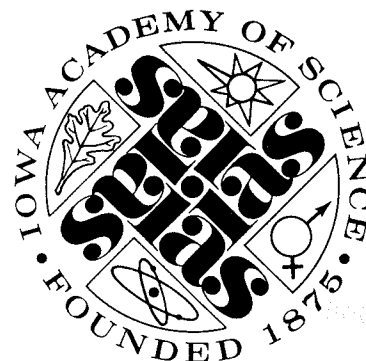


**The
IOWA ACADEMY
of SCIENCE**

92nd Session



Simpson College

April 18-19, 1980

GENERAL INFORMATION

Parking

The Simpson College campus is easily accessible from Interstates 80 and 35. See map on back of program and campus map in the centerfold.

Parking is available on one side of any street. There is one small lot just west of the football field and another 2 blocks north of there. You will probably have to walk a few blocks to the registration area. (There is also a city lot 2 blocks west of the one near the football field.)

Registration

Proceed directly to the Cowles Center on arrival (Building 7 on the map.) The registration area will be easily found there, along with complimentary coffee for all registrants. Additional information will also be available at registration.

Advance registration is strongly advised. Those who register by mail may pick up ID badges and meal tickets in the registration area without delay. However, the registration desk will be open only 7:45 a.m. - noon Friday and Saturday and 1:30-4:00 p.m. on Friday.

Overnight Lodging

Please make your own arrangements for motel accommodations from the information provided with the registration form.

Meal Functions

Reservations for the Awards Luncheon and the President's Banquet (both on Friday) must be made in advance. Luncheon will be available through-the-line without tickets in Pfeiffer Dining Hall (ground level of Building 25) if you don't care to attend the Awards Luncheon on Friday. All luncheon service on Saturday will be through-the-line. Some groups who wish to meet together for lunch may carry their trays to Great Hall on the second floor of this building, where reserved tables will be appropriately marked.

See Program Summary for location of reserved functions. Prices are shown on the advance registration form.

Annual Business Session

The 1980 Business Session of the Iowa Academy of Science will be held at 11:15 a.m. in the theater of the Blank Performing Arts Center (Building 6) following the opening General Session on Friday, April 18. Only Members and Fellows in good standing are eligible to vote on matters brought before the assembly at the business session, but visitors are most welcome and encouraged to attend.

Headquarters; Messages

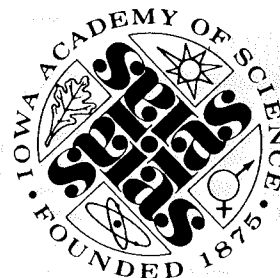
Academy officers and the program coordinator may be contacted through the registration desk. A Message Center will be available for posting special notices or personal notes.

THE ANNUAL MEETING OF THE IOWA ACADEMY OF SCIENCE APRIL 18-19, 1980

HOST INSTITUTION: SIMPSON COLLEGE
INDIANOLA

ACKNOWLEDGEMENTS

The Annual Meeting Committee and the Board of Directors of the Academy wish to express appreciation to the administration of Simpson College for hosting the 92nd session of the Academy and providing facilities for the meetings. Special thanks must go to the Local Arrangements Committee for their efforts and hospitality.



THE IOWA ACADEMY OF SCIENCE, INC.
University of Northern Iowa
Cedar Falls, IA 50613

Affiliated with the American Association for the Advancement of Science

PROGRAM SUMMARY

(Numbers in parentheses refer to building number on campus map.)

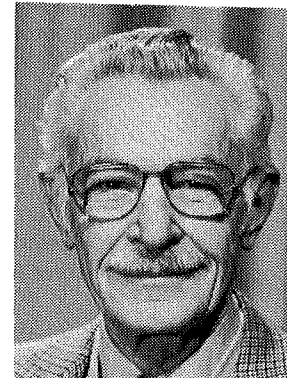
Friday

-
- 8:00 - 11:45 a.m. REGISTRATION** Foyer
Cowles Center (7)
- 8:15 - 10:00 a.m. JUNIOR ACADEMY PAPERS I** Room 2
(See hand-out program available in registration area.) Sigler Hall (12)
- 10:15 - 11:15 a.m. GENERAL SESSION I** Theater
President C. G. McCollum, presiding Blank Performing Arts Center (6)

Welcome: Robert McBride, President, Simpson College

Speaker: Robert Buckmaster, Chairman of the Board, Black Hawk Broadcasting Co. Waterloo, and Chairman, Iowa Natural Heritage Foundation.

"The Iowa Natural Heritage Foundation: Its Genesis and its Goals."



ROBERT BUCKMASTER

Chairman of the Board, Black Hawk Broadcasting Co. (KWWL-AM, KFMW-FM and KWWL-TV, Waterloo, and KLWW-AM, Cedar Rapids), KTIV Television Co., Sioux City, Minn.-Ia. Television Co. (KAAL-TV), Austin, MN and KCBC-AM, Des Moines; Chairman, Iowa Natural Heritage Foundation (1979-); chairman of several state commissions related to environmental quality (1965-79); recipient of the National Governor's Association Award for Distinguished Service to State Government, 1978. Graduate of U. of Iowa Law School; has held several offices as practicing attorney (1938-1969); Mayor of Waterloo, 1947-48.

- 11:15 - 12:15 BUSINESS SESSION** Theater
Brief reports and parliamentary procedures. Blank Performing Arts Center(6)
- 11:30 - 12:15 JUNIOR ACADEMY PAPERS II** Room 2
Sigler Hall (12)

12:30 - 2:00 p.m. **AWARDS LUNCHEON** Great Hall (25)
President C. G. McCollum, presiding

*This served luncheon will honor groups and individual students who have performed in an exemplary manner in science activities throughout Iowa. Several individual awards will be presented by Governor Robert Ray, if he is able to attend. Several teachers will be honored as they receive the Iowa Academy's Excellence in Teaching Award.
(Reservations required.)*

1:30 - 4:00 p.m. **REGISTRATION** Foyer
Cowles Center (7)

2:00 - 4:15 p.m. **SYMPOSIUM: "Perspectives on Iowa's Declining Flora and Fauna"** Room 11
Carver Science Hall (17)

Arranged by D. R. Farrar, I.S.U., Dean M. Roosa, I.C.C., and D. J. Roslien, Luther College.

(Sponsored by the Botany and Conservation Sections and the Conservation and Preserves Committee.)

See Conservation Section Program for details.

2:00 - 4:15 p.m. **SECTION MEETINGS** (See Section Programs
Engineering for locations and schedules.)
Geology
Mathematics/M.A.A.
Science Teaching

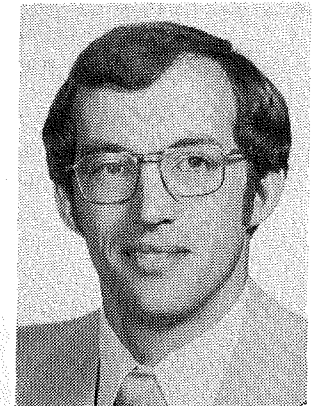
4:30 - 5:30 p.m. **GENERAL SESSION II** Theater, Blank
President C. G. McCollum, presiding Performing
Arts Center(6)

Speaker: Doug Snyder, Director of Gasohol Development, ADM Corn Sweeteners, Cedar Rapids

DOUG SNYDER

Mr. Snyder joined the staff of the nation's largest fuel grade alcohol manufacturer in June of 1979. Prior to that time, he had served as Director of Agricultural Development at the Iowa Development Commission, State of Iowa.

During his five years with the State of Iowa, Mr. Snyder was responsible for developing marketing and economic development programs to benefit Iowa's agricultural industry and, during his last year, was specifically responsible for the development of Iowa's widely recognized consumer acceptance and marketing studies, and subsequent promotion of gasohol.



5:30 - 6:15 p.m. **SOCIAL HOUR/RECEPTION** Theater Foyer,
(Banquet ticket required.) Blank Performing
Arts Center (6)

6:45 - 8:15 p.m. **PRESIDENT'S BANQUET** Great Hall (25)
(Reservations required.)
President C. G. McCollum, presiding

Presentation of Iowa Academy Awards (Distinguished Fellow, Distinguished Iowa Scientist, Distinguished Service Award.)

Installation of new president and remarks by outgoing President McCollum.

Response by President-elect Huffman.

