

1969

Arkansas Collegiate Academy of Science, Annual Meeting, 1969. Report of Business Meeting and Abstracts of Papers

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ARKANSAS COLLEGIATE ACADEMY OF SCIENCE

Annual Meeting April 11, 1969

Fayetteville, Arkansas

OFFICERS

President	Tom Goodwin, Ouachita Baptist University
President-Elect	Cynthia Wilson, Ouachita Baptist University
Secretary-Treasurer	Harold Betton, University of Arkansas
Advisors	Dr. J. L. Wickliff, University of Arkansas Dr. Joe F. Nix, Ouachita Baptist University

REPORT OF THE GENERAL BUSINESS MEETING

The annual meeting of the Arkansas Collegiate Academy of Science was called to order by President Goodwin at 11:15 a.m. in Room 220, University of Arkansas Student Union.

As the first item of business, members present recognized Cynthia Wilson (Ouachita Baptist University) and Harold Betton (University of Arkansas) for meritorious service to the Collegiate Academy and requested the advisors, Dr. Wickliff and Dr. Nix, to recommend to the Senior Academy these two students as recipients of one-year honorary junior memberships in the American Association for the Advancement of Science.

New officers elected to serve for the year 1969-70 are:

President—	Cynthia Wilson, Ouachita Baptist University
President-Elect—	Gary Linquist, University of Arkansas
Secretary-Treasurer—	David Roll, Harding College
Advisors—	Dr. Joe F. Nix, Ouachita Baptist University Dr. Don England, Harding College

New business included a discussion on how to make the Collegiate Academy more attractive to students. It was suggested that a seminar program on the individual campuses which involved visiting professors from other state campuses (invited by the appropriate departmental chairmen) might help achieve student interest in the Collegiate Academy activities. Student representatives designated to assist such a program organization on their respective campuses are: David Roll, Harding College; Richard Brown, University of Arkansas; and Cynthia Wilson, Ouachita Baptist University.

Arkansas Academy of Science Proceedings

SUMMARY FINANCIAL STATEMENT

Balance Deposited April 19, 1968		\$131.25
Receipts:		
1. Dues collected at 1968 meeting		26.00
2. Dues collected 1968-69		70.00
3. Dues for 1969-70 collected at 1969 meeting		42.00
	Total	\$269.25
Disbursements:		
1. Travel expenses for officers to 1968 meeting		39.10
2. Operating supplies		50.61
3. Awards for best paper presentations at 1968 meeting (two subscriptions to <i>Scientific American</i>)		16.00
	Total	\$105.71
Total Receipts	\$269.25	
Less Disbursements	105.71	
Balance Transferred to New Treasurer	\$163.54	

ARKANSAS COLLEGIATE ACADEMY OF SCIENCE

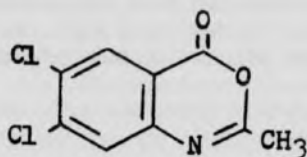
Abstracts of Papers Presented April 11, 1969

PHYSICAL SCIENCES SECTION

SYNTHESIS OF AND HYDROLYSIS STUDIES ON 6,8-DICHLORO-2-METHYLBENZISOXAZINONE. *Pat Lyon, Harding College.*

The compound 3,5-dichloro-2-aminobenzoic acid was prepared by the chlorination of anthranilic acid. This compound was reacted with acetic anhydride to give the desired 6,8-dichloro-2-methylbenzisoxazinone (I) which was recrystallized from anhydrous solvents and characterized.

(I)



Studies on the characterization of (I) and the identification of products resulting from its hydrolysis in aqueous solvents will be noted.

SYNTHESIS AND REVERSIBLE INHIBITORY EFFECTS OF SOME 1,1-CYCLOALKYLDICARBOXYLIC ACIDS ON SUCCINIC DEHYDROGENASE. *James Word, Harding College.*

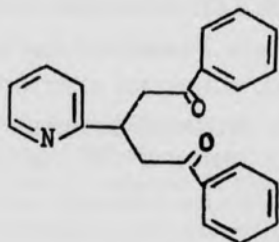
The reversible inhibitory effect of malonic acid on succinic dehydrogenase in the conversion of succinic acid to fumaric acid of the Citric Acid Cycle is well known. Some simple 1,1-cycloalkyldicarboxylic acids have been synthesized for the purpose of studying their malonic acid-type inhibitory effect on this enzyme system of *Escherichia coli*.

