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60th Annual Meeting, 1976. Program

Academy Editors

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PROGRAM
Arkansas Academy of Science

Sixtieth Annual Meeting
UNIVERSITY OF ARKANSAS
at Little Rock

Meeting concurrently with sessions of:
The Collegiate Academy of Science
The Junior Academy of Science
Arkansas State Science Fair

Friday, 9 April

SENIOR, COLLEGIATE, JUNIOR ACADEMIES -- Registration

INDUSTRIAL EXHIBITS*

SENIOR ACADEMY -- Executive Committee
SENIOR ACADEMY -- Business Meeting
JUNIOR ACADEMY -- Westinghouse Talent Search Paper Presentation
SENIOR, COLLEGIATE ACADEMIES -- Papers (Concurrent Sessions):
  Physics - Mathematics
  Geology
  Biology I (Cytology - Biochemistry)
  Biology II (Zoology)
JUNIOR ACADEMY -- Papers (Biological and Physical Sciences, Concurrent Sessions)
JUNIOR ACADEMY -- Executive Committee
PLANETARIUM SHOW
SENIOR, COLLEGIATE, JUNIOR ACADEMIES -- Banquet

Saturday, 10 April

INDUSTRIAL EXHIBITS*

SENIOR, COLLEGIATE ACADEMIES -- Papers (Concurrent Sessions):
  Chemistry
  Environmental Science
  Biology III (Botany)
  Biology IV (Zoology)
  Anthropology

JUNIOR ACADEMY -- Business Meeting
JUNIOR ACADEMY -- Awards Presentation
COLLEGIATE ACADEMY -- Business Meeting
SENIOR, COLLEGIATE ACADEMIES -- General Business Meeting

*INDUSTRIAL EXHIBITORS:
  American Optical Company
  Corning Glass Company
  Preiser Scientific Company
  Sargent-Welch Company
  Southern Biological Company
  The Gene Swepston Company of Little Rock
SECTION PROGRAMS

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

PHYSICS AND MATHEMATICS SECTION
Chairman: Charles Harbison

*USE OF SOLAR ENERGY IN THE HOME.
  G. Hook, N. Kemper, W. Fridy, J. Hancock, and T. Ngo

A NEW PROOF THAT THE DERIVATION INERTIA a b OF AN ELEMENT b OF V-RING R IS THE LARGEST EXPONENT S IN AN INERTIAL REPRESENTATION OF b.
  Thomas F. Peter

A PROOF OF EULER'S THEOREM.
  Charles Harbison

PHYSICS AND MATHEMATICS SECTION
Chairman: Charles Harbison

ROLE OF GASTRIN AS RELATED TO BIOCHEMICAL PROFILE OF STOMACH MUCUS.
  Roger Baker and Jerry R. Hershey

ENZYMES IN HELODERMA HORRIDUM VENOM.
  S. Murphy, D.H. Sifford, and B.D. Johnson

EFFECTS OF ESTROGEN ON UTERINE TISSUE UTILIZATION OF PYRUVATE FOR LIPID SYNTHESIS.
  J.W. Harris

ELECTROPHORETIC PATTERNS OF SERUM PROTEINS IN TWO SUBSPECIES OF ODODOCLEUS VIRGINIANUS.
  Greg Jackman and P.J. Garnett

GEOLGY SECTION
Chairman: Phil Kehler

THE CAMBRIAN-ORDOVICIAN BOUNDARY IN NORTH AMERICA: A SUGGESTED REVISION.
  Raymond W. Suhm

LOWER MISSISSIPPIAN LITHOSTRATIGRAPHY, NORTHERN ARKANSAS.
  Jack L. Shanks and Walter L. Manger

PATCH CORALS IN A MISSISSIPPIAN SHOALING ENVIRONMENT.
  Michael W. Hansen

SEASONAL VARIATION OF DISSOLVED AND SUSPENDED CHEMICAL LOADS OF THE BUFFALO RIVER, ARKANSAS.
  George H. Wagner and Kenneth F. Steele

REGIONAL CARBONATE DEPOSITION OF THE PITKIN LIMESTONE (CHESTERIAN), WASHINGTON AND CRAWFORD COUNTIES, ARKANSAS.
  Robert E. Tielan

ALGAL-BRYOZOAN CARBONATE BUILDUPS WITHIN THE PITKIN LIMESTONE (MISSISSIPPIAN-CHESTERIAN), NORTHWEST ARKANSAS.
  A.T. Warmath

