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Annual Report of the Iowa Academy of Science, 1984-85

James G. MacMillan
University of Northern Iowa

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Annual Report of the Iowa Academy of Science, 1984-85

JAMES G. MACMILLAN*

Department of Chemistry, University of Northern Iowa, Cedar Falls, IA 50614

PREFACE

This year, 1985, marks the 110th anniversary of the founding of the Iowa Academy of Science. In 1975, when the Academy celebrated its centennial, a history of the Academy was written. Since that time the Annual Report has served as a running history of the Academy.

This year's report encompasses the year beginning July 1, 1984 to June 30, 1985, and is based on committee reports, Board minutes and the recollections of the author.

THE 97th ANNUAL MEETING

The 97th Annual Meeting of the Iowa Academy of Science was held April 26-27, 1985 on the campus of Central College in Pella, Iowa.

The Local Arrangement Committee, chaired by **Harold Kolenbrander**, Vice President and Provost, included Ronald Byers, physics, Susan McGuire, biology, and Allen Moen, physics. The committee was especially helpful to the Executive Director and the Director of Meetings and Programs in planning the Annual Meeting. The Annual Meeting Committee included the Section Chairs as well as the Local Arrangements Committee.

Marr D. Simons, Iowa State University
 Katherine Spielmann, University of Iowa
 Diane C. Robertson, Grinnell College
 Steve Heideman, Iowa State University
 Edward Shane, Morningside College
 Jim Swartz, Grinnell College
 Harlo Hadow, Coe College
 Mike Murtha, Iowa State University
 Dennis O'Brien, Drake University
 Clyde Thogmartin, Iowa State University
 David Robinson, Drake University
 Susan R. McGuire, Central College
 Larry D. Sensenig, Morningside College
 Robert Wilson, Belmont
 Robert P. Lancaster, Cedar Rapids
 Rich Huber, Iowa City
 James L. Christiansen, Drake University
 Geraldene Felton, University of Iowa
 Walter Fehr, Iowa State University

The Annual Meeting Committee met on Saturday, September 29, 1984 to discuss the blocking of the meeting, possible General Session speakers and possible symposia. Other details of the meeting were accomplished by the Local Arrangements Committee, the Executive Director and the Director of Meetings and Programs.

The program of invited and contributed papers were planned by the 17 sections of the Academy. This Annual Meeting saw the first programs by the two new sections of the Academy; the Nursing Section and the Biotechnology Section. The Biotechnology Section also planned the symposium "Biotechnology: Technical, Legal, Economic, Social and Ethical Implications."

The Iowa Junior Academy of Science program included the following poster and oral presentations.

Mark E. Anderson - Davenport Central High School
 Analyzing Rutherford backscattering (RBS) spectra formed with lithium ions

William C. Carr, Jr., Davenport Central High School
 Splash chambers: can they be used to study aerodynamics?
Gretchen Edlund, Davenport Central High School
 The digestion of Wrigley's Chewing Gum
Tom Egger, West Middle School, Muscatine
In situ capture of sulfur dioxide by limestone in fluidized bed combustion of coal
Geoffrey S. Francis, Marshalltown Senior High School
 The effects of radiation on integrated circuits
Rod Hauser, Marshalltown Senior High School
 Field testing germination of prairie grasses in a compacted seed bed
Chong C. Lee, Mason City High School
 Quantitative and qualitative aspects of B lymphocyte separation systems
Martha Jo Myers, Davenport Central High School
 The effect of increased light exposure on grafted hibiscus plants
Gail Marie Slama, Mar-Mac High School, McGregor
 The preliminary studies of the effects of Phorbol Ester and Lipopolysaccharid on IgA production on murine Myeloma cells *in vitro*
Christine Stoffel, Bettendorf High School
 Further investigations into the allelopathic activities of Buckhorn Plantain

The posters and presentations were judged by a committee composed of the vice chairs of the sections and the Student Programs Committee. Two students, Martha Jo Myers, Davenport Central High School and Christine Stoffel, Bettendorf High School were selected to represent Iowa at the 1986 American Junior Academy of Science meeting in Philadelphia in 1986.

The senior Academy program had 5 poster papers and 173 contributed papers in 17 sections. There were three workshops, four symposia and a film festival.

The following program summary illustrates the activities of the Annual Meeting.

Thursday, April 25
 2:00 Board of Directors Meeting and Dinner

Friday, April 26
 8:00 VIDEO FILM FESTIVAL

8:00 WORKSHOPS
 Iowa Physics Project (PRISMS)
 Presider: Ken Hartman, Ames Community Schools
 Presenters: Roy Unruh, UNI
 Tim Cooney, Price Lab School, UNI
 Energy Awareness
 Presider: Peggy Steffen, Teacher Advisory Board, DPI
 Presenter: Doug Larche, Energy Educ.
 Consultant, DPI
 Human Genetics
 Presider: Roger Spratt, Ames Community Schools
 Presenter: James Bartley, Univ. of Iowa
 Hospitals & Clinics

*Executive Director, IAS

<p>8:30 IJAS POSTER PAPERS</p> <p>8:30 IJAS PRESENTATIONS</p> <p>10:00 POSTER SESSIONS</p> <p>10:30 GENERAL SESSION I President Richard S. Wacha, presiding Welcome: Harold M. Kolenbrander, Provost Speaker: F. James Rutherford, Chief Education Officer of the American Association for the Advancement of Science, Washington, DC. "Reform in Science Education: Some Immodest Propositions"</p> <p>12:00 AWARDS LUNCHEON President Richard S. Wacha, presiding This served luncheon will honor groups and individual students who have performed in an exemplary manner in science activities throughout Iowa. Several teachers will be honored as they receive the Iowa Academy's Excellence in Teaching Award.</p> <p>1:30 ANNUAL BUSINESS MEETING</p> <p>1:00 VIDEO FILM FESTIVAL</p> <p>2:00 EXHIBITS</p> <p>2:00 SECTION MEETINGS Botany Chemistry D Engineering</p> <p>2:00 CONCURRENT SYMPOSIA <i>MINES OF SPAIN</i> <i>THE IOWA SCIENCE FOUNDATION: REVIEW OF FIRST-YEAR PROJECTS</i> <i>IOWA AND THE NATION'S RESPONSE TO EXCELLENCE IN EDUCATION REPORTS</i></p> <p>4:00 POSTER SESSIONS</p> <p>6:30 PRESIDENT'S BANQUET</p> <p>8:00 GENERAL SESSION II President John C. Downey, presiding Performance by Lee Stetson, Yosemite National Park, California "Conservation With a Tramp: An Evening With John Muir"</p>	<p>A- B- Chemical Education Chemistry, Inorganic Chemistry, Organic Conservation Engineering A- B- Geology Nursing Physics Physiology Psychology Science Teaching Zoology</p> <p>10:00 SYMPOSIUM <i>PREHISTORIC ARCHAEOLOGY OF THE SOUTHERN DRIFT PLAIN: THE F-518 PROJECT</i></p> <p>11:00 GENERAL SESSION III President John C. Downey, presiding Speaker: Wendell Roelofs New York State Agricultural Experiment Station, Geneva, NY "Sex Pheromone Research in the Lepidoptera"</p> <p>1:00 VIDEO FILM FESTIVAL</p> <p>1:00 SYMPOSIUM <i>BIOTECHNOLOGY: TECHNICAL, LEGAL, ECONOMIC, SOCIAL, AND ETHICAL IMPLICATIONS</i></p> <p>1:00 SECTION MEETINGS Agricultural Sciences A- B- Linguistics Science Teaching</p> <p>1:15 FIELD TRIP</p>
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Attendance summary is shown in *Table 1*. The 467 total attendance represented a decrease of 115 from the 1984 meeting in Iowa City. *Table 2* shows the five year attendance. Although this year's attendance was down considerably from last year, it was more comparable to