The synthesis of these dicarboxylic acids and a preliminary report on the biological activities of these compounds will be given. An attempt will be made to correlate biological activity with chemical structure.

THE SYNTHESIS AND ATTEMPTED REDUCTIVE CYCLIZATION OF 2-PYRIDALDIACETOPHENONE. *Robert Higbee, Harding College.*

The compound 2-pyridaldiacetophenone (I) was obtained in small yield as the Mannich addition product in the base promoted condensation of 2-pyridinecarboxaldehyde with acetophenone. The yield of (I) was increased by adjustment of the reaction conditions.

(I)



Reductive cyclization was attempted on (I) using PtO_2 catalyst and 50 p.s.i. hydrogen pressure in ethanol. Thin-layer chromatography of the reduction product indicated three components two of low yield and one of high yield. Elution chromatographic separation of the components followed by infrared spectral investigations showed the components to be ketonic, non-hydroxylic, and differing from the reaction starting material. Structures for the reduction reaction products will be proposed.

METEORITIC MATERIAL FROM HOPEWELL BURIAL MOUNDS: INVESTIGATION OF POSSIBLE SOURCES. *Sally P. Sedwick*, University of Arkansas.

(Guest paper)

CONSTRUCTION AND CALIBRATION OF A LIGHT SOURCE FOR PREP-SCALE PHOTOCHEMICAL REACTIONS. *H. Barager* and *T. D. Roberts*, University of Arkansas.

(Guest paper)

FEATURES OF THE LUNAR SURFACE. *Robert F. George*, State College of Arkansas.

(Guest paper)

SYNTHESIS AND SOLVOLYTIC STUDIES OF METHYLENE- AND DIMETHYLENE-NORBORNYL BENZOATES. *Gene DeBons*, University of Arkansas.

(Guest paper)

BIOLOGICAL SCIENCE SECTION

INTRASPECIFIC AND INTERSPECIFIC GROWTH PATTERNS IN 14 MEMBERS OF THE GENUS, *BACILLUS*. *Harold B. Betton*, University of Arkansas.

Investigations of growth patterns of several bacteria in the genus *Bacillus* have been made to elucidate any standard growth pattern which might exist among the members of this genus. Growth

Arkansas Academy of Science Proceedings

assays involved turbidimetric measurements as a function of time. Growth curves of bacterial isolates of the same species prove to be similar, but not identical. One important fact is that not all of the bacteria in this genus show similar growth curves at the same temperature (29°C. in these experiments). Studies were made of the following *Bacillus* species: *B. lacterosporus*, *B. cereus*, *B. subtilis*, *B. megaterium*, *B. cereus* var. *mycooides*, *B. licheniformis*, *B. polymyxa*, *B. firmus*, and *B. sterothermophilus*.

B. licheniformis demonstrated a significant reduction in turbidity between 8 and 24 hours, somewhat like the 3 isolates of *B. cereus*, but the drop in turbidity was much more exaggerated in the *B. licheniformis* growth curve. All of the bacteria showing reduction in turbidity showed a high rise in turbidity after the crucial period (8 to 24 hours). This high rise is probably due to the germination of spores released during the 8 to 24 hour period.

DETERMINATION OF THE CONTRIBUTION OF NITROGEN FIXED BY NODULES TO THE GROWTH OF GREEN SNAP BEAN VARIETY, RICHGREEN. *Harold B. Betton*, University of Arkansas.

The contribution of nitrogen fixed by *Rhizobium phaseoli* (ATTC No. 14482) to the growth of *Phaseolus vulgaris* var. Richgreen has been investigated employing a novel assay method. The method involved chlorophyll content of the plant as an indirect indicator of nitrogen fixed. Although no documented evidence was found supporting such a technique, the data indicate that differences in chlorophyll give definite correlations with nitrogen content. Results show that the rate of plant growth is somewhat independent of the amount of bacteria to which they are exposed. However, more chlorophyll is found in leaves of plants root-inoculated with low levels of bacteria (ca. 160,000 cells) than in plants exposed to larger inocula.