THE ZUNI SEQUENCE IN THE SOUTHWESTERN UNITED STATES.
  P.L. Kehler

BIOLOGY I SECTION (Cytology/Biochemistry)
Chairman: Hugh Johnson

HORMONE RECEPTOR SITE MATURATION IN THE SECONDARY SEX ORGANS OF IMMATURE MALE AND FEMALE RATS.
  K.J. Thomas

A COMPARATIVE STUDY OF THE ESTERASE OF DROSOPHILA VIRILIS AND DROSOPHILA ZONATA.
  Russell Webster and William C. Guest

METAPHASE CONFIGURATIONS IN DROSOPHILA. A COMPARISON OF ENDEMIC HAWAIIAN SPECIES AND NON-ENDEMIC SPECIES.
  Frances E. Clayton

IODINATION OF PROTEINS WITHIN THE STOMACH OF DOGS.
  Jerry R. Hershey and L. Van Middlesworth

BIOLOGY II SECTION (Zoology)
Chairman: Edmond Bacon

RESISTANCE TO STRESS ULCERS IN ADRENALECTOMIZED RATS.
  Jerry R. Hershey

A CHECKLIST OF THE CAVE FAUNA OF ARKANSAS - PART I.
  Kenneth L. Smith and V. Rick McDaniel

POPULATIONS AND MOVEMENTS OF PEROMYSCUS ON CROWLEYS RIDE IN NORTHEASTERN ARKANSAS.
  Gary W. Stephenson and V. Rick McDaniel

COMMENTS ON THE KARYOLOGY AND NATURAL HISTORY OF SYNAPTOMYS COOPERI IN ARKANSAS.
  James A. Huggins and V. Rick McDaniel

THE RECENT DISTRIBUTION OF BATS IN NORTHCENTRAL AND NORTHEASTERN ARKANSAS.
  David A. Saugy and V. Rick McDaniel

CHARACTERISTICS AND BEHAVIOR OF GUINEAFOWL AND DOMESTICATED CHICKEN HYBRIDS.
  Earl L. Hanebrink

FOOD SHARING BEHAVIOR IN PRIMATES.
  Charles G. Wilson

http://scholarworks.uark.edu/jaas/vol30/iss1/4
BEHAVIORAL INTERACTIONS BETWEEN THE CALIFORNIA SEA LION (ZALOPHUS CALIFORNIANUS) AND Rhesus Macaque Monkey (MACACA MULATTA) AT THE LITTLE ROCK ZOO.
Sidney Yeider and Gary Heidt

A CONTINUATION OF MOURNING DOVE STUDIES IN CLARK COUNTY, ARKANSAS, WITH EMPHASIS ON CYCLICAL BEHAVIOR PATTERNS.
Thurman Booth, Fred Burnside, Jan Burnside, and Peggy Rae Dorris

DISTRIBUTIONAL RECORDS OF AMPHIBIANS AND REPTILES IN ARKANSAS.
Edmond J. Bacon and Zane M. Anderson

CHEMISTRY SECTION
Chairman: F.L. Setliff

* THE USE OF A SHIFT REAGENT IN AN NMR STUDY OF CARVONE.
Ricky Stamps

* ARYNE INTERMEDIATES: 2,3-DIHYDROTHIOPHENE.
Michael T. Crimmins

* ISOTOPE EFFECTS IN DIFFUSION.
Stephen A. Lachowsky

* THE QUANTITATIVE EVALUATION OF LEAD-210 IN SPRING WATER.
Laura Ballard

CORRELATION ENERGY OF SMALL POLYATOMICS.
M. Fillmore Bowen and Neil S. Ostlund

SYNTHESIS AND DEHYDROCHLORINATION OF 1-13C LABELED SUBSTITUTED DDT COMPOUNDS.
Scott Crook and Arthur Fry

SYNTHESIS OF p-SUBSTITUTED 1-13C-RING-LABELED DIAZOACETOPHENONES.
Lee Netherton and Arthur Fry

STUDIES IN BALING-ACID RATIO IN ARKANSAS GRAPES.
Cameron D. Jones, Dominic T.C. Yang, and Thomas O. Whitley

QUANTITATIVE INFRARED ANALYSIS OF DIKETONES AND ANHYDRIDE IN MIXTURE.
D.T.C. Yang, F.H. Watson, and J.O. Lay

ENVIRONMENTAL SCIENCE AND SCIENCE EDUCATION SECTION
Chairman: Mel Fuller

SOIL SALINITY MEASUREMENT BY THE FOUR-PROBE TECHNIQUE.
K. Sriyotai and J.T. Gilmour