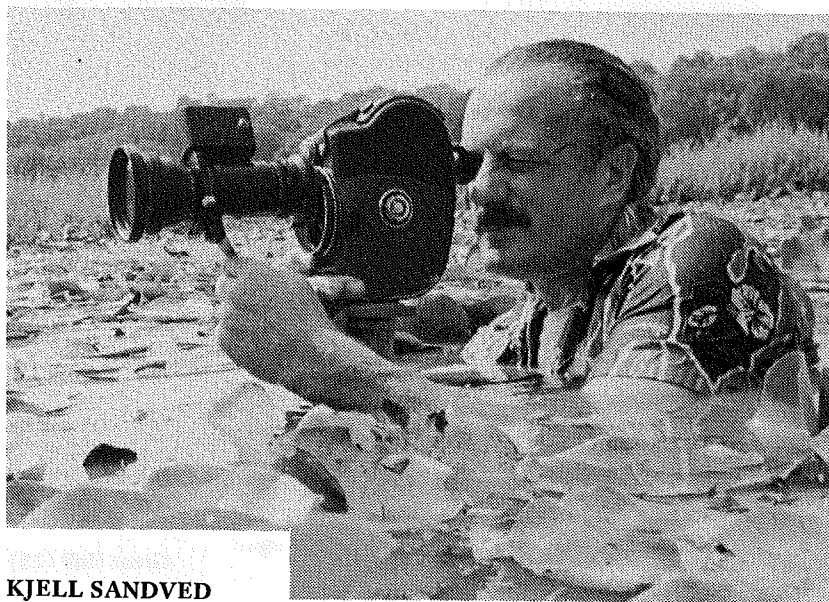
8:30 p.m.

GENERAL SESSION III
President D. H. Huffman, presiding

Smith Memorial
Chapel (18)

Film Lecture: Kjell Sandved, Nature Photographer, National Museum of Natural History, Smithsonian Institution, Washington, DC : "Curious Creatures and Mini-monsters."

This remarkable film demonstrates with great beauty and often with humor the results of Mr. Sandved's activities as a giant Peeping Tom, intruding peacefully upon the lives of small creatures and catching them with his camera at their least inhibited moments. Many of Sandved's enlarged color photographs will also be on display in the foyer of the Blank Performing Arts Center.



KJELL SANDVED

One of the world's leading nature photographers, Kjell Sandved delights in finding beauty and artistic design in all aspects of nature, even in the smallest creatures. His work producing documentary stills and scientific films for the Smithsonian's Museum of Natural History has led him to study plants, animals, and insects in a variety of habitats around the world, from the rain forests of the Amazon to the icy waters of the Antarctic.

He has documented moth behavior in 30 countries, penguins and seals in the Antarctic, orangutans in Borneo, and the world's largest flower in Sumatra - the endangered Rafflesia. Most recently he recorded the remains of Bronze Age man near the Dead Sea

in Jordan. His self-taught mastery of high-magnification, high-speed, and time-lapse techniques produces spectacular results, often revealing details impossible to detect with the naked eye, and biological processes never before discovered.

In addition to presenting a film lecture on Friday evening, photography buffs are offered a rare opportunity to accompany Mr. Sandved on a "photo safari" on Saturday morning. He will cover the specialized methods and problems of photographing animals and plants in their natural environment.

Kjell Sandved has worked at the Smithsonian for over 20 years, and has published five books of his own work.

Saturday

8:00 - 11:00 a.m. **REGISTRATION**

Foyer
Cowles Center (7)

8:00 - 11:15 a.m. **SECTION MEETINGS**
(See Section Programs for locations.)

Anthropology
Botany
Cell Biology
Chemistry: Inorg., Analytical, Phys.
Chemistry: Organic and Biological
Conservation
Engineering
Geology
History & Philosophy of Science
Mathematics
Physics
Physiology
Psychology
Science Teaching
Zoology

8:00 - 12:30 and 1:30 - 3:30

SYMPOSIUM: "Stewardship of the Soil"
(See separate program, page 10.)

11:30 a.m. **GENERAL SESSION IV** Smith Memorial
President D. H. Huffman, presiding Chapel (18)

Speaker: Bob Bergland, U. S. Secretary of Agriculture: "The Federal Solution to the Soil Erosion Problem."
(Tentative)

12:30 p.m. **LUNCH BREAK**
(Lunch is available on campus through-the-line at Pfeiffer Dining Hall, Building 25.)

1:30 p.m. **SECTION MEETINGS**
(See Section Programs for locations.)

Anthropology
Botany
Conservation
Geology (Soil Erosion Symposium)
Mathematics

JOINT SESSION: Chemistry and Room 11
Chemical Education Carver Science Hall (17)
W. Hutton, presiding

Speaker: Dr. Derek Davenport, Department of Chemistry, Purdue University: "From Genesis to the Book of Revelations: 200 Years of Chemistry Texts Written in America(n)"

(Over the years the term "general chemistry" has evolved from near tautology through pedagogy to near opprobrium. Today's general chemistry texts try to be the "Alpha and Omega, the beginning and the end, the first and the last", and though Dr. Johnson may have been right when he averred that "no man ever read a book of science from pure inclination", they sell to the tune of one million a year. Some are tasted, others swallowed, some few chewed and digested. Eighty slides will be used to illustrate those fossils of forgotten importance - the general chemistry texts of the past 200 years. They in turn will serve to prompt an idiosyncratic and at times peevish commentary on the past and present state of the art of teaching chemistry.)

DEREK A. DAVENPORT

Dr. Davenport was born in Leicester, England, and received his early education there and in London. He received the B.Sc. and Ph.D. degrees from the University of London. In 1950 he came to the U.S. After a year at Reed College in Portland, Oregon, and two years at the Ohio State University in Columbus he joined Purdue University where he is now Professor of Chemistry.



His primary interests are in undergraduate and beginning graduate teaching and he is presently head of Purdue's large general chemistry program. He carries on a modest research program in organometallic chemistry and in chemical education. Recently he has developed an interest in the history of chemistry, particularly in early American chemical education.

Since 1966 he has served as a member of the Editorial Board of the Journal of Chemical Education. In 1970 he won the Standard Oil Undergraduate Teaching Award, in 1973 the Visiting Scientist Award of the Western Connecticut Section of the ACS and in 1974 the Manufacturing Chemists Association Award in Chemical Education. In 1979 he will serve as Chairman both of the Division of Chemical Education and of the Purdue Section of the American Chemical Society.

2:30 p.m. **Continuation of Joint Session of** Room 11
Chemistry and Chemical Education Carver
Science Hall (17)
(See Chemical Education Section program.)

SPECIAL FUNCTIONS

Several groups and committees will be holding meetings during the lunch hour on Saturday, April 19. Please consult the bulletin board near the Registration Desk in Cowles Center for announcement of any such meeting for your group.

All such luncheon meetings will be held in Great Hall (one floor above the Pfeiffer Dining Hall - Building 25 on the map). Lunch will be available through-the-line in the Dining Hall; proceed up the stairs with your tray to Great Hall and locate the reserved table(s) for your group.

Saturday, April 19

Smith Memorial Chapel (18)

SYMPOSIUM: "Stewardship of the Soil"

Sponsored by the Social Implications Committee and the Geology Section.

A. Technical Aspects of the Problem

8:00 - 10:00 a.m.

(See papers 15-20, Geology Section program.)

Arranged by Richard Baker, presiding.

B. The Public Concern

Erwin Richter, Social Implications Committee, presiding

10:00 Margo Underwood, Mason City

10:20 Dr. William J. Schaefer, Jr., Executive Director, National Catholic Rural Life Conference

10:40 Representative from League of Women Voters of Metropolitan Des Moines

C. The Solutions

11:30 GENERAL SESSION IV

President D. H. Huffman, presiding

Speaker: Bob Bergland, U. S. Secretary of Agriculture

"The Federal Solution to the Soil Erosion Problem"

Phyllis Kingsbury, presiding

1:30 Lawrence G. Vance, Director, Iowa Department of Soil Conservation:

"Present Programs to Control Soil Erosion."