Table 1. Registered Attendance, 1985

	Pre-registered		Walk-in		TOTAL
	Papers	Others	Fri.	Sat.	
Members:					
Regular	81	99	67	28	275
Student	26	3	1	1	31
SUB-TOTAL	107	102	68	29	306
Nonmembers:					
Regular	26	7	11	2	46
Student	51	1	5	13	70
SUB-TOTAL	77	8	16	15	116
Guests, etc.	—	45	—	—	45
TOTAL	184*	155	84	44	467

*includes symposia papers

Table 2. Five Year Average Attendance

YEAR	1981 ¹	1982 ²	1983 ³	1984 ⁴	1985 ⁵
Members	347 (67.9)*	275 (66.2)	328 (65.1)	361 (62.0)	306 (65.5)
Non-members	108 (21.1)	90 (21.6)	132 (26.1)	179 (30.7)	116 (24.8)
Guests	56 (10.9)	50 (12.1)	44 (8.7)	42 (7.2)	45 (9.6)
Attendance Totals	511 (99.9)	415 (99.9)	504 (99.9)	582 (99.9)	467 (99.9)

*Numbers in brackets are percentages.

¹Coe College

²Iowa Central Community College

³Luther College

⁴University of Iowa

⁵Central College

previous years attendance. The percentages of members, non-members and guests over the five years has not changed appreciably with about 65% of the persons registering as members, 25% as non-members and 10% as guests.

Of the 173 papers presented 58% were by either regular or student members while the remaining 42% were by non-members. Also, 45% of all papers were given by students. Most of the student papers were co-authored by Academy members.

Table 3 shows that 1218 persons attended the 198 contributed papers sessions. The attendance counts were based on the best estimates of the Section Chair. The attendance was fairly even over all sections.

The Awards Luncheon

Awards for Excellence in Science Teaching were presented by Gary Downs, Iowa State University, Director of the Excellence in Science Teaching Program. The following teachers received awards:

Robert Sandquist (Biology), Newton Senior High School, Newton

John Emerson (Chemistry), Ogden Community High School, Ogden

William J. Desmarais (Earth Science), George Washington Senior High School, Cedar Rapids

Phyllis Fritchen (Elementary Science), Ottumwa Community Schools, Ottumwa

Lloyd Phillips (Junior High Science), Knoxville Junior High School, Knoxville

Don Schaefer (Physics), Bettendorf High School, Bettendorf

Lynn Glass, Iowa State University, introduced the Iowa Junior Academy of Science student research paper presenters and announced the persons who were selected to be the Iowa representative to the American Junior Academy of Science meeting in 1986. The delegates and alternates selected were:

Martha Jo Myers, Davenport Central High School

Christine Stoffel, Bettendorf High School

Alternates:

Mark E. Anderson, Davenport Central High School

Gail Marie Slama, Mar-Mac Senior High School

Joe Moore, Keystone Area Education Agency, the student programs Chair, acknowledged the following programs for secondary students:

Eastern Iowa Science and Engineering Fair

Hawkeye Science Fair

Northeast Iowa Regional Science and Engineering Fair

Quad-Cities Area Science and Engineering Fair

University of Iowa Science, Engineering &

Humanities Symposium

UNI Science Symposium

Westinghouse Iowa State Science Talent Search

Governor's National Youth Science Camp

Physics Olympics

The program directors were commended for their work in providing incentives for science achievement among pre-college students.

Table 3. Attendance Summary, 97th Session, 1985

	No. of Papers	Attendance
<i>Contributed Papers</i>		
Agricultural Sciences	21	19
Anthropology	7	25
Biotechnology	7	20
Botany	22	30
Chemical Education	9	21
Chemistry C	6	20
Chemistry D	12	29
Conservation	10	27
Engineering	20	21
Geology	2	20
Linguistics	8	15
Nursing	6	15
Physics	6	35
Physiology	6	14
Psychology	12	21
Science Teaching	8	45
Zoology	8	35
TOTALS	170	412
<i>Invited Papers</i>		
Symposium: Mines of Spain	6	65
Symposium: The Iowa Science Foundation Review of First-Year Projects	10	30
Symposium: Pre-Historic Archaeology of the Southern Drift Plain: The F-518 Project	3	26
Symposium: Iowa and the Nation's Response To Excellence in Education Reports	2	45
Symposium: Biotechnology: Technical, Legal, Economic, Social & Ethical Implications	4	15
TOTALS	25	181
General Session I		175
General Session II		225
General Session III		225
Workshop		30
Field Trip		55
Video Film Festival		50
Special:		
Annual Business Session		60
Awards Luncheon		103
President's Banquet		147

The President's Banquet

Following the Friday evening banquet, President Richard Wacha introduced Charles Wunder, University of Iowa and Chair of the

Recognition and Awards Committee, who in turn introduced the nominators for the following Iowa Academy of Science Awards:

- Distinguished Fellow Award
Arnel R. Hallauer, Iowa State University
- Distinguished Iowa Scientist Award
Walter F. Wedin, Iowa State University
- Distinguished Service Award
Harry T. Horner, Iowa State University

Following the awards, President Wachua made his final comments as retiring president and presented John Downey with a gavel. New president John Downey made his presentation before reconvening the meeting in Douwstra Auditorium for General Session II. Both presentations appeared in the September issue of the I.A.S. Bulletin.