THE SWIMMING ABILITY OF LARVAL AND JUVENILE GIZZARD SHAD AND THREADFIN SHAD AS RELATED TO THEIR ENTRAINMENT BY POWER WATER INTAKE SYSTEMS.
Manuel Barnes

THE EFFECT OF SOIL BUFFER CAPACITY ON THE LONGEVITY OF SOIL REACTION (pH) MODIFICATION AND THE SUBSEQUENT EFFECT ON PLANT GROWTH AND NUTRIENT UPTAKE.
P.E. Pope and R.B. Vasey

AN EXPERIMENTAL TESTING PROGRAM IN ELEMENTARY CHEMISTRY.
Billie Broach and Howard L. Hodges

PRACTICAL ILLUSTRATIONS OF GENETIC PRINCIPLES USING COAT COLORS OF CATTLE.
C.J. Brown

OUACHITA BIOLOGICAL STATION — AN OPPORTUNITY FOR FIELD BIOLOGISTS.
Richard K. Speairs, Jr.

A PLANETARIUM — WHY?
Paul C. Sharrah and Carl T. Rutledge

BIOLOGY III SECTION (Botany)
Chairman: William R. Bowen

PRIMARY PRODUCTIVITY, WATER QUALITY, AND LIMITING FACTORS IN LAKE CHICOT.
Edmond J. Bacon

THE VASCULAR PLANT FAMILY BORAGINACEAE IN ARKANSAS.
Gary Tucker

A SCANNING ELECTRON MICROSCOPE STUDY OF BRACHYSCLERIDS OF PEAR (PARUS COMMUNIS L.).
Clarence B. Sinclair

AERATION, PHOSPHORUS, AND LIME EFFECTS ON NITROGEN MINERALIZATION IN IMPERFECTLY DRAINED FOREST SOILS.
M.S. Bhangoo, D.J. Albritton, and E. Shoulders

NEW LOCALITY RECORDS FOR CLAYTONIA CAROLINIANA AND DROSERA CAPILLARIS IN ARKANSAS.
LeRoy Poff

*A PRELIMINARY STUDY OF THE ACRASIMYCOTA NATIVE TO ARKANSAS SOILS.
Ron Rosen

TEMPORAL AND SPATIAL DISTRIBUTION OF ALGAE ON THE BUFFALO NATIONAL RIVER.
Laura Lee Rippey

AN OCULAR POINT FRAME FOR VEGETATIONAL SAMPLING.
Michael I. Johnson

RE-ESTABLISHMENT OF A PRAIRIE IN NORTHWEST ARKANSAS.
James Gibbons and Edward E. Dale, Jr.

FOREST VEGETATION OF THE BUFFALO RIVER AREA, ARKANSAS.

EVALUATION OF STAND AND SITE CHARACTERISTICS ASSOCIATED WITH SOUTHERN PINE BEETLE INFESTATIONS.
Timothy T. Ku and James M. Sweeney

A SEASONAL SYMBIOSIS INVOLVING DAMSELFLY NYMPHS AND A EUGLENOID ALGA.
William R. Bowen
**BIOLOGY IV SECTION (Zoology)**

**Chairman:** George Harp

**FISHES OF THE FOURCHE RIVER IN NORTHCENTRAL ARKANSAS.**
Steve M. Bounds and John K. Beadles

**A SURVEY OF THE FISHES OF CANE CREEK.**
Bruce E. Yeager and John K. Beadles

**A NEW SPECIES OF NOTROPIS (CYPRINIDAE) FROM THE MISSISSIPPI VALLEY.**
Henry W. Robison

**DIFFERENTIATION OF LARVAL GIZZARD SHAD, DOROSOMA CEPEDIANUM, AND THREADFIN SHAD, DOROSOMA PETENENSE, AIDED BY THE USE OF A POLARIZING FILTER.**
Manuel Barnes

**ODONATE UPDATE.**
John D. Rickett

**AN ANNOTATED LIST OF ARKANSAS COCCINELLIDAE.**
Joan B. Chapin and E. Phil Rouse

**TOXICITY OF COPPER AND ZINC TO GAMBUSIA AFFINIS (POECILIIDAE).**
Julia Louann Taylor

**SURVEY OF THE COLEOPTERA OF THE NORTH FORK OF CADRON CREEK.**
Chris Cariton

**AN EXTENDED STUDY OF THE TREMATODE FAUNA FOUND WITHIN ARKANSAS AMPHIBIANS.**
Ron Rosen

**FEEDING HABITS OF AMBYSTOMA TEXANUM IN CRAIGHHEAD COUNTY, ARKANSAS.**
Gary Meador

**SCANNING ELECTRON MICROSCOPY OF THE RAINBOW TROUT (SALMO GARDNERI) SPERMATOZOOON.**
James H. Fribourgh and Bernard L. Soloff

