R. Heath¹, David Saugy², Gary Heidt¹, and V. R. McDaniel¹, ¹Dept. of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204, ²U. S. Forest Service, Hot Springs, AR 71901, ³Dept. of Biology, Arkansas State University, State University, AR 72467.

A DESCRIPTION OF THE BOBCAT BACULUM, WITH NOTES ON ITS TAXONOMIC IMPORTANCE.

Renn Tumilson and V. Rick McDaniel, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

FIRST REPORT OF BRAZILIAN FREE-TAILED BAT (*Tadarida brasiliensis*) MATERNITY COLONIES IN ARKANSAS.

David Saugy, U. S. Forest Service, Hot Springs, AR 71901, and Darrell Heath, Clark Efav, and Gary Heidt, Dept. of Biology, University of Arkansas at Little Rock, Little Rock, AR 72204.

OBSERVATIONS ON A POPULATION OF SLIMY SALAMANDERS (*Plethodon glutinosus*) IN THE OUACHITA MOUNTAINS OF ARKANSAS.

David Saugy, U. S. Forest Service, Hot Springs, AR 71901, and Teresa Beggs, Division of Nursing, Garland County Community College, Hot Springs, AR 71901.

Program

GEOGRAPHY

Chairman: Carl Jameson

DEFORESTATION IN THE WESTERN HIGHLANDS OF GUATEMALA.

Kevin M. Turcotte, University of Arkansas, Fayetteville, AR 72701.

LICENSED FEMALE PHYSICIANS IN ARKANSAS: A LOCATIONAL ANALYSIS.

Mary B. Aue, Rt. 1, Box 62, Beebe, AR 72012.

SPATIAL VARIATIONS OF TROUT FISHING VISITATION IN ARKANSAS AT SELECTED PRIVATELY OWNED TROUT DOCKS.

Ricky H. Bradford, 1004 N. Holly, Beebe, AR 72012.

Neviusia alabamensis: A PHYTOGEOGRAPHIC ANALYSIS.

Alice A. Long, #6 University Apts., Conway, AR 72032.

ARKANSAN'S PERCEPTIONS OF ARID REGIONS IN THE UNITED STATES.

Judie Brumett, Mary Aue, Ricky Bradford, James Hickman, John Reagan, Alan Singleton, Carl Jameson.

DEER POPULATION IN RELATIONSHIP WITH FORESTED ACRES.

Mike Simmons, UCA P.O. Box 1907, Conway, AR 72032.

PLACE UTILITY EVALUATIONS FOR SHELBY COUNTY (MEMPHIS), TN.

John T. Matson, Department of Geography, Memphis State University, Memphis, TN 38152.

SNOWFALL IN ARKANSAS: 1930-1980.

Raph J. Merletti, Department of Geography, University of Arkansas, Fayetteville, AR 72701.

PHYSICS - MATH

Chairman: Joe Gunter

FLAT PLATE SOLAR THERMAL COLLECTORS: A COMPARISON OF EFFICIENCIES OF VARIOUS COLLECTOR CONFIGURATIONS.

Dr. Rudolph J. Eichenberger, Physics-Engineering Dept., Southern Arkansas University, Magnolia, AR 71753.

NUMERICAL TECHNIQUES INVOLVED IN THE ANALYSIS OF FABRIC FILTRATION DEVICES.

Robert Mark Gilliom, Star Route, Wooster, AR 72181.

KINEMATICS OF JACOBI'S DECOMPOSITION THEOREM.

Katsuya Yamada, Physics Department, University of Central Arkansas, Conway, AR 72032.

POLAR FUNCTION PLOTTING ON APPLE II MICRO-COMPUTER.

Farrell D. Pierson, P.O. Box 2152-UAM, Monticello, AR 71655.

TIME ASYMMETRY AND BLACK HOLES VIA K^0 DECAY.

Keith Andrew, Physics Department, University of Arkansas, Fayetteville, AR 72701.

THE EFFECTS OF TWO PHOTON ABSORPTION FROM HE-NE LASER SOURCE BY ORGANIC MOLECULES.

Brian Fowlkes and Dr. Derald Smith, Department of Physics, University of Central Arkansas, Conway, AR 72032.

PROPER MOTIONS (STARS) ON A SMALL MICROCOMPUTER.

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

BOTANY

Chairman: Gary Tucker

NOTES FROM THE CRYPTOGAMIC HERBARIUM AT THE UNIVERSITY OF CENTRAL ARKANSAS.