1:50 Senator Forrest Schwengels, Iowa Legislature:

"The Proposed Legislative Solution"

2:10 Charles McLaughlin, Farmer, Britt, Iowa:

"Solutions from the Farmer's Point of View"

2:30 Summary; Questions and Answers

Phyllis Kingsbury, Moderator

SECTION PROGRAMS

POSTER PAPERS

All of the following Poster Papers are listed in their appropriate sections and will be set up for viewing in Rooms 1 and 2, Cowles Center, unless otherwise indicated, during the hours 2:00 - 4:15 p.m., Friday, and 8:00 - 11:00 a.m. on Saturday. A placard on the display will indicate hours when the author(s) will be present to discuss the paper with interested parties. (The number in parentheses refers to the number in the program and abstract booklet.)

Botany: The natural forest communities of Iowa; a resource in trouble.
G. L. HIGHTSHOE. (6)

Conservation: An initial investigation of changes occurring in an intensively cultivated soil taken out of production for forty years. R. L. TABOR and R. DAVIS. (10)

Game animals of Africa: a photographic safari. H. S. KUYPER*, D. M. HUFFMAN, and J. B. BOWLES. (14)

Geology: Changes in the channel area of the Missouri River in Iowa, 1879-1976. G. R. HALLBERG, J. M. HARBAUGH, and P. M. WITINOK. (5)

The Iowa landscapes of Orestes St. John. J. C. PRIOR* and C. F. MILLIGAN. (6)

Zoology: Visceral fibrosis in bluegills in central Iowa. W. C. BAILEY, J. GINAL, and L. G. MITCHELL. (14)

PHOTOGRAPHIC DISPLAY

Kjell Sandved, world-famous photographer of the infinitesimal of nature, will have a display of some of his best work in the foyer of the Blank Performing Arts Center on Friday afternoon and Saturday. (Mr. Sandved is our featured speaker at the General Session on Friday evening.)

ANTHROPOLOGY

Chairmen: D. C. Anderson

J. A. Tiffany

Room 200, Heckert Hall (22)

Saturday, April 19

8:30 - 11:15 a.m.

- 8:30 1. Site catchment theory: applications to Iowa archaeology. JOSEPH A. TIFFANY* and LARRY R. ABBOTT, Office of the State Archaeologist, The University of Iowa, Iowa City, IA 52242.
- 8:45 2. Loess deposition, soil development and archaeological sites. LARRY R. ABBOTT*, Office of the State Archaeologist, The University of Iowa, Iowa City, IA 52242.
- 9:00 3. The McKinney Oneota village. RICHARD G. SLATTERY*, Office of the State Archaeologist, The University of Iowa, Iowa City, 52242.
- 9:15 4. A study of use-wear patterns on stone tools from the Rift Valley, Kenya. J. R. F. BOWER and S. MBUTU*, Department of Sociology and Anthropology, Iowa State University, Ames, IA 50011.
- 9:30 5. Human use of prairie lakes and marshes in Iowa's prehistoric past. S. C. LENSINK*, Department of Anthropology, The University of Iowa, Iowa City, IA 52242.
- 9:45 BREAK
- 10:00 6. Oneota subsistence in northwest Iowa: the Milford site (13DK1). L. S. TATUM*, Department of Anthropology, The University of Iowa, Iowa City, IA IA 52242.
- 10:15 7. Some thoughts on the meaning of Effigy Mounds. D. C. ANDERSON*, Office of the State Archaeologist, The University of Iowa, Iowa City, IA 52242.

- 10:30 8. An assessment of the archaeological resources at Coralville Reservoir. D. C. ANDERSON*, J. ZALESKY and D. J. ZIEGLOWSKY, Office of the State Archaeologist, The University of Iowa, Iowa City, IA 52242.
- 10:45 9. The Ft. Atkinson site: a status report. B. B. WILLIAMS*, American Studies Program, The University of Iowa, Iowa City, IA 52242.
- 11:00 10. Cultural variations in the use of personal space. G. N. GIPSON*, Iowa State University, Ames, IA 50011.

ANTHROPOLOGY

Chairmen: D. C. Anderson
J. A. Tiffany

SYMPOSIUM
1:30 - 3:45 p.m.

"Studies of Modern Scandinavians: Anthropology, Government, Sociology"

Deborah R. Fink, presiding

- 1:30 11. Reforming local government in Scandinavia. ROBERT WESSEL*, Department of Political Science, Iowa State University, Ames, IA 50011.
- 1:50 12. Urban Danish women: formal equality and everyday ethic within the welfare state. J. G. SCHIRMER*, Department of Anthropology, Washington University, St. Louis, MO 63130.
- 2:10 13. The Viking ethnic revival. M. B. McKUSICK*, Department of Anthropology, The University of Iowa, Iowa City, IA 52242.
- 2:30 BREAK
- 2:45 14. Community models and leadership in Norway. D. C. CAULKINS, Department of Anthropology, Grinnell College, Grinnell, IA 50112.

- 3:05 15. Danish farm women: inheritance rights in transition. D. R. FINK*, Department of Sociology and Anthropology, Iowa State University, Ames, IA 50011.

3:25 DISCUSSION

Robert Wessel, Associate Professor of Political Science, Iowa State University, Ames, IA

Deborah R. Fink, Assistant Professor of Sociology and Anthropology, Iowa State University, Ames, IA

BOTANY

Chairman: Donald R. Farrar

Friday, April 18

1:30 - 3:50 p.m.

SYMPOSIUM

Room 11, Carver Science Hall (17)

"Perspectives on Iowa's Declining Flora and Fauna" (Sponsored jointly by the Botany and Conservation Sections and by the Conservation and Preserves Committee, I.A.S. Arranged by Donald R. Farrar, Iowa State University, Dean M. Roosa, Iowa Conservation Commission, and David J. Roslien, Luther College. See Conservation Section Program for details.)

Saturday, April 19

CONCURRENT SESSIONS

8:30 - 10:45 a.m.

Session A.

Room 201, Wallace Science Hall (20)

Donald R. Farrar, presiding

- 8:30 1. Some unusual and unique features of the leaf anatomy in the Legume tribes Psoraleae and Amorpheae. GLENN W. TURNER*, Department of Botany, Iowa State University, Ames, IA 50011.

- 8:45 2. Increased DNA content of raphide crystal idioblasts in young leaves of Typha angustifolia (Typhaceae). A. P. KAUSCH*, Molecular, Cellular and Developmental Biology, Iowa State University, Ames, IA 50011.
- 9:00 3. Staminal vascular architecture in five dicot species. L. D. HUFFORD*, Department of Botany, Iowa State University, Ames, IA 50011.
- 9:15 4. The tracheid bar and vested pits in seeds of papilionoid legumes (Papilionoideae; Leguminosae). N. R. LERSTEN*, Department of Botany, Iowa State University, Ames, IA 50011.
- 9:30 5. Stomata in the seed coat of some Bauhinia species (Leguminosae; Caesalpinoideae). S. R. RUGENSTEIN* and N. R. LERSTEN, Department of Botany, Iowa State University, Ames, IA 50011.
- 9:45 BREAK
- POSTER PAPER 6. The natural forest communities of Iowa; a resource in trouble. G. L. HIGHTSHOE*, Department of Landscape Architecture, Iowa State University, Ames, IA 50011.
- 10:00 7. Citrus and Citrus relatives pollen grain morphology and taxonomy. J. L. JORDAN* and D. A. GUZON, Department of Plant Pathology, Seed and Weed Sciences, Iowa State University, Ames, IA 50011.
- 10:15 8. Dormancy and seed coat morphology of prostrate spotted spurge (Euphorbia supina Raf.). J. L. JORDAN* and D. A. GUZON, Department of Plant Pathology, Seed and Weed Sciences, Iowa State University, Ames, IA 50011.
- 10:30 9. Further evidence for a dual auxin response. R. R. DUTE* and L. N. VANDERHOFF, Department of Biology, St. Ambrose College, Davenport, IA 52803.

