

1968

## 52nd Annual Meeting, 1968. Program

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**P R O G R A M****ARKANSAS ACADEMY OF SCIENCE****Fifty-Second Annual Meeting**

Ouachita Baptist University and Henderson State College  
Arkadelphia, Arkansas

**Friday, April 5**

Ouachita Baptist University

|                             |  |
|-----------------------------|--|
| 9:00 a.m. to<br>4:00 p.m.   | REGISTRATION — Senior and Collegiate<br>Academy  |
| 9:00 a.m. to<br>12:00 noon  | REGISTRATION — Junior Academy  |
| 9:15 a.m. to<br>10:00 a.m.  | COLLEGIATE ACADEMY — Executive Com-<br>mittee Meeting  |
| 9:30 a.m.                   | SENIOR ACADEMY — Executive Committee<br>Meeting  |
| 10:00 a.m. to<br>10:50 a.m. | COLLEGIATE ACADEMY AND JUNIOR<br>ACADEMY — Address: "The Effect of Engineer-<br>ing Development on River Systems" — Dr. Joe<br>Nix, Chemistry Department, Ouachita Baptist<br>University |
| 10:45 a.m.                  | SENIOR ACADEMY — Business Meeting  |
| 11:00 a.m.                  | JUNIOR ACADEMY — Mixer   |
| 11:00 a.m. to<br>11:45 a.m. | COLLEGIATE ACADEMY — Business Meeting  |
| 11:40 a.m. to<br>1:00 p.m.  | LUNCHEON — Science Fair Judges   |
| 12:00 noon to<br>1:15 p.m.  | LUNCHEON — Collegiate Academy of Science   |
| 1:15 p.m. to<br>4:00 p.m.   | COLLEGIATE ACADEMY — Presentation of<br>papers   |
| 1:30 p.m. to<br>2:30 p.m.   | JUNIOR ACADEMY — Business Meeting  |
| 2:30 p.m. to<br>3:30 p.m.   | JUNIOR ACADEMY PAPERS  |
| 3:45 p.m. to<br>5:00 p.m.   | SCIENCE EDUCATION SECTION  |

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|--------------|--|
| 4:00 p.m. to | SCIENCE FAIR   |
| 5:30 p.m.    |  |
| 6:30 p.m. to | BANQUET — Combined Academies   |
| 7:45 p.m.    |  |
| 7:45 p.m. to | SCIENCE FAIR AWARDS  |
| 8:40 p.m.    |  |
| 7:00 p.m. to | SCIENCE FAIR   |
| 10:30 p.m.   |  |
| 8:45 p.m. to | SENIOR ACADEMY — Address: "Remote Sensing of Environment" — Dr. Joseph Lintz, Jr., Mackay School of Mines, University of Nevada. |
| 9:45 p.m.    |  |

**Saturday, April 6**

|              |  |
|--------------|--|
| 8:00 a.m. to | SCIENCE FAIR — open to the public — Walton |
| 11:30 a.m.   | Gymnasium                                  |
| 8:00 a.m. to | JUNIOR ACADEMY — Tour of Local Industry —  |
| 10:00 a.m.   | Reynolds Metal Company                     |

**Saturday, April 6**

Henderson State College

|               |   |
|---------------|---|
| 7:30 a.m. to  | BREAKFAST — Arkansas Science Teachers       |
| 9:00 a.m.     | Association                                 |
| 8:00 a.m. to  | REGISTRATION                                |
| 10:00 a.m.    |   |
| 8:30 a.m. to  | VISITING SCIENTIST — Conference for "Visit- |
| 9:30 a.m.     | ing Scientists"                             |
| 9:00 a.m. to  | SCIENCE TALENT SEARCH PROGRAM               |
| 10:00 a.m.    |   |
| 10:00 a.m. to | SECTION MEETINGS — Senior Academy           |
| 12:00 noon    |   |
| 12:00 noon to | LUNCH HOUR                                  |
| 1:00 p.m.     |   |
| 1:00 p.m. to  | BUSINESS MEETING — Senior Academy           |
| 2:00 p.m.     |   |
| 2:00 p.m. to  | SECTION MEETINGS — Senior Academy           |
| 4:00 p.m.     |   |

