

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Transactions of the Nebraska Academy of  
Sciences and Affiliated Societies

Nebraska Academy of Sciences

---

1987

## ***Transactions of the Nebraska Academy of Sciences Volume XV (1987): Table of Contents***

Follow this and additional works at: <https://digitalcommons.unl.edu/tnas>



Part of the [Life Sciences Commons](#)

---

"*Transactions of the Nebraska Academy of Sciences Volume XV (1987): Table of Contents*" (1987).  
*Transactions of the Nebraska Academy of Sciences and Affiliated Societies*. 207.  
<https://digitalcommons.unl.edu/tnas/207>

This Article is brought to you for free and open access by the Nebraska Academy of Sciences at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Transactions of the Nebraska Academy of Sciences and Affiliated Societies by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

**STATE BOARD OF EDUCATION  
AND  
STATE BOARD OF VOCATIONAL EDUCATION**

William C. Ramsey, president	Omaha	District 8
James H. Monahan, vice-president	Omaha	District 2
Max Larsen	Lincoln	District 1
Walter M. Thompson	Oakland	District 3
Helen Greene	Ashland	District 4
William Marshall III	Grand Island	District 5
Russell Worthman	Gering	District 6
Thelma Lang	Litchfield	District 7

**DEPARTMENT OF EDUCATION**

Joe E. Lutjeharms, Commissioner of Education  
301 Centennial Mall South Lincoln, Nebraska 68509

***Establishment of the Transactions of the Nebraska Academy of Sciences***

In 1969, during its eightieth session, the State Legislature of Nebraska passed Legislative Bill 776, which appropriated funds to aid the Nebraska Academy of Sciences in the publication of scientific works submitted by Nebraska scientists. Volumes I and II of the *Transactions* were published under this arrangement, but Volume III was privately financed. Volume IV and succeeding volumes are being published under the auspices of the Nebraska Department of Education with funds authorized by the State Legislature, supported by the last four governors, J. James Exon, Charles Thone, Robert Kerrey, and Kay A. Orr. Volume XI was supported by the Nebraska Department of Education, but the publishing of Volume XI—Special Issue, Symposium (*Man and the Changing Environments in the Great Plains*), August 1983, was made possible by a grant from the Peter Kiewit Charitable Trust, Omaha, Nebraska. The Symposium on 16-18 April 1980 was sponsored by the Center for Great Plains Studies, College of Arts and Sciences, University of Nebraska—Lincoln, and the Institute for Tertiary and Quaternary Studies (TER-QUA), a Division of the Nebraska Academy of Sciences.

Funded by  
THE NEBRASKA DEPARTMENT OF EDUCATION  
Lincoln, Nebraska

**1987**

This cover design represents the merging of the disciplines of the biological and social sciences  
with those of the earth and physical sciences.

# TRANSACTIONS OF THE NEBRASKA ACADEMY OF SCIENCES

STACKS  
FEB 10 1988  
UNIVERSITY OF NEBR.  
LIBRARY

## Volume XV 1987

### DIVISIONS

Greater Nebraska Association of Teachers of Science, GNATS  
Institute for Tertiary and Quaternary Studies, TER-QUA

### AFFILIATED SOCIETIES

American Association of Physics Teachers, Nebraska Section, AAPT  
Lincoln Gem and Mineral Club, Inc.  
Nebraska Chapter National Council for Geographic Education  
Nebraska Geological Society  
Nebraska Graduate Women in Science  
Nebraska Ornithologists' Union  
Nebraska Psychological Association  
Nebraska Section Mathematical Association of America  
Prairie/Plains Resource Institute

The Nebraska Academy of Sciences was founded 30 January 1880  
and is affiliated with the American Association for the Advancement  
of Science and the National Association of Academies of Science.

ALL PERSONS interested in science, including the changing environments in the  
Great Plains, are welcome to become members in the Nebraska Academy of Sciences.