MINUTES OF THE ANNUAL BUSINESS SESSION

April 26, 1985

The meeting was called to order by President Richard Wachua at 1:30 p.m. in Douwstra Auditorium on the Central College campus in Pella, Iowa. With approximately 60 persons in attendance a quorum was declared.

The first item of business was a report by Duane Anderson, Chair of the Election Committee on the results of the spring election. He reported the following results:

- President-elect: Paul Waite, Des Moines
- Directors: Ruth Swenson, Iowa State University
Wayne Anderson, University of Northern Iowa

Anderson reported the results of the vote on the Constitution and By-Laws changes. The following changes were adopted:

Changes to the Constitution

- (1) Delete Article IV, Section 4 [Treasurer]
- (2) Renumber Sections 5 and 6 of Article IV to read 4 and 5 respectively.
- (3) In Article V, Section 2, Line 3, delete "the Treasurer, plus)

Changes to the Bylaws

1. The following Bylaws changes are needed if the Treasurer's position is eliminated:
 - (1) Article III, Section 3, line 2, delete "Treasurer"
 - (2) Article V, Section 7a, Line 2, delete "the Treasurer and"
 - (3) Article V, Section 76, delete "The Treasurer shall serve as the Chair" and add "The chair shall be designated by the President."
2. The following addition to the Bylaws under Article V will make the Iowa Science Foundation Temporary Committee into a Standing Committee.
 - (1) New Section. Iowa Science Foundation Committee
 - a. The Iowa Science Foundation Committee shall consist of six Members or Fellows each serving three year terms, two being appointed each year.
 - b. The chair shall be designated by the President.
 - c. Duties. The Iowa Science Foundation Committee shall manage the Iowa Science Foundation on behalf of the Academy for the State of Iowa. The committee shall solicit proposals, subject them to a review process, make awards, monitor grant projects, and provide teneral oversight for the grants program. The committee shall prepare and update brochures and guidelines pertaining to the program, as appropriate, and shall assist the officers of the Academy, the Governor, and the legislature in the development of the program on an on-going basis.

James Macmillan, Executive Director, presented the following financial statement as of April 24, 1985:

Assets	
Checking	7,900.55
Bonds	6,140.00
Notes	4,285.76
MM Savings	42,889.72
Books	490.00
State Appro.	21,005.97
PRISMS	12,445.00
Others	1,778.68
Total	\$96,735.68
Liabilities and Equities	
Current Liabilities	445.48
IBM Notes	4,826.70
PRISMS	12,245.00
State Appro.	21,005.97
Others	3,134.63
Total Encumbered Funds	\$36,405.60
Total Liabilities	\$41,677.78
Total Equity	\$55,057.90

The total assets of the Academy including grants but excluding office equipment and the Parish Farm, was \$96,735.68. With total liabilities of \$41,677.78 the total equity is \$55,057.90.

As of April 24, 1985 the total income of the Academy was \$139,829.68. Although the expenses of the Annual Meeting were not complete, the total expenses were \$95,418.32 to give a net income of \$44,418.32.

The exceptionally high net income is due to the much larger than expected Parish Farm income this year. We had anticipated an income of \$24,000 whereas the actual income was \$47,500.

It is expected that the income and expenses for May and June should result in the Academy coming in under budget for the 1984-85 year.

James Macmillan presented the 1985-86 proposed budget as approved by the Board of Directors on April 25, 1985.

Proposed Budget 1985-86	
Income	
Publications	\$8,900
Interest	3,525
Meetings	4,475
Dues	21,800
Grants	6,000
State Appro.	60,400
Farm Trans.	30,000
Misc.	4,500
Total Income	\$139,600
Expenses	
Contribution/Gifts/Grants	\$76,250
Office/committee/program	18,800
Printing	25,150
Travel	12,800
Misc.	6,600
Total Expenses	\$139,600

This would give a balanced budget for 1985-86.

Bernard White Chair presented the membership committee report. The following member was promoted to Fellow during the past year:

Russell R. Rulon

Transfers to Emeritus were:

Eugene C. Bovee

C. C. Bowen

Earle L. Canfield

Dorothy W. King

Harvey I. Lundy

Sister Lois Wagner

As of April 24, 1985 the IAS membership was:

Members	869
Student Members	149
Distinguished Fellows	18
Emeritus	93
Fellows	310
Life Members	41
Corporate	<u>3</u>
Total Membership	1483

The names of the following members who had died in 1983-84 were read, and the audience observed a moment of silence in respect to their memory:

Robert L. Burham

Margery Simpson Hufferd

F. E. Jacob

George W. Martin

Ralph O. Marts

Robert C. Miller

Frank H. Spedding

Wayne Anderson, Chair of the Conservation and Preserves committee, read the following resolutions for a vote by the members:

RESOLUTIONS

I. THE "SOD-BUSTER" BILL

"The Iowa Academy of Science recognizes the "sod-buster" bills (i.e. HF3457/SF663) that have been proposed to reduce agricultural use of fragile, erosive lands. The Academy supports carefully-worded legislation of this type that would protect and conserve Iowa's vanishing prairies, wetlands, and forested areas, while protecting Iowa's valuable soils and watersheds."

II. THE IOWA WEED LAW

The Iowa Academy of Science once again strongly encourages the State Legislature to rewrite the Iowa Weed Law; Chapter 317, Code of Iowa. Modification of this law is essential because it no longer regulates weed control in a cost-beneficial manner. Furthermore, the law has evolved into a loose collection of regulations which no longer represent the needs for which it was originally intended. Revision should include a provision to redefine the term "weed" in order to avoid cosmetic spraying and mowing at taxpayers' expense. Additional provisions should include a mechanism for the protection of rare plant and animal species and the prevention of indiscriminant and unwarranted destruction of roadside wildlife habitat, while being consistent with the health and safety aspects of roadside use.

III. PRESERVATION OF PRAIRIE RAILROAD RIGHT-OF-WAYS

The Iowa Academy of Science hereby endorses the immediate implementation of a systematic floristic inventory of all remaining railroads which are either scheduled for abandonment or have already been abandoned. This inventory is essential for developing priorities for the preservation of Iowa's remaining prairies and the endangered plant and animal species which inhabit them. This action is necessary because agricultural and urban land use has led to the destruction of over 99% of the native prairie lands of Iowa; and because railroad right-of-ways represent a major portion of the remaining prairies, and because the rate of abandonment has accelerated over the past several years leading to additional loss of prairie habitat.

IV. 3RD ANNUAL PRAIRIE HERITAGE WEEK

The Iowa Academy of Science hereby encourages the State of Iowa to proclaim the first full week of September, 1985, as the 3rd Annual State Prairie Heritage Week, thereby promoting statewide appreciation and preservation of Iowa's prairie heritage. It urges all schools, colleges, universities, and state and county agencies to take an active lead in developing and implementing programs which encourage public awareness of Iowa's prairie history.