Session B
Room 204, Wallace Science Hall (20)
Daryl Smith, presiding

- 8:30 10. Glyphosate for citrus and avocado weed control. J. L. JORDAN* and L. S. JORDAN, Department of Plant Pathology, Seed and Weed Sciences, Iowa State University, Ames, IA 50011.
- 8:45 11. Results from three years of double cropping in south central Iowa. J. P. MURPHY*, L. D. ROBERTSON, and K. J. FREY, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 9:00 12. Inheritance of oil quality in oat caryopses. A. M. THRO* and K. J. FREY, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 9:15 13. Cytoplasmic effects for quantitative traits in interspecific Avena crosses. L. D. ROBERTSON* and K. J. FREY, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 9:30 14. Aerial pathogens in a central Iowa poplar plantation. K. R. YOUNG*, H. S. MCNABB, JR. and M. E. OSTRY, Department of Forestry, Iowa State University, Ames, IA 50011 and North Central Forest Expt. Station - U. S. Forest Service, Folwell Ave., St. Paul, MN 55108.
- 9:45 BREAK
- POSTER (See PAPER No. 6) The natural forest communities of Iowa; a resource in trouble. G. L. HIGHTSHOE*, Department of Landscape Architecture, Iowa State University, Ames, IA 50011.
- 10:00 15. Notes on Iowa Fungi III. L. H. TIFFANY*, and G. KNAPHUS, Department of Botany, Iowa State University, Ames, IA 50011.

- 10:15 16. Observations on some Hypocreales in Iowa. J. F. SHEARER* and L. H. TIFFANY, Department of Botany, Iowa State University, Ames, IA 50011.
- 10:30 17. Taxonomic considerations of the genus *Radiomyces*. D. J. KITZ*, R. W. EMBREE and J. CAZIN, JR., Departments of Botany and Microbiology, University of Iowa, Iowa City, IA 52242.

10:45 (Please go to Room 201)

COMBINED SESSION

10:45 - 11:00 a.m. and 1:30 - 3:15 p.m.

Room 201, Wallace Science Hall

- 10:45 Election of Botany Section Vice-Chair
- 1:30 18. Bryophytes from north of the Arctic Circle in Northwest Territories. R. W. COLEMAN* and D. K. SMITH, Department of Biology, Upper Iowa University, Fayette, IA 52141.
- 1:45 19. Iowa prairie bryophytes. J. A. O'KEEFE*, Department of Botany, Iowa State University, Ames, IA 50011.
- 2:00 20. Studies on the algal genus *Synura* Ehrenberg from Iowa using electron and light microscopy. J. L. WEE*, Department of Botany, Iowa State University, Ames, IA 50011.
- 2:15 21. Seasonal variations in relative abundance of benthic diatoms in the Cedar River Basin, Iowa. S. P. MAIN*, Department of Biology, Wartburg College, Waverly, IA 50677.
- 2:30 22. An early postglacial diatom flora from northwestern Iowa. J. D. DODD, Department of Botany, Iowa State University, Ames, IA 50011.
- 2:45 23. The vascular flora of Starr's Cave State Preserve. T. G. LAMMERS*, Department of Biology, University of Northern Iowa, Cedar Falls, IA 50613.

- 3:00 24. Progress on the computerized vascular flora of Iowa (BIOBANK). L. J. EILERS*, Department of Biology, University of Northern Iowa, Cedar Falls, IA 50613.

CELL BIOLOGY

Chairman: Rajendra S. Rana

Room 203, Wallace Hall of Science

Saturday, April 19

9:00 - 11:15 a.m.

- 9:00 1. Functional postnatal development of rat hippocampus (HC). J. R. WEST* and A. C. BLACK, JR., Department of Anatomy, University of Iowa College of Medicine, Iowa City, IA 52242.
- 9:15 2. Histochemical evidence for an infrapyramidal mossy fiber projection to stratum oriens of rat hippocampus (HC). C. A. HODGES*, J. R. WEST, and A. C. BLACK, JR., Department of Anatomy, University of Iowa College of Medicine, Iowa City, IA 52242.
- 9:30 3. Evidence for an infrapyramidal mossy fiber projection to fields CA3a and CA3b of the rat hippocampus. D. BENJAMIN*, J. R. WEST, and A. C. BLACK, JR., Department of Anatomy, University of Iowa College of Medicine, Iowa City, IA 52242.
- 9:45 4. Long-lasting impairment of hippocampal neuronal function by acute exposure to ethanol, as measured by the cyclic GMP (cGMP) response to muscarinic cholinergic stimulation. M. HUNT, G. A. COHEN, A. C. BLACK, JR.*, D. SANDQUIST, J. R. WEST, and T. H. WILLIAMS, Department of Anatomy, University of Iowa College of Medicine, Iowa City, IA 52242.

- 10:00 5. Derangement of the cyclic GMP (cGMP) response of the rat hippocampus (HC) to muscarinic cholinergic stimulation by maternal exposure to ethanol during gestation. G. A. COHEN*, A.M.S. BRUNKO, R. D. DEMUTH, C. A. HODGES, D. SANDQUIST, A. C. BLACK, JR., J. R. WEST, and T. H. WILLIAMS, Department of Anatomy, University of Iowa College of Medicine, Iowa City, IA 52242.
- 10:15 6. Aldehyde fixation and the Timm's sulfide silver m method for demonstrating heavy metals in the central nervous system. K. C. KOSEL*, C. L. BARNES, G. W. VAN HOESEN, Department of Anatomy, University of Iowa, Iowa City, IA 52242.
- 10:30 7. Vitamin-E and BHT produce giant ciliates. E. C. BOVEE and DAVID C. LENNARTZ, Department of Physiology and Cell Biology, University of Kansas, Lawrence, KS 66045.
- 10:45 8. Observations on the immobilization antigen in Paramecium. R. R. DUTE* and A. ADOUTTE. Department of Biology, St. Ambrose College, Davenport, IA 52803.

CHEMICAL EDUCATION

Chairmen: Wilbert Hutton
Tom McCarley

Saturday, April 19

JOINT SESSION WITH CHEMISTRY SECTIONS

1:30 - 4:00 p.m.

Room 11, Carver Science Hall (17)

- 1:30 General Session presentation by Derek Davenport - "From Genesis to book of Revelations: 200 years of Chemistry texts written in America(n)."

- 2:45 Comments on General Chemistry Lab experiments, D. A. DAVENPORT, Purdue University, West Lafayette, IN 47907
- 3:15 1. The synthesis and analysis of hydrazinium sulfate. A sequence of experiments for the general chemistry laboratory. S. A. HEIDEMAN* and W. HUTTON, Iowa State University, Ames, IA 50011.
- 3:30 2. A quantitative analysis course for pharmacy majors. L. A. FUNKE*, J. D. WOODS, and G. L. LYON, Drake University, Des Moines, IA 50311.
- 3:45 DISCUSSION

CHEMISTRY: Inorganic, Analytical, Physical

Chairman: J. D. Woods, presiding
Room 13, Carver Science Hall (17)

Saturday, April 19

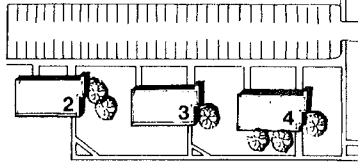
8:00 - 9:45 a. m.

- 8:00 1. The kinetics of acceleratory decomposition. S. R. PORTER* and J. D. DANFORTH, Grinnell College, Grinnell, IA 50112.
- 8:15 2. The kinetics of the thermal dehydrochlorination of poly(vinylchloride) PVC. J. D. DANFORTH*, J. SPIEGEL and J. BLOOM, Grinnell College, Grinnell, IA 50112.
- 8:30 3. Products of aquation of trans-bromobis (ethylenedi-amine) - nitrichromium (III) cation. J. E. GUERRERO and J. C. CHANG*, University of Northern Iowa, Cedar Falls, IA 50613.

Continued on page 24.