**NEBRASKA ACADEMY OF SCIENCES, INC.**  
**306 Morrill Hall, 14th & U Streets**  
**Lincoln, Nebraska 68588-0339**

**OFFICERS**

President: 1986-87	Donald E. Shult, University of Nebraska at Omaha
President Elect: 1986-87	Dale D. Rathe, Lincoln Public Schools
Executive Director: 1985-88	C. Bertrand Schultz, University of Nebraska–Lincoln
Treasurer: 1985-87	Robert B. Johnston, University of Nebraska–Lincoln
Corresponding Secretary: 1985-87	James Woodland, Nebraska Department of Education
Recording Secretary: 1986-88	Karen K. Messenger, Lentz Center for Asian Culture
Councillors: 1984-87	Ronald R. Weedon, Chadron State College
1985-88	Carroll L. Moore, Nebraska Wesleyan University
1986-89	Marvin E. Glasser, Kearney State College
Collegiate Academy:	G. Gilbert McMillen, Union College
	Norman E. Griswold, Nebraska Wesleyan University
Junior Academy:	James Woodland, Nebraska Department of Education
	Kathleen Jacobitz, Henderson Community Schools
Science Teaching:	Ed M. Brogie, Laurel Public Schools
	Mary K. Romjue, Naponee
AAAS and NAAS Representative:	Claire M. Oswald, College of Saint Mary
Long Range Planning:	M. Rosalind Morris, University of Nebraska–Lincoln
	Claire M. Oswald, College of Saint Mary
	Theodore J. Urban, Creighton University
Program Chairman and Editor of PROCEEDINGS:	Albert W. Zechmann, University of Nebraska–Lincoln
Editor of TRANSACTIONS:	Robert B. Kaul, University of Nebraska–Lincoln

**POLICY COMMITTEE 1986-87**

Bellevue College, Bellevue	Jacqueline Scholar
Central Community College, Columbus, Grand Island, and Hastings	Steve Heinisch
Chadron State College, Chadron	Ronald R. Weedon
College of Saint Mary, Omaha	Jerome J. King
Concordia College, Seward	Gilbert Daenzer
Creighton University, Omaha	Theodore J. Urban
Dana College, Blair	Larrie E. Stone
Doane College, Crete	David H. Smith
Hastings College, Hastings	Clyde C. Sachtleben
Kearney State College, Kearney	Carl D. Sterner
McCook Community College, McCook	Roger Wilson
Metropolitan Technical Community College, Omaha	Dennis Kingery
Midland Lutheran College, Fremont	Steven J. Rothenberger
Mid-Plains Community College, North Platte	Boyd Gentry
Nebraska Wesleyan University, Lincoln	William Wehrbein
Nebraska Western College, Scottsbluff	Robert M. Kruger
Northeast Technical Community College, Norfolk	Roger Gipson
Peru State College, Peru	David L. Pippert
Southeast Community College, Lincoln	Robert E. Resz
Union College, Lincoln	G. Gilbert McMillen
University of Nebraska–Lincoln	M. Rosalind Morris
University of Nebraska at Omaha	Thomas B. Bragg
University of Nebraska Medical Center, Omaha	Edward Holyoke
Wayne State College, Wayne	Harland Pankratz
York College, York	Jerry Kreps

# TRANSACTIONS of the NEBRASKA ACADEMY OF SCIENCES

Volume XV

December 1987

## CONTENTS

	Page
Nebraska Academy of Sciences, Officers, Policy committee .....	ii
Editorial Board .....	iv
Membership Objectives and Friends of the Academy.....	vi

## BIOLOGICAL AND MEDICAL SCIENCES

Anatomical variations in the articular disc of the human temporomandibular joint .....	1
<b>John M. Barton and Margaret A. Ellenbecker</b>	
Biological features of saline wetlands in Lancaster County, Nebraska.....	5
<b>James E. Ducey</b>	
An ichthyological survey of Weeping Water Creek, Nebraska.....	15
<b>David R. Golden</b>	
The characteristics and phytogeographic affinities of the flora of Nine-Mile Prairie, a western tall-grass prairie in Nebraska.....	23
<b>Robert B. Kaul and Steven B. Rolfsmeier</b>	
Comparison of plant species composition of Mormon Island Crane Meadows and Lillian Annette Rowe Sanctuary in central Nebraska .....	37
<b>Harold G. Nagel and Ole A. Kolstad</b>	
New and corrected records of the flora of Nebraska.....	49
<b>Steven B. Rolfsmeier, Robert B. Kaul, and David M. Sutherland</b>	
Woody plants of the Lower Platte Valley: an annotated checklist.....	53
<b>Steven J. Rothenberger</b>	