V. DISTRICT DRAINAGE LAW

The Iowa Academy of Science hereby encourages the State Legislature to maintain its present regulation of drainage districts. Currently, such control is exercised under the authority of the Water, Air, and Waste Management Department which must approve stream and wetland dredging and channelization projects. Without such regulation, we fear that wetland wildlife habitat will decline at an alarming rate. It should be recognized that 98% of the wetlands that existed in presettlement time have been destroyed. Therefore, the wise stewardship of Iowa's remaining wetlands is paramount. Laws governing drainage should reflect an ecological philosophy of wise stewardship and an understanding of the ecological consequences of indiscriminant and unwarranted drainage.

VI. PERMITS FOR SCIENTIFIC COLLECTING

In regard to the heightened awareness of the need to protect Iowa's declining flora and fauna, and as a result of Iowa's new scientific collecting permitting system, be it resolved that: The plant and animal scientists of Iowa volunteer their knowledge of population density and distribution to the permitting authorities, facilitating the issuance of permits that contribute the maximum scientific and educational benefit.

Wayne Anderson moved that the resolutions be endorsed, Gene Goellner seconded the motion. The motion passed unanimously.

President Wachal asked if there was any further business. Hearing none the meeting was adjourned.

REVIEW OF ACADEMY ACTIVITIES IN 1984-85

Committee Activities

During 1984-85, the affairs of the Academy were handled by the Board of Directors, twelve standing committees, three ad hoc committees, three editors and three directors of special programs. In all over 100 persons are involved in the Academy's administration. The membership on the Board of Directors, committees and special program directors is listed at the end of this report.

Each committee was asked at the beginning of the year to outline their goals and objectives for the year. They submitted their year end report in May. A summary of their reports appeared in the fall 1985 issue of the I.A.S. BULLETIN.

Annual Meeting Committee

The Annual Meeting Committee met on September 29, 1984 on the Central College campus to begin planning for the 97th Annual Meeting. The committee membership included the Executive Director as Chair, the Section Chairpersons and representatives of Central College who would act as the local arrangements committee. The committee agreed on blocking the meeting with two general sessions on Friday and one on Saturday. Section programs would be on either day at the discretion of the Section Chair. Names of possible General Session speakers were discussed and a list was prepared for the Chair to contact. Symposium topics were suggested with names of appropriate contact persons responsible for organization. The idea of a Film Festival was suggested. The local arrangements people suggested notifying members about points of interest around Pella.

A program summary appears earlier in this report.

Future meeting dates that have been established are:

1986 - Wartburg College, Waverly, April 25-26

1987 - Grinnell College, Grinnell, April 24-25

1988 - Iowa State University, Ames, April 22-23

Committee on Committees

The Committee on Committees, chaired by President-elect John Downey, met once in November to discuss possible persons to fill the committee vacancies. These persons were contacted by mail and although the acceptance percentage was high, some positions needed to be filled through a second mailing. Persons on each committee were contacted by mail and asked to serve as Chairs.

Conservation and Preserves

The Conservation and Preserves Committee, chaired by Wayne Anderson, met three times during the year while conducting most of their business by mail. This year the Board of Directors approved the appointment of the chair of the Iowa Natural History Association as and ex-officio member of the committee as recommended by last year's committee.

The committee prepared for the Board of Directors six resolutions which were approved both by the Board and the membership at the Annual Meeting. (These are listed under the minutes of the Annual Business Session.)

The committee, in cooperation with the Iowa Natural History Association, organized and conducted a symposium on the Mines of Spain Area for the Annual Meeting.

The committee in cooperation with the Iowa Natural History Association, The Geological Society of Iowa and the Association of Iowa Archaeologists held a field trip to reclamation sites and fossil localities in the Pella-Oskaloosa area as part of the Annual Meeting. Fifty persons participated in the field trip which made stops at the Iowa Coal Project Demonstration Mine, the Hall Reclamation Site and the Pella Site on the property of Jake Rus. A field trip guidebook was published as Field Trip Guidebook Three of the Iowa Natural History Association.

Ad Hoc Committee on Controversial Issues

The committee, chaired by Peter De Jong formed a panel on the "Unified Field Theory" to act as persons willing to make personal statements as to the pseudoscientific nature of this theory. These persons could not speak for the Academy but the Academy would supply their names to groups or persons wishing their advice.

The committee began consideration on a statement concerning pseudosciences for submission to the Board of Directors.

The committee took steps toward informing the Academy membership about what is happening nationally concerning creationism.

Education Committee

Midway through the year Carolyn Brockway was appointed committee chair to replace Jack Gerlovich in order to comply with the IAS By-Laws which did not allow a Board member to serve as Chair of a committee. The committee met four times during the year.

The committee acted as the selection committee for the Iowa nominees for the Presidential Award for Excellence in Science Teaching. For this selection the committee was augmented with Roy Unruh (A.A.P.T.), Ken Hartman (A.C.S. and former Presidential Award winner), Roger Spratt (I.S.T.S. and N.A.B.T.), Richard Huber (I.S.T.S.) and Karen Murphy (former Presidential Award winner). The 1985 nominees were:

Kennon W. Schaefer, Mason City High School

Peggy Steffen, Ottumwa High School

Donald Schaefer, Bettendorf High School

The committee acted as the selection committee for the Search for Excellence in Science Education program sponsored by the National Science Teachers Association. Persons from the committee made on site visits to several schools and after evaluation selected Stuart-Menlo

High School of Stuart, Iowa as this year's recipient.

The committee reviewed the D.P.I.'s proposed change in teacher certification standards and drafted a letter to the D.P.I. concerning changes they thought should be incorporated in the final D.P.I. report. Some of the committee members also met with the Director of the Teacher Certification Department at the D.P.I.

The committee acted as the selection committee for the National Youth Science Camp delegates. This year's delegates are:

Susan Kay Quint, Cascade High School

Sara Kathleen Schnittjer, Maquoketa Valley High School

Alternates:

Marc A. Schneider, Lost Nation Community School

Bambi Dawn Jackson, Morning Sun High School

The committee reviewed the Iowa High School Industrial Arts Curriculum Project for its science content. It also reviewed the Iowa 4-9 Science Project as a model for small schools.