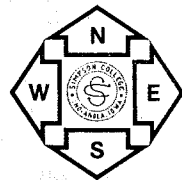
Water Tower



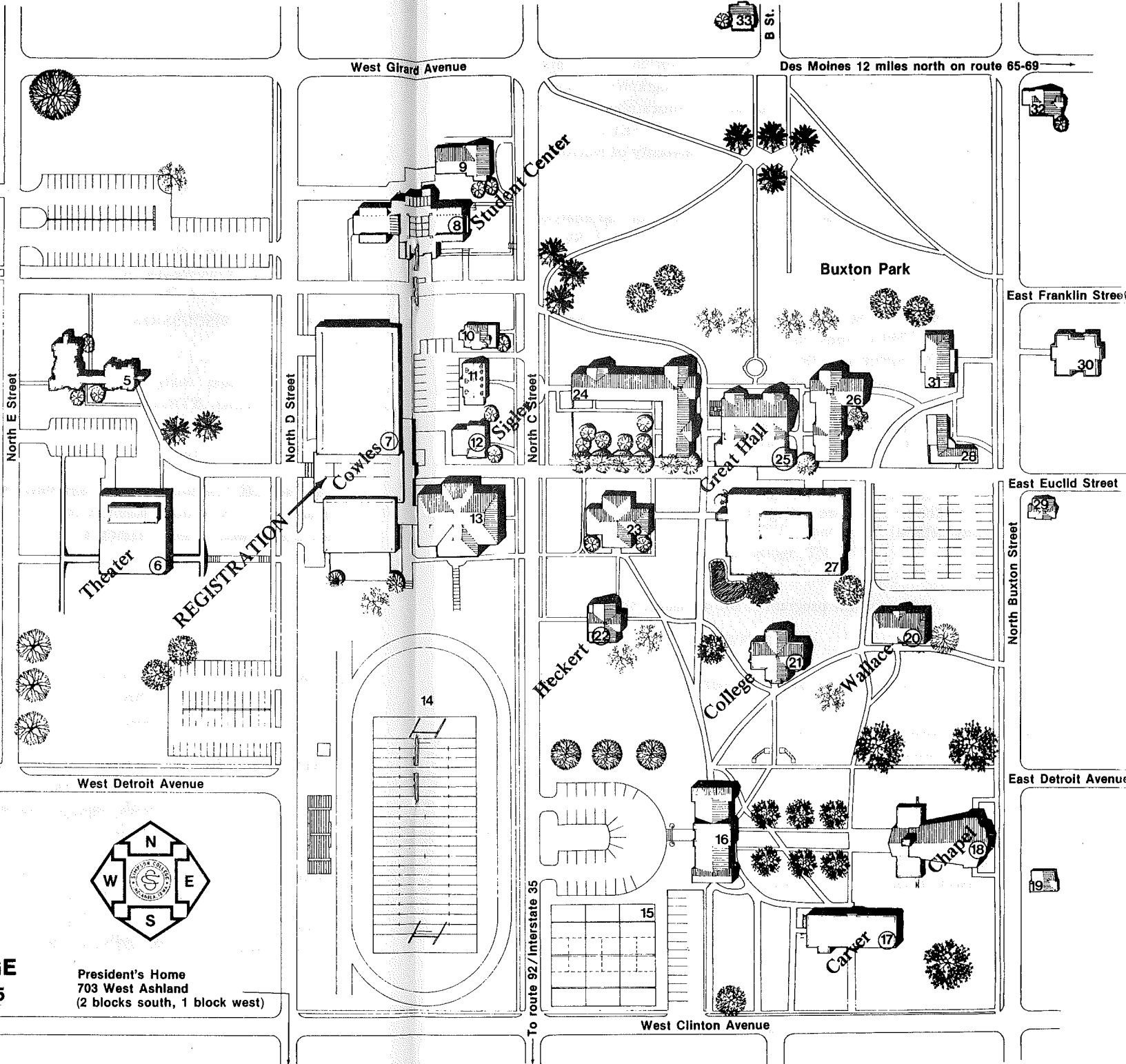
1. Athletic Fields
2. Sigma Alpha Epsilon Fraternity
3. Alpha Tau Omega Fraternity
4. Worth House
5. Buxton Hall
6. Blank Performing Arts Center
7. Cowles Center
8. Brenton Student Center
9. Delta Delta Delta Sorority
10. Afro-American Cultural Center
11. Lambda Chi Alpha Fraternity
12. Sigler Hall
13. Hopper Gymnasium
14. Neff Field
15. Buxton Tennis Courts
16. Hillman Hall (Administration Bldg.)
17. Carver Science Hall
18. Smith Memorial Chapel
19. Pi Beta Phi Sorority
20. Henry A. Wallace Hall of Science
21. College Hall (Old Chapel)
22. Heckert Hall
23. Mary Berry Hall (Incl. Book Store)
24. Kresge Women's Residence Hall
25. Pfeiffer Dining Hall and Great Hall

26. Barker Men's Residence Hall
27. Dunn Library
28. Music Annex
29. Center House (music)
30. Lorraine Apartments
31. Barrows Music Hall
32. Delta Zeta Sorority
33. Alpha Chi Omega Sorority

SIMPSON COLLEGE
INDIANOLA, IA. 50125



President's Home
 703 West Ashland
 (2 blocks south, 1 block west)



- 8:45 4. Combined acidic alumina column chromatography and high performance liquid chromatography for the analysis of polynuclear aromatic hydrocarbons and Neutral Nitrogen Heterocyclics. S. L. FEULNER, R. M. MOORE* and C. S. WOO, University of Northern Iowa, Cedar Falls, IA 50613.
- 9:00 5. A mass spectrometer which generates and analyzes neutral fragments. G. D. FLESCHE* and H. J. SVEC, Iowa State University, Ames, IA 50011.
- 9:15 6. Hydrogen bonding self-association studies of some phenyl-substituted methanols. P. E. RIDER* and L. J. SPIELBAUER, University of Northern Iowa, Cedar Falls, IA 50613.
- 9:30 Election of Vice-chairman
- 9:45 Joint meeting with Organic and Biological Chemistry Section, Room 12 (See Inorganic Chemistry Section Program for details.)

(See also the program of the Chemical Education Section.)

CHEMISTRY: Organic and Biological

Chairman: J. Macmillan

Room 12, Carver Science Hall

Saturday, April 19

8:15 - 11:15 a.m.

- 8:15 1. NMR Spectra of 1-methyl-1-acetyl-3-phenylperhydro-diazocine. S. WAWZONEK* and J. M. SHRADEL, Iowa City, IA 52242
- 8:30 2. Dual mechanisms for photosubstitutions by Chloride Ion on Bromonitrobenzenes. GENE G. WUBBELS* and BONNIE L. KENNEY, Department of Chemistry, Grinnell College, Grinnell, IA 50112.
- 8:45 3. The utility of purinyl radicals in the synthesis of base-modified nucleosides. VASU NAIR and STEPHEN G. RICHARDSON*, Iowa City, IA 52242.
- 9:00 4. Analysis of genetically abnormal hemoglobin in mice. R. A. DUNBLAZIER and R. A. POPP, Dubuque, IA, 52001 and Oak Ridge, TN.

9:15 BREAK

SYMPOSIUM

SYNTHESIS OF ANTIBIOTIC AND ANTITUMOR AGENTS

- 9:45 Synthetic approaches to anthracycline anti-cancer agents. GEORGE KRAUSE, Department of Chemistry, Iowa State University, Ames, IA 50011.
- 10:20 Questions
- 10:40 Microbial transformation studies with anti-tumor antibiotics. JOHN P. ROSAZZA, Division of Medicinal Chemistry and Natural Products, College of Pharmacy, The University of Iowa, Iowa City, IA 52242.
- 11:15 Questions

CONSERVATION

Chairmen: David Roslien
Richard Lampe
Room 11, Carver Science Hall

Friday, April 18
2:00 - 4:15 p.m.

SYMPOSIUM

"Perspectives on Iowa's Declining Flora and Fauna"

(Sponsored jointly by the Botany and Conservation Sections and by the Conservation and Preserves Committee, I.A.S. Arranged by Donald R. Farrar, Iowa State University, Dean M. Roosa, Iowa Conservation Commission, and David J. Roslien, Luther College.)

Donald R. Farrar, presiding

- 2:00 1. Prairies. DARYL SMITH*, University of Northern Iowa, Cedar Falls, IA 50613.
- 2:15 2. Forests. GEORGE THOMSON*, Iowa State University, Ames, IA 50011.
- 2:30 3. Mammals. JOHN BOWLES*, Central College, Pella, IA 50219.
- 2:45 4. Birds. JIM DINSMORE*, Iowa State University, Ames, IA 50011.
- 3:00 BREAK
- 3:15 5. Wetlands. RICHARD BISHOP*, Iowa Conservation Commission, Indianola, IA 50125.
- 3:30 6. Amphibians and Reptiles. JAMES CHRISTIANSEN*, Drake University, Des Moines, IA 50311.
- 3:45 7. Fish. BRUCE MENZEL*, Iowa State University, Ames, IA 50011.
- 4:00 8. Habitat preservation. DEAN M. ROOSA*, Iowa Conservation Commission, Des Moines, IA 50300.

CONTRIBUTED PAPERS

Saturday, April 19
8:30 - 11:00 a.m.