Jewel E. Moore, Biology Department, University of Central Arkansas, Conway, AR 72032.

BRYOPHYTE - LICHEN COMMUNITIES WITHIN HOT SPRINGS NATIONAL PARK, ARKANSAS.

Jewel E. Moore, Department of Biology, University of Central Arkansas, Conway, AR, and Steve L. Timme, Botany and Bacteriology Department, University of Arkansas, Fayetteville, AR 72701.

NEW RECORDS OF BRYOPHYTES IN ARKANSAS.

Steve L. Timme, Botany and Bacteriology Dept., University of Arkansas, Fayetteville, AR 72701.

PRAIRIE PHENOLOGY AND SEED GERMINATION.

Donald Culwell and Robert Wright, University of Central Arkansas, Department of Biology, Conway, AR 72032.

HISTORICAL INTERPRETATIONS OF THE MILKWEED FLOWER (*Asclepiadaceae*).

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

NEW RECORDS FOR THE PTERIDOPHYTE FLORA OF ARKANSAS.

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

GAMETOPHYTES OF *Trichomanes petersii* (HYMENOPHYLLACEAE) OCCURRING AND REPRODUCING INDEPENDENTLY OF SPOROPHYTES IN ARKANSAS.

J. H. Peck, Dept. of Biology, University of Arkansas at Little Rock; D. R. Farrar, Dept. of Botany, Iowa State University; and P. L. Redfearn, Dept. of Biology, Southwest Missouri State University.

CHEMISTRY II

Chairman: Robert Steinmeyer

ENANTIOSPECIFIC PREPARATION OF AN INTERMEDIATE FOR MAYTANSINOID SYNTHESIS.

T. E. Goodwin, C. M. Crowder, R. L. Lile, J. S. Swanson, R. B. White, Department of Chemistry, Hendrix College, Conway, AR 72032.

DENATURATION OF THE LIGHT-HARVESTING CHLOROPHYLL a/b PROTEIN BY ORGANIC SOLVENTS.

Danny J. Davis and Don England, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701, and Harding University, Searcy, AR 72143.

COMPARISONS BETWEEN HETEROGENEOUS AND HOMOGENEOUS CATALYTIC HYDROGENATIONS. THE EFFECT OF TRIPHENYLPHOSPHINE ON THE PALLADIUM CATALYZED HYDROGENATION AND ISOMERIZATION OF 4-T-BUTYLMETHYLENE CYCLOHEXANE.

James A. Hawkins and Samuel Siegel, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

Arkansas Academy of Science

POSSIBLE FORMATION OF FERRABENZENE AND ITS CONVERSION TO 1,3-DIPHENYL-2-METHOXY-FERROCENE.

Neil T. Allison and R. Ferede, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

VARIATION OF THE CARBON-14 KINETIC ISOTOPE EFFECT WITH SUBSTITUENT IN THE ADDITION OF 2,4-DINITROBENZENESULFENYL CHLORIDE TO SUBSTITUTED STYRENES-1-¹⁴C AND STYRENES-2-¹⁴C.

Marianna Kanska and Arthur Fry, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

CARBON-14 ISOTOPE EFFECTS AND THE MECHANISM OF THE SYN ELIMINATION OF DIMETHYLHYDROXYLAMINE FROM 2-PHENYLETHYLDIMETHYLAMINE OXIDES.

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

TUBE FURNACE DEPOSITION STUDIES OF K₂SO₄-GRAPHITE MIXTURES.

R. N. Ridge and J. E. Bennett, Department of Chemistry, Arkansas State University, State University, AR 72467.

VAPOR SPECIES ABOVE THE K₂SO₄-GRAPHITE SYSTEM.

J. E. Bennett and R. N. Ridge, Department of Chemistry, Arkansas State University, State University, AR 72467.

ARBUSOV REACTIONS IN MOLTEN SALT MEDIA.

N. J. Pienta and S. E. Fry, Department of Chemistry, University of Arkansas, Fayetteville, AR 72701.

TETRABUTYLAMMONIUM PERMANGANATE AS AN OXIDANT FOR PYRIDINE SIDE CHAINS.

F. L. Setliff, W. R. Huie, and R. Adams, Department of Chemistry, University of Arkansas at Little Rock, Little Rock, AR 72204.

PREPARATION OF AN INTERMEDIATE FOR MAYTANSINE SYNTHESIS.