Election Committee

The Election Committee, chaired by Past President Duane Anderson, solicited names for the offices of President-elect and Board of Directors. The committee selected a slate of candidates, collected biographical information on each candidate and verified the counting of ballots. The slate presented was as follows:

President-elect: **Bruce Friedrich**

Paul J. Waite

Directors: **Wayne I. Anderson**

Donald N. Duvick

Bruce W. Menzel

Ruth B. Swenson

The committee drafted the By Laws changes for consideration by the Board of Directors. The committee Chair reported the results of the election at the Annual Meeting.

Finance Committee

The Finance Committee, chaired by **Frank Starr**, met once during the year to discuss ways of soliciting funds to support the Annual Meeting, how to build an endowment fund and to arrange for an audit of the Academy books. Through the Academy office \$1,000 was received from the Rolscreen Foundation to support the Annual Meeting. Upon investigation by Starr it was found that an audit would cost \$2,000 by an outside agency. No outside audit was initiated.

The committee considered ways of establishing a long term endowment but no specific plan was developed.

Heritage Project Steering Committee

As this project is essentially complete, no meetings were held this year. "Iowa's Natural Heritage" is in the second printing with the first printing about sold out. The costs for the project were extended onto the second printing and thus no large profits have been seen by the Academy.

The inventory of books owned by the Academy has been depleted and at this time the Academy must purchase books at cost from the Iowa Natural Heritage Foundation. When the cost of the project has been met the Academy will be able to purchase books at a much reduced rate which will allow the Academy to show a greater profit.

Iowa Science Foundation Committee

The Iowa Science Foundation Committee, chaired by **Duane Anderson**, completed its first year of operation by soliciting and funding eleven demonstration grants in nine areas; physical sciences, biological sciences, social sciences, science teaching, agricultural

sciences, emeritus scholar, public understanding of science, curation, and preserves. The foundation was funded by a \$50,000 state appropriation.

The committee developed, through consultation with other states, guidelines for administering and funding for the Foundation on an on-going basis.

The 1985-86 program was announced and 33 proposals were accepted, evaluated, and, when funds were approved for the 1985-86 fiscal year, 12 grants were approved.

The committee organized a symposium for the Annual Meeting on the projects funded during the first year of the Foundation.

The committee made initial contacts with corporations and foundations for funds to support the Foundation on a continuing basis. One thousand dollars was donated by the Life Investors Insurance Foundation.

The demonstration grants for 1984-85 were:

Motor Mill Foray

Clayton County Conservation Board. **Don R. Menken**, Director

The Effects of Cold on the Intestinal Flora of a Laboratory Model of Farm Ruminants

G. Edgar Folk, Jr., University of Iowa

Ice Age Environments of Iowa

R. Sanders Rhodes II, University of Iowa

Shape Analysis of Stylistic Variation in Projectile Points

Stephen C. Lensink, University of Iowa

Biotechnology for Identification of Genes and Gana Products of Chicken Major Histocompatibility Complex

A. W. Nordskog, Iowa State University

Plant — Parasitic Nematodes in Non-cultivated Areas of Iowa

Don C. Norton, Iowa State University

Amplification, Integration and Curation of Fungus Herbarium

Richard W. Pohl, Iowa State University

Solving Suburban Wildlife Problems

Indian Creek Nature Center. **Rich Patterson**, Director

A Study of the Use of Technology as a focus for Science Teaching in Middle/Junior High Schools

Lynn W. Glass, Iowa State University

Science Reasoning Ability in Children

Dale R. Phillips, Grant Wood AEA

Iowa Science Reasoning Project (Grades 4-9)

Dean Hartman, Grant Wood AEA

Outdoor Physics Playground

David C. Elliott, Des Moines Science Center

Long Range Planning Committee

The Long Range Planning Committee, chaired by **Harry Horner**, met once in 1984-85 to review the recommendations previously made on the administrative structure of the Academy and compensation to its administrative officers; i.e. Directors, Editors and Office Manager.

The committee reviewed the position of Treasurer and made the recommendation that the position be terminated as a result of the accounting duties being transferred to the Academy office.

The committee recommended that the position of Director of Meetings and Programs be established and staffed for a three year trial period.

The committee recommended that the Director of Meetings and Programs, the Editor of The Iowa Science Teachers Journal and the Director of the Iowa Junior Academy of Science receive a \$500 honorarium in recognition of their service to the Academy.

The committee recommended that the Parish Farm Committee be

commended for its past and present efforts to maintain and enhance the model farm concept while providing substantial income for the Academy.

The committee recommended that, as feasible, a portion of the farm income be diverted to investments of an endowment fund instead of being used for Academy operating expenses.

Membership Committee

The Membership Committee, chaired by **Bernie White**, met twice during the year and conducted other business by mail or telephone. The committee reviewed and reaffirmed the Fellow requirement previously recommended to the Board of Directors. The committee still favored the 5 year membership requirement for Fellow status, however, continued with the 3 year requirement for the present.

The committee reviewed Fellow nominations and recommended to the Board of Directors that **Russell R. Rulon** be promoted to Fellow.

The committee reviewed the present membership brochure and made recommendations on how it could be revised. It was suggested that pocket posters be distributed again in the Fall of 1985.

The committee recommended that 25 and 50 year members be recognized for their many years of support of the Academy. The 25 year members should be recognized in the I.A.S. Bulletin and 50 year members should receive a certificate in addition to being recognized in the I.A.S. Bulletin.

The committee discussed the feasibility of establishing a special elementary school membership category. The committee supported the concept of the Academy of encouraging elementary teachers to participate in the Academy but they did not recommend a special membership category.

Parish Farm Committee

The Parish Farm Committee, chaired by **Karl Goellner**, met once at the Parish Farm and conducted other business by telephone or mail.

The committee reviewed the progress of the transfer to custom farm operation and found that the change-over was proving profitable. The income from the 1984 crop was in excess of \$50,000. The committee recommended that a minimum of \$15,000 be set aside for next year's expenses so that it would not be necessary to obtain an operating loan for the 1985 crop.

The committee viewed the terraces and conservation plantings and found them to be in excellent condition. They recommended that a ditch on the east side of the property be cleaned and rebuilt. This was done in the spring.

The committee planned and held a 25th Anniversary Field Day at the Parish Farm on 15 June. Approximately 150 Academy members and Grundy County farmers attended. Agriculture Secretary **Robert Lounsberry** and Senator **Alvin Miller** also attended. Tours of the farm were conducted. A short program featured President **John Downey** describing the Academy's programs, **Harry Horner** describing the Parish Farm history, **Jim Frevert** explaining the farm management, **Janet Schildroth** describing the field improvements and **Sam Gooden** the conservation practices on the farm. The day provided some visibility and explanation of what the Academy is doing with the Parish Farm.

Agriculture Secretary **Lounsberry** made a short address.