- 8:30 9. Iowa forest restoration; land use planning challenge for the 1980's. G. L. HIGHTSHOE*, Iowa State University, Ames, IA 50011.
- POSTER PAPER 10. An initial investigation of changes occurring in an intensively cultivated soil taken out of production for forty years. R. L. TABOR* and R. DAVIS, Central Missouri State University, Warrensburg, MO 64093.
- 8:50 11. Subnivean activity of small mammals in northwestern Iowa. M. C. LEWIS* and D. K. MILLER, Buena Vista College, Storm Lake, IA 50588.
- 9:10 12. Bats of Iowa. JOHN B. BOWLES*, Central College, Pella, IA 50219.
- 9:30 13. Home ranges of north american badger in northwestern Iowa. R. P. LAMPE*, Buena Vista College, Storm Lake, IA 50588.
- POSTER PAPER 14. Game animals of Africa: a photographic safari. H. S. KUYPER*, D. M. HUFFMAN, and J. B. BOWLES, Central College, Pella, IA 50219.
- 9:50 BREAK
- 10:00 15. Inventory and relative abundance of catostomids in the Maquoketa River. VAUGHN L. PARAGAMIAN*, Iowa Conservation Commission, Manchester, IA 52057.
- 10:20 16. Aldrin and DDT residues in carp from impounded and Riverine segments of the Des Moines River, 1979. W. A. HUBERT* Iowa State University, Ames, IA 50011.
- 10:40 17. Comparison of two aging techniques for yellow perch. D. N. SCHMITT* and W. A. HUBERT, Iowa State University, Ames, IA 50011.

1:30 - 3:30 p.m.

- 1:30 18. The snails of Lake West Okoboji, twenty years later. R. V. BOVBJERG*, R. L. DUSIL, and R. L. BROER, University of Iowa, Iowa City, IA 52242.
- 1:50 19. Tow passage and nutrient availability on the Mississippi River. M. J. WAGONER*, T. E. PERRY, and J. L. TJOSTEM, Luther College, Decorah, IA 52101.
- 2:10 20. Use of algal assays to evaluate algal biomass in regulated streams. J. M. CARR* and W. B. MERKLEY, Drake University, Des Moines, IA 50311.
- 2:30 21. Seasonal characteristics and benthic productivity of Mississippi River backwater lakes. J. K. FIEROH*, C. S. VOLDEN, and J. W. ECKBLAD, Luther College, Decorah, IA 52101.
- 2:55 22. Comparison of two backwater lakes on the Mississippi River. T. E. PERRY*, M. J. WAGONER, and J. L. TJOSTEM, Luther College, Decorah, IA 52101.
- 3:15 23. Effects of winter aeration on water quality parameters. R. H. McWILLIAMS*, Iowa Conservation Commission, Box 7722, Spirit Lake, IA 51360.
- 3:30 Election of section vice-chair.
- 3:50 ADJOURN

ENGINEERING

Chairmen: J. L. Schnoor
M. J. Murtha

Theater, Blank Performing Arts Center

Friday, April 18

2:00 - 4:20 p.m.

SYNTHETIC FUELS AND GASOHOL

INVITED SPEAKERS AND PANEL DISCUSSION

- 2:00 Coal gasification processes. A. PULSIVER*, Chemical Engineering, Iowa State University, Ames, IA 50011.
- 2:25 Coal liquifaction processes. R. MARKUSZEWSKI*, Chemistry, Iowa State University, Ames, IA 50011.
- 2:50 Development of alcohol fuel. S. MARLEY*, Agricultural Engineering, Iowa State University, Ames, IA 50011.
- 3:15 Gasohol in Iowa. D. GETTER*, Resource and Support Division, Iowa Development Commission, Des Moines, IA 50319.
- 3:40 Methane generation from animal wastes and crop-residues. R. R. DAGUE*, Division of Energy Engineering, University of Iowa, Iowa City, IA 52242.
- 4:05 PANEL DISCUSSION
- 4:30 GENERAL SESSION (See Program Summary)

Saturday, April 19

8:30 - 11:20 a.m.

ENGINEERING AND ENERGY

- 8:30 1. The Hallmark solar heated home: design, performance, and economic benefits. R. JORDAN* and D. J. SPENCER, Division of Energy Engineering, University of Iowa, Iowa City, IA 52242.

- 8:50 2. Potential recovery of metals from coal fly ash by high-temperature chlorination. D. J. ADELMAN*, and G. BURNET, Ames Laboratory, USDOE and Chemical Engineering, Iowa State University, Ames, IA 50011.
- 9:10 3. Thermotransport of carbon in niobium. M. UZ*, F. A. SCHMIDT and O. N. CARLSON, Ames Laboratory, USDOE and Metallurgy, Iowa State University, Ames, IA 50011.
- 9:30 4. Teaching dynamic programming using APL. D. L. BRICKER* and M. R. GOMATAM, Systems Engineering Division, University of Iowa, Iowa City, IA 52242.

9:50 COFFEE BREAK

ENGINEERING AND THE ENVIRONMENT

- 10:00 5. Precision analysis of a distributed watershed model. P. M. WITINOK*, Iowa Geological Survey, Iowa City, IA 52242.
- 10:20 6. Field study of sediment transport characteristics of the Mississippi River near Buzzard Island (R.M. 347-55). J. L. VADNAL*, Iowa Institute of Hydraulic Research, University of Iowa, Iowa City, IA 52242.
- 10:40 7. High density use of septic systems - Avon Lake, Iowa. K. MANCL*, Agricultural Engineering, Iowa State University, Ames, IA 50010.
- 11:00 8. The dissociation kinetics and toxicology of various 0.01 M hexacyanoferrate (III) solutions maintained in a dark environment. K. L. CHERRYHOLMES*, D. B. McDONALD and R. C. SPLINTER, University Hygienic Laboratory, University of Iowa, Iowa City, IA 52242.

GEOLOGY

Chairman: R. G. Baker

Friday, April 18
CONTRIBUTED PAPERS

2:15 - 3:15 p.m.
COMBINED SESSION

Room 12, Carver Science Hall

R. G. Baker, presiding

- 2:05 1. New Bouguer gravity map of Iowa. R. R. ANDERSON, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 2:20 2. A geophysical/geological interpretation of the Plum River fault zone in east-central Iowa. J. O. SVOBODA*, J. Y. CHAO, H. Y. BAIK, and M. SARIBUDAK, Department of Geology, The University of Iowa, Iowa City, IA 52242.
- 2:35 3. Laboratory simulation and characterization of loess "mush". E. R. RUHLAND*, R. L. HANDY, and A. J. LUTENEGGER, Department of Civil Engineering, Iowa State University, Ames, IA 50011.
- 2:50 4. Holocene alluvial fills in Smokey Hollow Valley, Woodbury County, Iowa. E. A. BETTIS III*, 1022 N. 3rd St., Ames, IA 50010.
- POSTER PAPER 5. Changes in the channel area of the Missouri River in Iowa, 1879 - 1976. G. R. HALLBERG*, J. M. HARBAUGH, and P. M. WITINOK, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- POSTER PAPER 6. The Iowa landscapes of Orestes St. John. J. C. PRIOR* and C. F. MILLIGAN, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 3:05 Election of Section Vice-chair.

3:15 - 4:15 p.m.
CONCURRENT SESSIONS

Session A.

Room 12, Carver Science Hall

Jean Prior, presiding

- 3:15 7. Unusual calcitic alteration of Hopkinton Dolomite (Silurian) in Plum River fault zone, eastern Iowa. G. A. LUDVIGSON*, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 3:30 8. Subsurface Silurian stratigraphy of east-central Iowa. B. J. WITZKE*, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 3:45 9. Upper Cambrian lithostratigraphy of northwest Iowa. R. M. McKay*, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 4:00 10. Alteration of the gypsum-anhydrite precipitation kinetics by organic solutes. A. B. HULL*, and R. D. CODY, Department of Earth Sciences, Iowa State University, Ames, IA 50011.

Session B.

Room 13, Carver Science Hall

R. G. Baker, presiding

- 3:15 11. New complexities of the High Terrace of Lake Calvin. S. P. ESLING*, G. R. HALLBERG, T. J. BICKI, and T. E. FENTON, Department of Geology, University of Iowa, Iowa Geological Survey, Iowa City, IA 52242, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 3:30 12. Soil/landform/sediment relations on the Story City Flats area, Des Moines glacial lobe. H. R. JAMES*, T. J. KEMMIS, A. J. LUTENEGGER, G. R. HALLBERG, and T. E. FENTON, Department of Agronomy, Iowa State University, Ames, IA 50011.