T. E. Goodwin, G. L. Templeton, L. Covey-Morrison, and J. S. Jenkins, Department of Chemistry, Hendrix College, Conway, AR 72032.

INVESTIGATION IN NUCLEOSIDE SYNTHESIS.

T. Best, D. B. Lowe, and T. E. Goodwin, Department of Chemistry, Hendrix College, Conway, AR 72032.

PERMEATION OF GRAPHITE WALLS BY HIGH TEMPERATURE POTASSIUM ATOMS.

Louis Morales, Randy Ridge, and J. E. Bennett, Department of Chemistry, Arkansas State University, State University, AR 72467.

COPPER(II)(3,5-DIISOPROPYLSALICYLATE)₂, A POTENT GAMMA RAY RADIOPROTECTANT WITH SUPEROXIDE DISMUTATING REACTIVITY.

John R. J. Sorenson¹, Brian Gray², Denise Nelson¹, Helmar H. A. Dollwet³, and Vimal Kishore⁴, ¹Department of Biopharmaceutical Sciences, College of Pharmacy and ²Department of Pharmacology, College of Medicine, University of Arkansas for Medical Sciences, ³Armed Forces Radiobiology Research Institute, Bethesda, MD, ⁴Department of Biology, University of Akron.

AQUATIC ENVIRONMENT II

Chairman: John Beadles

HABITAT SELECTION IN THE SPAWNING OF CREOLE DARTER, *Etheostoma collettei*.

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

RANGE EXTENSION OF THE SILVER CARP, *Hypophthalmichthys molitrix*, IN ARKANSAS WATERS.

F. Allen Carter, Arkansas Game and Fish Commission, #2 Natural Resource Drive, Little Rock, AR 72205, John K. Beadles, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

MULTIPLE LENSES IN THE EYE OF *Micropterus salmoides*.

Renn Tumison, John K. Beadles, and Alan D. Price, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

MOSQUITOFISH PRODUCTION IN MONOCULTURE AND POLY-CULTURE PONDS.

Walter R. Robison, Scott H. Newton, Dept. of Agriculture, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601, and Max V. Meisch, Dept. of Entomology, University of Arkansas, Fayetteville, AR 72701.

SPAWNING THE GRASS CARP FEMALE X BIGHEAD CARP MALE HYBRID.

Mike Freeze and Scott Henderson, Arkansas Game and Fish Commission, #2 Natural Resource Drive, Little Rock, AR 72205.

SICKLEFIN CHUB, *Hybopsis meeki*, IN THE MISSISSIPPI RIVER BORDERING ARKANSAS.

F. Allen Carter, Arkansas Game and Fish Commission, #2 Natural Resource Drive, Little Rock, AR 72205, John K. Beadles, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

FISHES OF THE ANTOINE RIVER, LITTLE MISSOURI RIVER SYSTEM SOUTHWESTERN ARKANSAS.

Henry W. Robison, Elaine Laird, and Darryl Koym, Department of Biology, Southern Arkansas University, Magnolia, AR 71753.

AN EVALUATION OF A 1.88m² FRAME TRAWL AND A 2m² TUCKER TRAWL FOR SAMPLING YOUNG-OF-THE-YEAR FISH.

Michael R. Dewey and Thomas E. Moen, USFWS, P.O. Box 705, OBU, Arkadelphia, AR 71923.

SELECTION OF SCALES FOR GROWTH ANALYSIS OF LARGE-MOUTH BASS.

Donald C. Jackson, and Raj. V. Kilambi, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

THE FISHES OF THE WHITE RIVER; INTERSTATE 40 UPRIVER TO AUGUSTA, ARKANSAS.

Drew Wilson and Kenneth Shirley, Arkansas Game and Fish Commission, Brinkley, AR 72021.

SIZE VARIATION OF UNGRADED AND GRADED CHANNEL CATFISH REARED IN CAGES.

Donald C. Greenland, Walter R. Robison and Scott H. Newton, Fish Farming Experimental Station, P.O. Box 860, Stuttgart, AR 72160.

A COMPARISON OF TWO YEAR CLASSES OF HYBRID GRASS CARP AND GRASS CARP FOR AQUATIC PLANT CONTROL.

Mike Freeze and Scott Henderson, Arkansas Game & Fish Commission, #2 Natural Resources Drive, Little Rock, AR 72205.