Ad Hoc Public Information Committee

The Public Information Committee, chaired by **Connie Mutel**, met three times during the year to discuss ways to improve the visibility of science and scientists in the state through newspapers, radio and television. The committee sent out a request to all Academy

members for ideas about science stories they though would be of interest to the public. Over 45 responses were received. The committee reviewed the ideas and began investigating means of getting these news stories into the hands of newspapers and television reporters.

The committee investigated the possibility of co-sponsoring science programing on IPBN. Although it appeared to be expensive, the committee requested that \$2,000 be included in the 1985-86 IAS budget for Public Information projects.

The committee also encouraged Iowa scientists to register with the national science rosters so that they may be contacted on topics of national interest.

Ad Hoc Publications Committee

This ad hoc committee, chaired by **Don Norton**, was formed by President **Wacha** to investigate new directions for the Proceedings and to assist the Editors in accomplishing goals they could see for the Proceedings. The committee met twice during the year.

The committee discussed the possibility of feature articles being published in each issue of the Proceedings or on an irregular basis. They also considered ways that financial support could be generated for the publication of the special articles.

The committee discussed ways of improving the image of the Proceedings while keeping within the goals of the Academy. One suggestion would be to change the name from Proceedings of the Iowa Academy of Science to Journal of the Iowa Academy of Science.

Recognition and Awards Committee

The Recognition and Awards Committee, chaired by **Charles Wunder**, met three times during the year to select nominees for the Governor's Science Awards and for the selection of the IAS awards. The committee firmly established the nomination forms and the material needed for both the Governor's Awards and the Academy's Awards. With the help of the Iowa Office of Planning and Programing, the committee solicited nominations for the Governor's Science Awards. The following persons were selected by the Governor from the names recommended by the committee:

John V. Atanasoff, Science Application

Wayne H. Scholtes, Iowa State University - Science Teaching

Donald S. Robertson, Iowa State University - Science Achievement

The committee extensively revised the IAS Award nomination forms before calling for nominations. The committee reviewed the nominations and recommended to the Board the following persons for awards:

Arnel R. Hallauer, Iowa State University - Distinguished Fellow

Walter F. Wedin, Iowa State University - Distinguished Iowa Scientist

Harry T. Horner, Iowa State University - Distinguished Service

The committee made recommendations to the Board of Directors on changes in the number of awards given each year.

Student Programs Committee

The Student Programs Committee, chaired by **Joe Moore**, met once this year to discuss the Iowa Junior Academy of Science program, Outstanding Science Student Award program and the Physics of Amusement Parks day.

The IJAS grants evaluation was done by the committee with 11 grants given totaling \$1187.11. The following secondary school grants were made:

Investigations of natural substances as anti-cancer agents.

Barb Caruthers, Marshalltown High School

The effects of very hard X-ray radiation and microwaves on high-tec

integrated microcircuits.

Geoffrey Francis, Marshalltown Senior High School

Seedcorn in a microwave for different amounts of time, to examine different stages of growth.

Pam Grim, Miller Junior High School, Marshalltown

Field testing compaction of prairie grass for better germination.

Rod Hauser, Marshalltown Senior High School

Effects of pesticides on protozoa

Brett Iverson, Miller Junior High School, Marshalltown

The effect of stimuli on the reproduction and algal growth in the hydra.

Dawn Kaufman, Center Point Consolidated School

Detection of gaseous pollutants given off by portable kerosene heaters.

Jonathan C. Keck, Mount Pleasant Community High School

Interferons effect on plant cancer.

Jane E. Kothenbeutel, Marshalltown High School

The effect of heavy metals on algal growth and metabolism.

Amy Naughton, Marshalltown Senior High School

The effects of different colors of light on *Andis Carolinensis*: the American chameleon

Scott Olsword, Mason City High School

Computerize a Parabolic mirror to locate and aim solar rays into a solar collector for maximum heat collection on a twenty-four hour basis.

Dean Peterson, Grand Community School, Boxholm

The following students were selected as National Youth Science Camp delegates and alternates by the committee:

Susan Kay Quint, Cascade High School

Sara Kathleen Schnittjer, Maquoketa Valley High School

Alternates:

Marc A. Schneider, Lost Nation Community School

Bambi Dawn Jackson, Morning Sun High School

The Student Programs Committee evaluated the applications for the Outstanding Science Student Award medals. The committee approved 214 medals in 214 schools. the names of the recipients appeared in the June issue of the IAS Bulletin.

The Iowa Junior Academy of Science sponsored the Iowa Physics Olympics and several other student activities.

Support for the student programs came from a contribution for \$5,000 from the Pioneer Hi-Bred International, Inc. and \$1,000 from the A.A.A.S for the student research grants.

Excellence in Science Teaching Award

The Excellence in Science Teaching program was directed by Gary Downs of Iowa State University. Six subcommittees reviewed approximately 65 nominations to select the following persons to receive Excellence in Science Teaching Awards at the Annual Meeting:

Robert Sandquist (Biology), Newton Senior High School, Newton

John Emerson (Chemistry), Ogden Community High School, Ogden

William J. Desmarais (Earth Science), George Washington Senior High School, Cedar Rapids

Phyllis Fritch (Elementary Science), Ottumwa Community Schools, Ottumwa

Lloyd Phillips (Junior High Science), Knoxville Junior High School, Knoxville

Don Schaefer (Physics), Bettendorf High School, Bettendorf

SECTION ACTIVITIES

In addition to the programs organized by the section for the Annual Meeting, two sections held other meetings during the year.

Chemical Education

The Chemical Education Section held a fall afternoon and evening meeting in Ames, Iowa. The program centered around microcomputer interfacing to experiments. Speakers were Don Murphy of Hoover High School, Des Moines, Jeff Balvanz of Iowa State University Computer Center, Glen Newburger of Iowa State University Chemistry Department, and James Macmillan of University of Northern Iowa Chemistry Department. Approximately 50 persons attended and were allowed hands-on experience with some of the interfacing experiments and software.

Iowa Science Teachers Section Fall Conference

The Iowa Science Teachers Section held their Annual Fall Conference at the Starlite Village in Ames, Iowa. The program of four concurrent sessions and workshops was highlighted by a presentation by Harry K. Wong, teacher/consultant of the TKI curriculum project, Los Lomitas School District, Sunnyvale, California. Over 300 teachers attended the one day event.

A workshop for elementary science teachers spanned the conference, starting on the day before and continuing to the day after. The workshop was a joint effort of Iowa State University, University of Iowa, University of Northern Iowa and Drake University. Instructors were Gary Downs, ISU; James Shymansky, U of I, Carl Bollwinkel, UNI, and Paul Joslin, Drake University. 24 teachers participated in the workshop.