- 3:45 13. Ice stagnation origin of the Altamont moraine in Boone County, Iowa. B. A. BOHLKEN*, Department of Earth Sciences, Iowa State University, Ames, IA 50011.
- 4:00 14. Pleistocene relict snails from the Driftless Area, north-eastern Iowa. T. J. FREST* and L. P. FAY, Department of Geology, The University of Iowa, Iowa City, IA 52242.

Saturday, April 19

SYMPOSIUM

“STEWARDSHIP OF THE SOIL”

(Sponsored jointly by the Geology Section and the Social Implications Committee.)

The following six papers, arranged by R. G. Baker, The University of Iowa, present the research aspects of the soil erosion problem and constitute only one part of the symposium. See “PROGRAM SUMMARY” for details of the entire symposium program.

Smith Memorial Chapel

R. G. Baker, presiding

- 8:00 15. Recent changes in Iowa agriculture land use and implications for potential soil loss. G. A. MILLER*, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 8:20 16. Management practices for controlling soil erosion. M. AMEMIYA*, Department of Agronomy, Iowa State University, Ames, IA 50011.
- 8:40 17. Field to stream processes in sediment transport. H. P. JOHNSON* and J. L. BAKER, Department of Agricultural Engineering, Davidson Hall, Iowa State University, Ames, IA 50011.
- 9:00 18. Use of soil survey and land use data for identifying and evaluating potential soil losses. T. E. FENTON*, Department of Agronomy, Iowa State University, Ames, IA 50011.

- 9:20 19. A geologic perspective on erosion. B. E. HOYER*, Iowa Geological Survey, 123 N. Capitol, Iowa City, IA 52242.
- 9:40 20. Wind and water soil erosion climatology. P. J. WAITE*, Iowa Department of Agriculture, Room 10, Municipal Airport Terminal, Des Moines, IA 50321.

Notice of Field Trip sponsored by the Geological Society of Iowa: April 20 (Sunday) to visit several Upper Pennsylvanian cyclothems near Winterset, Iowa. Details will be announced in the section and by posted notice in the message area near Registration.

HISTORY AND PHILOSOPHY OF SCIENCE

Chairman: William E. Carroll
Room 13, College Hall

Saturday, April 19
9:20 - 11:00 a.m.

- 9:20 1. Systems philosophy: useful and compatible to scientists. H. D. SWANSON*, Department of Biology, Drake University, Des Moines, IA 50311.
- 9:50 2. Mechanism, vitalism, and organicism. J. B. HAGEN*, Oregon State University and Cornell College, Mt. Vernon, IA 52314.
- 10:20 3. Albertus Magnus and modern science. W. E. CARROLL* Department of History, Cornell College, Mt. Vernon, IA 52314.

MATHEMATICS

(Iowa Section of the Mathematical Association of America)

Section Chairperson: Frank Kosier; Program Chairperson: Arnold Adelberg (Joint meeting with American Statistical Society and Society for Industrial and Applied Mathematics; Stuart Klugman, chairperson ASA, Herb Hethcote, chairperson SIAM)

Smith Lounge, Brenton Student Center

Friday, April 18

1:30 - 5:00 p.m.

- 1:30 1. Survey Sampling. WAYNE FULLER*, Ames
- 2:20 2. Estimating remainders by geometry. D. E. SANDERSON*, Ames.
- 2:45 3. NP-Completeness. DAVID L. REINER*, Grinnell
- 3:30 BREAK
- 3:45 Invited address: "Alternative rings - from the Cayley numbers to the present." ERWIN KLEINFELD, Iowa City.
- 4:45 Governor's Report. J. L. CORNETTE*, Ames

Saturday, April 19

8:30 a.m. - 4:30 p.m.

- 8:30 4. The Khachian algorithm for solving linear programs. A. M. FINK*, Ames.
- 9:20 Invited address: "Mathematics and computing science in an industrial research laboratory." NORMAN L. SCHRYER, Bell Telephone Laboratories, Murray Hill, New Jersey.
- 10:20 BREAK
- 10:40 Panel Discussion: Current employment opportunities in the mathematical sciences. JIM HARDY, John Deere Technical Center; HAL SCHOEN, Iowa City; REG YODER, Bankers Life; HERB HETHCOTE, Iowa City, moderator.

- 11:45 Business Meetings
- 12:15 LUNCH
- 1:30 5. Public utility rates: natural gas usage and weather. EUGENE RASMUSSEN*, Iowa State Commerce Commission, Des Moines.
- 2:10 Invited address: "Some open questions in 3-dimensional geometric approximation. JIM HURT, John Deere Technical Center, Moline, IL.
- 2:50 BREAK
- 3:05 6. Finding the source of a signal. RUSSELL LENGTH*, Iowa City.
- 3:45 7. Interdisciplinary approach to programming courses. H. M. WALKER*, Grinnell.
- 4:15 8. Recruiting a center for Iowa (with calculus). S. R. PORTER*, Grinnell.

PHYSICS

(Joint meeting with Iowa A.A.P.T.)

Chairman: Donald S. Roiseland, presiding
Room 11, Carver Science Hall

Saturday, April 19
9:00 - 11:15 a.m.

- 9:00 Invited physics lecture demonstrations.
- 9:45 Informal discussion with participants; break.
- 10:00 1. Utilizing solar energy to convert biomass into energy products: alcohol from farm crops. ARTHUR C. MEYERS III*, Solar Energy Division, Navarro College, Corsicana, TX 75110.
- 10:15 2. Computer generated hologram production. L. J. VISSER*, Department of Physics, University of Northern Iowa, Cedar Falls, IA 50613.
- 10:30 3. Computer generated holograms in a holography course. D. W. OLSON*, Department of Physics, University of Northern Iowa, Cedar Falls, IA 50613.
- 10:45 4. A new cognitive paradigm for quantum mechanics. R. A. RABINOFF*, Department of Physics, Maharishi International University, Fairfield, IA 52556.
- 11:00 Announcement of new I.A.S. section chairperson and election of section vice chairperson. Airing of mutual concerns of I.A.S. and A.A.P.T.
- 12:30 p.m. Iowa A.A.P.T. will have its business meeting over lunch in a reserved area. See "Special Functions" section of program for location.

(See also program of the Engineering Section.)

PHYSIOLOGY

Chairman: T. E. Rogers
Room 201, Heckert Hall

Saturday, April 19
9:15 - 11:00 a.m.

T. E. Rogers, Presiding

- 9:15 1. Left Ventricular Assistance: Experience in 92 patients. SHIRLEY BESHANY*, M.D., C. KONGTAHWORN, M.D., R. H. ZEFF, M.D., S. PHILLIPS, M.D., L. IANNONE, M.D., D. GORDON, M.D., and T. BROWN, M.D., Iowa Heart Ctr., 944 18th St., Des Moines, 50314.
- 9:30 2. Changes in blood glucose, insulin and lactate levels in response to carbohydrate consumption prior to endurance exercise. J. M. FRUTH*, C. V. GISOLFI, R. M. COOMES, E. B. BURKE, and C. M. TIPTON, Exercise Science Program, University of Iowa, Iowa City, IA 52242.
- 9:45 3. Development of an exhaustion test for untrained rats using muscle glycogen values. P. L. KERSHNER*, K. A. ROWLETT, A. VAILAS, and C. M. TIPTON, Exercise Science Program, University of Iowa, Iowa City, IA 52242.
- 10:00 4. Influence of early exercise training on the development of hypertension in SHR groups. K. D. MARKUS*, R. D. MATTHES, and C. M. TIPTON, Exercise Science Program, University of Iowa, Iowa City, IA 52242.
- 10:15 5. Some effects of selenium, vanadium and zirconium on the swimming rate of *Tetrahymena pyriformis*. E. C. BOVEE* and T. L. O'BRIEN, Department of Physiology and Cell Biology, University of Kansas, Lawrence, KS 66045.

PSYCHOLOGY

Chairman: Jack Yates, presiding
Room 14, College Hall

Saturday, April 19
9:00 - 11:00 a.m.