## SECTIONAL PROGRAM

### ARKANSAS JUNIOR ACADEMY OF SCIENCE

**PRESIDENT: Bill Adams**  
Benton, Arkansas

- "A Comparison of Plant Communities and Physical Environments in the Lake Weddington Area — Fayetteville, Arkansas," by Tom Hecox.
- "Nutritional Studies of Escherichia Coli Using Radioactive Tracers," by Connie Sue Haisty.
- "Dermatoglyphics: A New Medical Clue in Mongolism," by Michael Roe.
- "The Effect of Centrifugation of Pea Seeds at 30, 60, and 90 Minute Intervals," by Larry Baker.
- "New Potential for Ultraviolet Radiation," by Brude Proctor.
- "Precipitation and Short Leaf Pine Growth," by Gregory Ferguson.
- "The Effect of Light Changes on Mice," by Charlotte Atchley.
- "Transmission of Radio Signals Underwater," by Joe Carver.
- "Direct Current Arcing," by Joey Jones.
- "Pythagorean Triplets," by Ron Napier.
- "Calculating the Orbit of a Satellite," by Leon Blue.
- "Factors Influencing the Falvanic Reaction," by Wayne Robertson.
- "A Study of Entropy and the Second Law of Thermodynamics," by Martha Adams.
- "The Effects of Radiation on Mice," by Jeri Ann Stevens.
- "The Chemistry of Digestion," by Cindy Isbell.
- "The Effects of Ultra Low Pressure on Body Functions," by Keith Jones.
- "Comparative Study on the Effect of Color on the Memory of Elementary Children," by Randy Auman.

### COLLEGIATE ACADEMY OF SCIENCE

**PRESIDENT: Curtis Barton**  
University of Arkansas

- "On Factorization of Primes in Quadratic Extension Fields," by Curtis Barton.

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- "Taxonomic Studies with a Species of *Achromobacter*," by Harold Betton.
- "The Origin of Manganese in the Water Supply of Greers Ferry National Fish Hatchery," by Jim Larkin.
- "Physiology of Red Pigment Production Following Wounding of Imbibed *Xanthium* Seeds," by James Dodson.
- "The Extraction of Trace Metals with Diethyldithiocarbamate," by Tom Goodwin.
- "Synthesis of and Preliminary Antibacterial Studies on some para-Substituted 2-Pyridyl Acetophenones," by *Wayne W. Daily* and James Frederick.
- "Chronopotentiometric Behavior of Bismuth in Hydrochloric Acid," by Cynthia E. Wilson.
- "Identification of and a Postulated Mechanism for the Formation of 2-(1-Indanylidene)-1-indanone During the Polyphosphoric Acid Catalyzed Synthesis of 1-indanone from Hydrocinnamic Acid," by William Dempsey.
- "Anthocyanin Formation in Achlorophyllous Leaf Tissue of Exogenous Carbohydrate Feeding," by Frank Holder.

### SCIENCE EDUCATION SECTION

CHAIRMAN: Harlan McMillan  
College of the Ozarks

- "Science — A Process Approach," by Denver Prince.
- Analytical Chemistry — What Now? Report on a symposium held at Louisiana State University in January, by Alex Nisbet.
- The Undergraduate Research Program in Chemistry at Ouachita Baptist University. Wilbur W. Everett.

### ARCHEOLOGY SECTION

CHAIRMAN: James A. Scholtz  
Henderson State College

- "The Study of Arkansas Archeology," by Hester A. Davis.
- "The Role of the Amateur in Arkansas Archeology," by Charles Figley, Jr.
- "Prehistoric Development in Southwest Arkansas," by Michael P. Hoffman.

- "Culture History in Southwest Arkansas," by Burney B. McClurkan.
- "Introducing Northeastern Arkansas Prehistory," by Dan F. Morse.
- "A Summary of Prehistory in Northwest Arkansas," by James A. Scholtz.

## BIOLOGY AND AGRICULTURE SECTION I

### Zoology

CHAIRMAN: Elizabeth Brinkley  
 Presiding: Adelpia Basford  
 Henderson State College

- "A Survey of Albino Birds in Arkansas," by Earl L. Hanebrink.
- "The Satyrs and Wood Nymphs of Arkansas," by E. P. Rouse.
- "A Preliminary Study of the Spiders of Clark County Arkansas Compared with a Five Year Study of Mississippi Spiders," by Peggy R. Dorris.
- "Maturity and Spawning Periodicity of the Gizzard Shad, *Dorosoma cepedianum* (Lesueur), in Beaver Reservoir," by Raymond E. Baglin, Jr. and Raj. V. Kilambi.
- "Age and Growth of the Longear Sunfish *Lepomis megalotis* (Rafinesque) in Arkansas Waters," by Edmond J. Bacon and Raj V. Kilambi.

## BIOLOGY AND AGRICULTURE SECTION II

### Botany

CHAIRMAN: Elizabeth Brinkley  
 Henderson State College

- "The Enigma of *Penstemon tenuis* Small (Scrophulariaceae)," by Aileen L. McWilliam.
- "*Coreopsis saxicola* Alex. Var. *duncanii* Sherff (Compositae) in Arkansas," by Edwin B. Smith.
- "Mitochondria in Living Fungal Cells," by George G. Smith.
- "Spherosomes in Living Fungal Cells," by Vivien N. Armentrout.
- "Microirradiation of *Basidiobolus ranarum* with a TRG Biolaser," by John L. Robertson and Charles L. Wilson.