Administration

On December 31, 1984 Robert Hanson completed his appointment as Managing Editor of Publications and those duties were assumed by James Macmillan. This action completed the transfer of responsibilities from Hanson to Macmillan started in 1982.

The Board of Directors accepted the recommendation of the Long Range Planning Committee to create the position of Director of Meetings and Programs. The position was advertised, candidates were interviewed and Gary Downs of Iowa State University was given a three year appointment. Down's responsibility would predominate be of chair the Annual Meeting Committee and coordinate the Annual Meeting program. He became involved in the 1985 meeting in preparation for the 1986 meeting.

As a result of the new responsibilities, Gary Downs asked to be relieved of his duties regarding the Excellence in Science Teaching Award. A new director was sought with Roy Unruh of the University of Northern Iowa taking the position.

This year a major change in the Bylaws resulted in the elimination of the Treasurer's position. This change was felt to be appropriate due to the accounting system being handled by the Academy office.

Grants

The first year of the U.S. Department of Education grant, PRISMS, was completed on December 31, 1984. An extension of one year for \$95,000 was applied for. The grant was approved for \$70,129 with the provision that the remaining \$24,871 might become available later.

The NSF grant applied for in 1984 by Jack Gerlovich and James Macmillan was not approved.

To help support the General Session speakers at the Annual Meeting \$1,000 was received from Rolscreen Foundation.

Publications

The PROCEEDINGS OF THE IOWA ACADEMY OF SCIENCE, edited by Roger and Marilyn Bachmann, is published on a calendar year basis. In 1984, Volume 91, four issues were published with 26 articles, 164 pages and 52 authors of which 44 were members and 8 were non-members.

Part of Volume 92, a special issue in January, 1985, was devoted to a biography of Louis Pammel written by Marjorie Pohl. This special issue was supported by funds from the Robert W. Hanson Special Publications Fund, the first work to be supported by this fund.

The Academy has agreed to manage the editing of the manuscript "Mushrooms and Fungi of the Midwestern States" written by Lois Tiffany and George Knaphus of Iowa State University and Don Huffman of Central College. The manuscript is in the review stage at this time.

The IOWA SCIENCE TEACHERS JOURNAL, edited by Carl Bollwinkel, is published three times each year. In 1984, Volume 21 had 84 pages, 14 articles by 15 authors of which six were members and nine were nonmembers.

Both publications appear to be functioning smoothly under the direction of the editors.

The Academy has two newsletters; the I.A.S. BULLETIN, edited by James Macmillan and the Iowa Junior Academy of Science Newsletter edited by Joe Moore. Each of the newsletters had two issues during last year.

National Involvement

This year the President-elect (1984-85) John Downey and James Macmillan served as the two delegates to the NAAS meeting held in Los Angeles as part of the AAAS meeting. Due to travel difficulties only John Downey attended the meeting.

Membership

Table 4 shows the membership trends over the past five years. In 1985 the Associate Member category was combined with regular membership. The membership stood at 1491 as of June 30, 1985. This is exactly the same as last year. There were some changes in the distribution between categories. There was an increase in the number of regular Members (+32), a decrease in the number of Student Members (-9) and Fellows (-24). The number of Life Members stayed the same while both the Emeritus (+2) and Distinguished Fellows (+2) increased.

Table 4. Membership 1981-1985

Category	1981	1982	1983	1984	1985
Associate	1	1	1	3	—
Member	773	777	806	841	876
Student	162	146	142	160	151
Fellow	374	367	349	334	310
Life Member	39	38	37	41	41
Emeritus	84	83	89	91	93
Distinguished Fellow	14	17	14	18	20
TOTAL	1437	1412	1445	1491	1491

Table 5 shows the number of persons showing interest in the sections. Since a person can indicate more than one section interest the numbers are not additive.

Table 5. Membership by Sections, June 30, 1985

Section		1985	Relative Section Interest* %
Agricultural Sciences	(U)	125	8.3
Anthropology	(H)	42	2.8
Biotechnology	(K)	2	0.1
Botany	(G)	290	19.4
Chemical Education	(S)	104	6.9
Conservation	(J)	248	16.6
Engineering	(M)	76	5.0
Geology	(E)	170	11.4
Inorg., Anal, & Physical Chemistry	(C)	191	12.8
Linguistics	(R)	49	3.2
Nursing	(N)	15	1.0
Org. & Biol. Chemistry	(D)	134	8.9
Physics	(B)	142	9.5
Physiology	(O)	124	8.3
Psychology	(I)	39	2.6
Science Tech. or Sci. Ed.	(Q)	460	30.8
Zoology	(F)	245	16.4

*Relative Section Interest is the percent of all IAS members indicating a particular section interest. The percents are not additive because of multiple section interest.

FINANCIAL REPORT

An operating budget of \$139,600 was adopted at the April 25 Board meeting. This budget includes \$50,000 of Iowa Science Foundation grant and the \$10,400 state appropriation. Both of these were reduced by 1.0% in the final appropriations bill. The budget did not include the University of Northern Iowa subsidy. The adopted budget, also, did not include the remaining part of the U.S. Department of Education grant for \$70,129. The total combined budget will be \$209,729.

The estimated income for 1985-86 is \$139,600. In addition to the normal income from dues, interest on investments and publications the Academy receives a grant from AAAS for student research grants and from Pioneer Hi-Bred International for student programs. The Rolscreen Foundation supports the Outstanding Science Student Award program by supplying the medals. These grants increase the income of the Academy significantly; however, there are off-setting expenses for which these grants are committed.

Table 6 is the Balance Sheet for the fiscal year ending June 30, 1985. The total Assets of the Academy stands at \$94,737.08 which includes the PRISMS grant but does not include the value of the Parish Farm or the office equipment. Due to the larger than expected farm income this year, the long term note on the IBM Displaywriter was retired. This will result in a significant savings in interest over the next three years. The Academy does not have any long term liabilities. The total liabilities for the Academy are \$8,330.42. This results in a net income for 1984-85 of \$57,062.52 of which \$27,394.20 is committed to the PRISMS project. The total equity of the Academy is \$86,406.66 less the funds committed to PRISMS. This is a signifi-

cant increase in total equity over last year.

It has also been possible to put the Parish Farm operation on a cash basis. In the past, it has been necessary to take out a short term operating loan for planting, fertilizers, chemicals and field work. This year it was possible to pay cash for all of the above services. With the present interest rates this will be a significant savings.