## EARTH SCIENCES

Underground water problem at Chadron, Nebraska: causes and solutions .....	59
<b>Arthur W. Struempfer</b>	

	Page
Radon and radon daughters: characteristics, health effects, and occurrence in dwellings in Chadron, Nebraska .....	69
<b>Arthur W. Struempler and Steven E. Johnson</b>	
<i>Calippus regulus</i> (Mammalia: Equidae) in the Penny Creek Local Fauna (Clarendonian), Webster County, Nebraska .....	75
<b>Michael R. Voorhies, R. George Corner, and James L. Fitzgibbon</b>	

## HISTORY OF SCIENCE

Contributions of Moriz Kaposi to knowledge of cancer and precancerous conditions: Kaposi's sarcoma and xeroderma pigmentosum .....	83
<b>Anne J. Krush</b>	

## EDITORIAL BOARD

Editor .....	Robert Kaul
Managing Editor .....	C. Bertrand Schultz
Consulting Editor.....	T. Mylan Stout
Division Editors:	
Anthropology.....	Peter Bleed
Biological and Medical Sciences .....	Nicolaus Hansl
Dental Research .....	Theodore J. Urban
Earth Sciences.....	T. Mylan Stout
History of Science.....	Claire M. Oswald and T. Mylan Stout
Mathematics.....	Walter Mientka
Philosophy of Science .....	Gonzalo Munevar
Physics .....	Raymond Guenther
Psychology .....	Frank J. Dudek

† † † † † † †

Instructions for contributors .....

inside back cover

## EDITORS' CORNER

The *Transactions of the Nebraska Academy of Sciences* is a medium for the publication of the results of original research by members in good standing of the Academy. Presentation of a paper at the annual meeting is not a prerequisite nor a guarantee of publication in the *Transactions*. Individuals wishing to submit a paper for consideration should consult the inside of the back cover of this volume for information regarding manuscript preparation and style.

Manuscripts are reviewed by a minimum of two referees, including at least one from an institution other than that of the author. Following review by referees and the editorial board, the author is notified whether or not the paper is accepted for publication and, if accepted, of necessary revisions.

The following persons, in addition to the regular editorial board, have reviewed articles for Volume XV. Their valued assistance is gratefully acknowledged.

Earl Barnawell, Ralph Brooks, Paul Johnsgard, Ernest Kemnitz, John Lynch, Larry Martin, John McClendon, Edward Peters, Mary Pritchard, Vernon Souders, T. Mylan Stout, David Sutherland.

Robert B. Kaul, Editor  
Nebraska Academy of Sciences  
306 Morrill Hall, 14th & U Streets  
Lincoln, Nebraska 68588-0339

## REPRINTS

Reprints may be ordered when galley proof is sent to authors. Arrangements for the purchase of reprints may be made through the Nebraska Academy of Sciences office. Contact C. Bertrand Schultz, managing editor.

## NEBRASKA ACADEMY OF SCIENCES, INC.

The membership of the Academy consists of those individuals and institutions interested in science, and those persons actively working and contributing to science in the State of Nebraska. It includes nonprofessional persons, as well as representatives from education, the professions, industry, and governmental agencies.

The Academy was organized in 1880 in Omaha with seventy-five charter members, and reorganized in 1891 in Lincoln. The Academy was incorporated in 1950 as a nonprofit educational institution, and it is neither a state agency nor is it sponsored by any particular university, college, or other Nebraska educational organization. In 1963 the Internal Revenue Service established the Academy's rating as "Section 501(c)(3)" of the Internal Revenue Code. The Policy Committee of the Academy is made up of one representative from each of the colleges and universities of the State.

**OBJECTIVES:** The objectives of the organization are to further the work of scientists and science teachers in the high schools and colleges of the State, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of science in human progress.

**RESOLUTION:** The following resolution concerning our environment was recently approved by the Academy membership: "Be it resolved that the Nebraska Academy of Sciences, as the principal organization representing the scientists of the State, is greatly concerned with the deterioration of the environment. The scientific talent of Nebraska is considerable, and it is hoped that individually-collectively it may be better utilized by both State and federal agencies in addressing problems of destruction of trees, native prairie, groundwater resources, and habitats."