Program

INVERTEBRATE ZOOLOGY

Chairman: Peggy Rae Dorris

REPAIR OF ULTRAVIOLET AND GAMMA-RAY INDUCED LETHAL DAMAGE IN AN INSECT TISSUE CULTURE CELL LINE.

Craig Endres, Susan Kulp and Gaston Griggs, Dept. of Biology, John Brown University, Siloam Springs, AR 72761.

DISTRIBUTION AND SEASONAL OCCURRENCE OF THE SCUTELLERIDAE, CORIMELAENIDAE AND CYDNIDAE OF ARKANSAS.

Linda A. Lee and Harvey E. Barton, Department of Biological Sciences, Arkansas State University, State University, AR 72467.

ABUNDANCE AND SEASONAL OCCURRENCE OF *Psorophora columbiae* (DIPTERA: CULICIDAE) IN A NORTHEAST ARKANSAS RICEFIELD COMMUNITY.

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

BEHAVIORAL AND FUNCTIONAL MORPHOLOGICAL ASPECTS OF SOME RECEPTORS IN THE WOLF SPIDER (ARANEAE: LYCOSIDAE).

Nancy L. Myers, Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

ADDITION OF TWENTY-TWO NEW SPECIES OF SPIDERS FOR THE ARKANSAS CHECKLIST.

Mary L. Beck and Peggy R. Dorris, Dept. of Biological Sciences, Henderson State University, Arkadelphia, AR 71923.

A PRELIMINARY STUDY OF THE DISTRIBUTION, HOST PLANTS, AND NYMPHAL INSTARS OF *Chelysomidea guttata* (SCUTELLERIDAE: HEMIPTERA).

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

SPIDERS COLLECTED FROM MINE TUNNELS IN THE OUACHITA NATIONAL FOREST.

Peggy Rae Dorris, Henderson State University, Arkadelphia, AR 71923, and David A. Saugey, U. S. Forest Service, Hot Springs, AR 71901.

SCIENCE EDUCATION

Chairman: Neal Buffaloe

USE OF AN INTERPRETIVE TRAIL IN TEACHING BIOLOGY.

Donald Culwell and Jewel Moore, Biology Department, University of Central Arkansas, Conway, AR 72032.

LAB SAFETY IN HIGH SCHOOLS AND COLLEGES.

Michael W. Rapp, Department of Chemistry, University of Central Arkansas, Conway, AR 72032.

RANDOM ANSWER - A SHELL-TYPE PROGRAM FOR HANDLING MULTIPLE CHOICE TUTORIALS.

Walter E. Godwin, Department of Natural Sciences, University of Arkansas at Monticello, Monticello, AR 71655.

COMPUTER-BASED SILVICULTURAL INSTRUCTION IN FORESTRY EDUCATION.

James M. Guldin, Asst. Professor, Department of Forest Resources, University of Arkansas at Monticello, Monticello, AR 71655, and N. Minx Olsen, Director, Instructional Media Center, Univ. of Arkansas at Monticello, Monticello, AR 71655.

A BRIEF HISTORY OF THE DEVELOPMENT OF THE PERIODIC TABLE OF THE ELEMENTS.

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

COMPUTER DRILL FOR ORGANIC QUALITATIVE ANALYSIS.

Michael W. Rapp, Department of Chemistry, University of Central Arkansas, Conway, AR 72032.

NUCLEAR WAR EDUCATION AT THE UNIVERSITY OF ARKANSAS.

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

ADVANCED PLACEMENT: WILL ARKANSAS MEET THE CHALLENGE?

Tommie Sue Anthony, 2400 Linda Lane, Jacksonville, AR 72076.

COMPUTER PURCHASES BY ARKANSAS PUBLIC SCHOOLS.

Sheila M. Hoelscher and David L. Carl, Instructional Resources, GE 339, University of Arkansas, Fayetteville, AR 72701.

A SURVEY OF TEEN-AGE SEXUAL ATTITUDES.

Virginia Webb, Biology Department, University of Central Arkansas, Conway, AR 72032.

CREATION SCIENCE AND THE COMMITTEES OF CORRESPONDENCE.

Jerome C. Rose, Department of Anthropology, University of Arkansas, Fayetteville, AR 72701.

MICROCOMPUTER-ASSISTED COLORIMETRIC DETERMINATION OF IRON.

Arthur Hoyt, Jr., Chemistry Department, University of Central Arkansas, Conway, AR 72032.

SOME NEW DIRECTIONS FOR SCIENCE EDUCATION IN ARKANSAS IN 1983.

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

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