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- "Translocation of tobacco ringspot virus in zinnia roots," by Billy J. Moore and J. M. McGuire.
- "Plastid Transformations in Ripening Solanaceous Fruits," by William M. Harris.
- "Purification of Soybean mosaic virus," by Wayne Horn and H. J. Walters.
- "Procedure for Assay of Nanomolar Amounts of ATP," by P. L. Wickliff.
- "Modification of Etiolated Growth of Corn Seedlings by Red Light," by Steven O. Duke.
- "Tentoxin from *Alternaria tenuis* is a cyclic tetrapeptide," by G. E. Templeton.
- "Report on the Gramineae of the Arkansas Springfield Plateau," by Albert Robinson, Jr. and Dwight M. Moore.

CHEMISTRY SECTION

CHAIRMAN: Wilbur W. Everett  
Ouachita Baptist University

- "The Synthesis and Solvolysis of *p*-bromobenzenesulfonate Esters of 2-Hydroxy-5-Keto Bicyclo [2.2.1] Heptane," by Joe C. Greever.
- "Studies of Thermal Decompositions using Differential Scanning Calorimetry," by Paul D. Gwinup.
- "An Extraction Concentration Method for the Atomic Absorption Determination of Iron, Manganese, Copper, Nickel, Lead, Zinc, and Chromium," by Joe Nix.
- "Heterocyclic Aromatic Fluorides by a Modified Shieman Method," by Frank L. Setliff.
- "Oxygen Exchange in *p*-Methylbenzophenone at Low Acid and Low Base Concentration," by Willoughby F. Meek and Arthur Fry.
- "Chronopotentiometric Behavior of Mercury (I) and Mercury (II) in Perchloric Acid," by Alex R. Nisbet.
- "Methyl Rearrangements in the  $\pi$ -Bromination of  $\alpha$ -Bromocamphor," by Walter L. Meyer, A. P. Lobo, and R. N. McCarty.
- "The Acid-Catalysed Rearrangement of Phenyl and Carbonyl Labeled Phenyl Benzhydryl Ketone," by Thomas E. Clark and Arthur Fry.

- "Mathematics of the Vosburgh-Cooper and Mole Ratio Methods of Complex Determination," by James O. Wear.
- "The Specific Conductance of Concentrated Solutions of Magnesium Chloride in the Water-Ethanol System," by A. Than and E. S. Amis.
- "Kinetics of the Cu(II) Ion Induced Dimerization of Bovine Plasma Albumin," by W. W. Everett, Charles H. Wilson, Hoy Speer, Len Blaylock, Joe Porter, and Dick Ewing.

### GEOLOGY SECTION

CHAIRMAN: William M. Caplon  
Arkansas Geological Commission

Papers read by title only:

- Proetid Trilobite From The Boone Formation in Arkansas.
- A Trilobite From Lower Ordovician Rocks in Arkansas.
- Osagean Trilobites In Arkansas.
- "Geology of the Blanchard Springs Area," by Don E. Williams.
- "Functions and Procedures of the Arkansas Oil and Gas Commission," by William E. Wright.
- "Multiple Porosity Techniques to Define Lithology," by Russell O. Brown.
- "The Engineering Application of Ground Water Studies in the Lower Arkansas River Valley," by Benny Swafford.
- "Hydrogeochemical Prospecting," by Charles T. Bryant.
- "Geologic Factors Affecting Floods in Arkansas," by John N. Sullivan.
- "Landslide Correction in Highway Construction," by Joe D. Magness.
- "Geology of the Wilson Springs Vanadium Deposits," by J. S. Hollingsworth.

### PHYSICS SECTION

CHAIRMAN: Clark W. McCarty  
Ouachita Baptist University

- "The Design of an Instrument to Measure Absorption and Velocity Dispersion of Sound in Gases at High Temperature," by Gary Strain.



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- "Magnetic Quantum Numbers and Crystal Symmetries," by H. Tieding and O. Plummer.
- "X-Ray Diffraction Study of Liquid Chloroform," by J. Hendren, W. Yancy, and G. Clayton.
- "Thermostatic Cooling System for Liquid Studies," by C. Rogers and G. Clayton.
- "A Kilocycle Sample Rotating System," by John Gray and M. Day.
- "Relativistic Equilibrium Thermodynamics," by Charles J. Armentrout.

**MATHEMATICS SECTION**

**CHAIRMAN:** John R. Hodges  
Little Rock University

- "Least Squares Estimation with Inequality Constraints," by James E. Dunn.
- "Sets with Transform Semigroups," by Naoki Kimura.