**"FRIEND OF SCIENCE" AWARDS:** These awards are given to persons who are not actively engaged in scientific teaching or research, but who have shown unusual interest in promoting science and in sponsoring scientific programs in Nebraska. The following Nebraskans have received a Friend of Science Award: Mrs. Mabel L. Criss, Omaha (1970); Dr. Walter D. Behlen, Columbus (1976); Dr. Vance D. Rogers, Lincoln (1977); George and Olivia Lincoln, Lincoln (1980); Mr. and Mrs. Thomas C. Woods, Jr., Lincoln (1981); and Dr. Lewis E. Harris, Lincoln (1984).

**FRIENDS OF THE ACADEMY:** In 1959 the Academy received a farm (Maiben Scientific Research Center in Otoe County) and its first endowment from the estate of Benjamin and Rachael Corr Maiben (Academy Life Members). In addition, the following individuals and organizations have shown interest in the program of the Nebraska Academy of Sciences and have generously provided funds (including donations for scholarships, memorials, and research involved with the interdisciplinary environmental division, TER-QUA) during the past ten years to help expand the work of the Academy in promoting research and good basic teaching of science and technology especially through the Junior Academies and the GNATS Division in the science departments of the high schools, community colleges, colleges, and universities of the State:

### INDIVIDUALS:

Miss Alice Abel, Lincoln  
Mr. and Mrs. R.D. Amen, Lincoln  
Mr. Emery L. Blue, Lincoln  
Mr. Robert G. Bowman, Lincoln  
Diana Garcia Castillo, Rio Piedras, Puerto Rico  
Mr. Frank Crabill, Riverside, Connecticut  
Mrs. Loren Eiseley, Wynnewood, Pennsylvania  
Elizabeth and Wilbur Gaffney, Lincoln  
Dr. Lewis E. Harris, Lincoln  
Mr. David B. Jones, Worthington, Minnesota  
Mr. and Mrs. Oliver Joy, Lincoln  
Mr. and Mrs. O.E. Kingery, Lincoln  
Mr. Clarence Kubicek, Eureka Springs, Arkansas  
Mrs. Sara Mica Kubicek, Paris, Tennessee  
Esperanza Castillo Kwitchoff, Mayaguez, Puerto Rico  
Olivia and George Lincoln, Lincoln  
Mr. Earl Luff, Lincoln  
Antonio Rodriguez Mauro, Arecibo, Puerto Rico  
Dr. Rosalind Morris, Lincoln  
Jose Victor Oliver, Guayanago, Puerto Rico  
Mrs. Merrill Reller, Lincoln  
Mica Ann Kubicek Reynolds, Lincoln  
Mrs. Hilda Ricky, Lincoln  
Mr. Don C. Ross, Wichita, Kansas  
Marian and C. Bertrand Schultz, Lincoln  
Eunice and T. Mylan Stout, Lincoln  
Marie and Howard Taylor Family, Lincoln  
Mr. John T. Van Dyck III, Paris, Tennessee  
Dr. and Mrs. Lynn Robert Wolfe, Boulder, Colorado  
Mr. and Mrs. Thomas C. Woods, Jr., Lincoln

### ORGANIZATIONS:

Berkshire Hathaway, Inc., Omaha  
Cornhusker Bank, Lincoln  
Dale Electronics, Norfolk  
DeLay 1st National Bank, Norfolk  
Donald F. and Mildred Topp Othmer Foundation,  
Brooklyn, New York  
Dorsey Laboratories, Lincoln  
Duncan Aviation, Lincoln  
FirsTier Bank, Lincoln and Omaha  
Garvey Family Foundation, Wichita, Kansas  
Gillette Dairy, Inc., Norfolk  
Harris Laboratories, Inc., Lincoln  
Henningsen Food, Inc., Norfolk  
Kingery Construction Company, Lincoln  
Lan Construction, Norfolk  
Lincoln Family Foundation, Lincoln  
Lincoln Foundation, Lincoln  
Lutheran Community Hospital, Norfolk  
Miller and Paine, Lincoln  
National Bank of Commerce, Lincoln  
Norden Laboratories, Lincoln  
Peter Kiewit Charitable Trust, Omaha  
Roger Anderson Charitable Foundation, Inc., Lincoln  
Rogers Foundation, Lincoln  
Security Mutual Life Insurance Company, Lincoln