**LAMPSILIS (PELECYPODA: UNIONIDAE), BEAUTY OF THE STREAM BENTHOS: HAVE MEN AND CORBICULA USURPED ITS FUTURE?**
Louise Russert Kraemer

**MACROBENTHOS POPULATION CHANGES IN CRYSTAL LAKE, ARKANSAS, SUBSEQUENT TO CAGE CULTURE OF FISH.**
James C. Adams, Raj V. Kilambi, William A. Wickizer, and Arthur V. Brown

**ANTHROPOLOGY SECTION**

**Chairman:** Timothy C. Klinger

**THE USE OF FRESHWATER MUSSLE SHELLS AS INDICATORS OF SEASONAL OCCUPATION OF ARCHEOLOGICAL SITES.**
Robert H. Ray

**TROPHY SKULLS AND LOOSE TEETH FROM THE CRENSHAW SITE (3M16).**
Mary Lucas Powell

**THE MACHISMO SYNDROME: A RESIDENTIAL CORRELATE OF ITS EXPRESSIONS IN A SOUTH MEXICAN COMMUNITY.**
Judith M. Brueske

**THE SMITHSONIAN COLLECTIONS FROM ARKANSAS AS A RESOURCE FOR ARCHEOLOGISTS.**
Michael P. Hoffman

**IS ARCHEOLOGY REALLY ANTHROPOLOGY?**
Robert L. Brooks

**THE PROBLEM OF SITE DEFINITION IN CULTURAL RESOURCE MANAGEMENT.**
Timothy C. Klinger

**USING GLO (GOVERNMENT LAND OFFICE) LAND SURVEY NOTES IN AN ENVIRONMENTAL RECONSTRUCTION OF THE VILLAGE CREEK BASIN: A RESEARCH DESIGN.**
Ronald Wogaman

**A PRELIMINARY INVESTIGATION OF CHERTRESOURCES ALONG THE OZARK ESCARPMENT IN NORTHEAST ARKANSAS.**
Mark A. Mathis
Arkansas Collegiate Academy of Science

Patricia Alexander  
President

Kathleen Shankle  
Secretary

Curtis Shankle  
Treasurer

Sponsor: Dr. John F. Bridgman  
Co-sponsor: Dr. E.W. Wilson

MINUTES OF THE BUSINESS MEETING, 10 APRIL 1976

The business meeting of the Arkansas Collegiate Academy of Science was called to order by the presiding president, Patricia Alexander. The minutes of the last meeting were approved as read. The financial report was submitted by Curtis Shankle. The Collegiate Academy's account contained $172.11 which was to be refunded to the Senior Academy. Dr. Bridgman suggested that $175.00 be requested from the Senior Academy. It was so moved and passed.

The following officers were elected for 1976-77.

- President: Phillip Goad, Harding College
- President-Elect: William Casson, UAM
- Secretary: Susan Brady, Harding College
- Treasurer: Jim Hall, Harding College
- Sponsor: Dr. Edmond W. Wilson, Harding College
- Co-Sponsor: Dr. Joe Guenter, UAM

The new president, Phillip Goad, took charge and a discussion of the experimental merger of the Collegiate Academy with the Senior Academy in regard to paper presentations followed. The general opinion was that, although it was not the intention of the Executive Council to eliminate the Collegiate Academy, a certain amount of identity loss occurred. A motion was made and carried that Dr. Wilson should bring this problem to the attention of the Senior Academy in the General Business Meeting, and that Dr. Wilson should suggest that the President of the Collegiate Academy or his proxy attend the Executive Meeting of the Senior Academy. A motion was made and carried that schedules should continue to merge Academy and Collegiate Academy presentations.

Awards were made for the winning presentations at this meeting. In the Biological Science Section, the first place certificate was awarded to Ron Rosen. The second and third place certificates were awarded to Gary Graves and Julia Louann Taylor, respectively. In the Physical Science Section, the first place certificate was awarded to Laura Ballard. The second place certificate was awarded to Stephan Lachowsky. The meeting was adjourned by the new president.

Respectfully submitted,

Susan Brady  
Secretary

Editor's Note: Several Collegiate Academy members distinguished themselves by presenting scholarly papers before appropriate meeting sections of the Senior Academy on 9 and 10 April 1976. Titles of papers presented by these Collegiate Academy members are identified in the preceding Section Programs by *.