- 9:00 1. Combat readiness as determinant of support for the draft. J. C. GREENWOOD* and M. E. P. DAVIS, Department of Psychology, St. Ambrose College, Davenport, IA 52803.
- 9:20 2. Major recipients of National Science Foundation funds for psychological research (1954-1978). K. TOLVSTADT* and A. R. GILGEN, Department of Psychology, University of Northern Iowa, Cedar Falls, IA 50613.
- 9:40 3. Effects of actor-relevant vs. other-relevant information on observers' causal attributions for a performance outcome. CHERI CHRISTENSEN* and DANIEL ARKKELIN, Department of Psychology, Wartburg College, Waverly, IA 50677.
- 10:00 4. Effects of being a chairperson vs. being interviewed on subjective reactions to conditions of group density. DAN ARKKELIN* and CHERI CHRISTENSEN, Department of Psychology, Wartburg College, Waverly, IA 50677.
- 10:20 5. Sex differences in assertiveness. H. A. ERDMANN*, SPO 655, Luther College, Decorah, IA 52101.
- 10:40 6. Cross-sex behavior in childhood and adult sex role orientation. A. R. GILPIN*, College of Social & Behavioral Sciences, University of Northern Iowa, Cedar Falls, IA 50613.

SCIENCE TEACHING

Chairman: Ross L. Iverson
Room 2, Sigler Hall

Friday, April 18
2:15 - 4:00 p.m.

- 2:15 1. A long-range science plan for science education in Iowa. E. L. HATCHER*, Davenport Central High School, 1120 Main, Davenport, IA 52803.
- 2:30 2. Science anxiety: what can we do about it? G. R. DAVIS*, Reinbeck Comm. Sch., Reinbeck, IA 50669.
- 2:45 3. Presenting two models of origins! H. B. WAGONER, JR.*, 3701 E. 38th Street Court, Des Moines, IA 50317.
- 3:00 4. A case history of a controversy. A. C. HAMAN*, Department of Biology, University of Northern Iowa, Cedar Falls, IA 50613.
- 3:15 5. Ethical decision making in the science classroom. G. L. MAGRANE, Area 15 Education Agency, Ottumwa, IA 52501.
- 3:30 6. Reading skills and freshman biology performance. K. E. TUINSTRA* and D. M. HUFFMAN, Department of Biology, Central College, Pella, IA 50219.
- 3:45 7. A program teaching about American scientists. SISTER MARY DENNIS LENTSCH, Newman High School, Mason City, IA 50401.

Saturday, April 19
8:30 - 11:15 a.m.

- 8:30 I.S.T.S. Business Meeting
- 10:00 8. Organic chemistry for non-majors. L. A. MCGREW*, Department of Chemistry, University of Northern Iowa, Cedar Falls, IA 50613.

- 10:15 9. Science: a vehicle for interdisciplinary teaching. C. M. LAUBACH*, Des Moines Center of Science & Industry, 4500 Grand Avenue, Greenwood Park, Des Moines, IA 50312.
- 10:30 10. Better science through safety. G. E. DOWNS* and J. A. GERLOVICH, Department of Elementary Education, Iowa State University, Ames, IA 50011.
- 10:45 11. Teaching science in Malaysia. JAMES R. DALLAS*, Science Education, The University of Iowa, Iowa City, IA 52242.
- 11:00 12. Using analogies for energy education. DORIS A. SIMONIS, Science Education, University of Iowa, Iowa City, IA 52242.

ZOOLOGY

Chairmen: R. S. Wacha
F. F. Jaszcz, Jr.
Room 100, Heckert Hall

Saturday, April 19
8:00 - 11:25 a.m.

R. S. Wacha, presiding

1. The role of the pelvic nerve in parturition. K. C. EVANS*, Department of Zoology, Iowa State University, Ames, IA 50011. (By title only.)
- 8:00 2. Is vitamin-E "stomatin" for *Tetrahymena vorax*? D. C. LENNARTZ and E. C. BOVEE*, Department of Physiology & Cell Biology, University of Kansas, Lawrence, KS 66045.

- 8:15 3. "Walking" locomotion by the radiate form of the marine ameba, Vannella mira (Schaeffer, 1926). E. C. BOVEE* and E. A. BOVEE, Department of Physiology & Cell Biology, University of Kansas, Lawrence, KS 66045.
- 8:30 4. Feeding differences between naupliar and adult cyclo-poid copepods. J. E. HAVEL, Biology Department, Drake University, Des Moines, IA 50311.
- 8:45 5. Distribution and ecology of the crayfishes Orconectes iowaensis Fitzpatrick and Orconectes rusticus (Girard) in Minnesota. G. S. PHILLIPS*, College of Natural Science, University of Northern Iowa, Cedar Falls, IA 50613.
- 9:00 6. Peoria Loess mollusc faunas of northwestern Illinois and northeastern Iowa. L. P. FAY* and T. J. FREST, Department of Geology, The University of Iowa, Iowa City, IA 52242.

9:15 BREAK

F. F. Jaszcz, Jr., presiding

- 9:30 7. The status of the small-mouthed salamander (Amby-stoma texanum) in Iowa. J. T. CRAWFORD, Department of Biology, Drake University, Des Moines, IA 50311.
- 9:45 8. Sternotherus odoratus; one of Iowa's rare, peripheral turtle species. J. L. CHRISTIANSEN, Department of Biology, Drake University, Des Moines, IA 50311.
- 10:00 9. The occurrence of the western mosquito fish (Gambusia affinis affinis) in Iowa. J. A. RUSSELL, Walford, IA 52351.
- 10:15 10. Host-parasite interactions in Hyaella azteca infected with Leptorhynchoides thecatus. T. M. RICE* and L. G. MITCHELL, Department of Zoology, Iowa State University, Ames, IA 50011.

- 10:30 11. Ultrastructure and cytochemistry of plasmodia of the myxosporidan, Chloromyxum trijugum. J. K. LISTEBARGER* and L. G. MITCHELL, Department of Zoology, Iowa State University, Ames, IA 50011.
- 10:45 12. Coccidian parasites from Iowa reptiles. VII. R. S. WACHA* and J. L. CHRISTIANSEN, Department of Biology, Drake University, Des Moines, IA 50311.
- 11:00 13. The relative abundances of winter birds in Iowa. BILL GILBERT*, Department of Biology, Simpson College, Indianola, IA 50125.
- 11:15 Election of Zoology Section Vice-chair.
- POSTER PAPER 14. Visceral fibrosis in bluegills in central Iowa. W. C. BAILEY*, J. GINAL and L. G. MITCHELL, Department of Zoology, Iowa State University, Ames, IA 50011.

SPECIAL NOTE TO AUTHORS

All authors of papers presented during the 92nd Session are encouraged to submit manuscripts for consideration by the Editor of the PROCEEDINGS OF THE IOWA ACADEMY OF SCIENCE. Instructions for manuscript preparation can be found inside the front cover of any recent issue of the PROCEEDINGS.

Manuscripts in the physical sciences and engineering are especially encouraged.

OFFICERS AND DIRECTORS 1979-80

President	Clifford G. McCollum, University of Northern Iowa
President-elect	Donald Huffman, Central College
Past President	Karl E. Goellner, Coe College
Treasurer	Frank Starr, Waterloo Community Schools
Editor, PROCEEDINGS	Nels Lersten, Iowa State University
Executive Director	Robert W. Hanson, University of Northern Iowa
Directors:	

- (80) William L. Brown, Pioneer HiBred Intl., Inc.
- (80) Stanley C. Grant, Iowa Geological Survey
- (81) Sr. Marguerite Neumann, Clarke College
- (81) Lois H. Tiffany, Iowa State University
- (82) John C. Downey, University of Northern Iowa
- (82) Joe D. Woods, Drake University

LOCAL ARRANGEMENTS COMMITTEE

Cliff Meints, Chemistry (Chairman)
Joe Moody, Biology
Margaret Watson, Biology
Bill Gilbert, Biology
Allen Brush, Physics
Jim VanDeventer, Mathematics

ANNUAL MEETING COMMITTEE

Robert W. Hanson, University of Northern Iowa (Chm.)
Marilyn Bachmann, Iowa State University
Clifford Meints, Simpson College
Harry T. Horner, Jr., Iowa State University
Edwin Vaughan, Bettendorf
Warren Classon, Davenport
Floyd R. Sanford, Coe College