Table 6. Balance Sheet June 30, 1985

		Assets
Checking	\$31,063.30	
Bonds	6,140.00	
Notes	4,285.76	
Money Market		
Savings	47,790.34	
Book Inventory	217.50	
PRISM Grant	3,884.00	
Workshops	246.99	
Mushroom Book	131.00	
Accounts Receivable	978.19	
Total Assets		<u>\$94,737.08</u>
		Liabilities and Equity
Taxes Payable	\$1,351.18	
Accounts Payable	9.61	
Total Current Liabilities		\$1,360.79
Total Long-Term Liab.		0.00
Encumbered Funds		
PRISMS	3,884.00	
Life Member	688.27	
RWH Publications	2,019.37	
Workshops	246.99	
Mushroom Book	131.00	
Total Encumbered Funds		\$6,969.63
Total Liabilities		\$8,330.42
Retained Earnings	\$29,344.14	
Net Income (Loss)	57,062.52	
Total Equity		\$86,406.66
Total Liab. & Equity		<u>\$94,737.08</u>

Tables 7 and 8 accurately reflect the funds which passed through the Academy's books in 1984-85. The total income was \$323,597.81. In Table 7 column one is the actual income of the Academy by category. Columns two through six show how the income has been allocated. The allocation of dues income was used to offset the expenses for the publications and meetings while the allocation of farm income was used to offset the administrative expenses. Excess farm income was allocated to reserves.

Table 8 shows the actual expenses for 1984-85 by category. Again, the first column shows the actual expenditures while columns two through five show how these expenditures were allocated.

At the bottom of Table 8 is shown that the income for the Academy as \$57,062.52. This was due to the excellent farm income and the fact that we underestimated our expenses in last year's budget. Part of this income will be put into reserves for farm operations and into long term Academy investments.

Table 7. Income Allocation, 1984-85

INCOME	ALLOCATION OF INCOME						
	Amount	Publications	Programs	Meetings	Administration	Reserves	PRISMS
Pub. Sales	9,115.19	9,115.19	0.00	0.00	0.00	0.00	0.00
Reprint Sales	482.00	482.00	0.00	0.00	0.00	0.00	0.00
Reimbursements	4,227.09	0.00	0.00	0.00	291.09	0.00	3,936.00
Interest/Divi.	3,469.52	0.00	0.00	0.00	3,294.99	174.53	0.00
Registration Fee	3,521.21	0.00	460.61	3,060.60	0.00	0.00	0.00
Dues	23,036.50	9,462.54	0.00	6,560.74	7,013.22	0.00	0.00
Other Fees	2,970.00	1,535.00	0.00	1,435.00	0.00	0.00	0.00
Workshops	512.25	0.00	512.25	0.00	0.00	0.00	0.00
Individual Cont.	570.00	0.00	0.00	0.00	0.00	570.00	0.00
Corporate Gifts	7,000.00	0.00	6,000.00	1,000.00	0.00	0.00	0.00
Non-Federal Grant	1,000.00	0.00	1,000.00	0.00	0.00	0.00	0.00
PRISMS Grant	153,447.00	0.00	0.00	0.00	0.00	0.00	153,447.00
State Aid	60,400.00	4,400.00	53,390.40	0.00	2,609.60	0.00	0.00
Misc.	6,347.05	0.00	0.00	0.00	6,347.05	0.00	0.00
Farm Transfer	47,500.00	0.00	0.00	0.00	20,470.96	27,029.04	0.00
TOTAL	323,597.81	24,994.73	61,363.26	12,056.34	40,026.91	27,773.57	157,383.00
UNI Subsidy	10,628.37	1,620.00	0.00	0.00	9,008.37	0.00	0.00
TOTAL INCOME	334,226.18	26,614.73	61,363.26	12,056.34	49,035.28	27,773.57	157,383.00

Table 8. Expense Allocation, 1984-85

EXPENSE	ALLOCATION OF INCOME						
	Amount	Publications	Programs	Meetings	Administration	PRISMS	
Grants	48,009.66	0.00	48,009.66	0.00	0.00	0.00	
Honoraria	91,837.49	4,734.00	3,350.96	2,500.00	10,052.88	71,199.65	
Clerical	12,478.47	0.00	2,653.48	0.00	7,699.87	2,125.12	
Taxes	1,953.28	0.00	0.00	0.00	1,863.13	90.15	
Contract Serv.	9,444.92	0.00	0.00	0.00	2,667.87	6,777.05	
Pst. & Ship.	7,188.38	1,735.16	944.59	1,770.69	1,837.95	899.99	
Copier Supplies	127.72	0.00	0.00	0.00	127.72	0.00	
Word Proc. Sup.	475.40	0.00	0.00	0.00	475.40	0.00	
Other Supplies	21,853.49	7.85	1,019.20	579.65	1,263.47	18,983.32	
Telephone	5,650.13	0.00	11.97	0.00	784.56	4,853.60	
Equipment	10,339.86	0.00	0.00	0.00	2,395.88	7,943.98	
Service	1,671.00	0.00	0.00	0.00	1,671.00	0.00	
Printing	28,004.73	16,145.22	2,034.86	3,615.87	2,498.55	3,710.23	
Misc. Expense	827.97	0.00	0.00	0.00	827.97	0.00	
Refunds	62.00	0.00	0.00	0.00	62.00	0.00	
Book Expense	2,372.50	2,372.50	0.00	0.00	0.00	0.00	
Banquets/Meals	1,672.50	0.00	0.00	1,672.50	0.00	0.00	
Travel	22,237.90	0.00	3,338.54	1,917.63	5,470.77	11,510.96	
Accounting	327.89	0.00	0.00	0.00	327.89	0.00	
TOTAL EXPENSE	266,535.29	24,994.73	61,363.26	12,056.34	40,026.91	128,094.05	
UNI Subsidy	10,628.37	1,620.00	0.00	0.00	9,008.37	0.00	
TOTAL EXPENSES	277,163.66	26,614.73	61,363.26	12,056.34	49,035.28	128,094.05	
TOTAL INCOME	334,226.18	(From Table 7)					
NET INCOME	57,062.52						

ACADEMY LEADERSHIP 1984-85

Officers

President — Richard S. Wacha, Drake University
 Past-President — Duane C. Anderson, The University of Iowa
 President-elect — John Downey, University of Northern Iowa
 Treasurer — Frank Starr, Waterloo Community Schools
 Executive Director — James G. Macmillan, University of Northern Iowa

Directors

Paul Christiansen, Cornell College, 1987
 Jack A. Gerlovich, Des Moines, 1987
 G. Edgar Folk, Jr., The University of Iowa, 1985
 Lenore T. Durkee, Grinnell College, 1986
 Jean C. Prior, Iowa Geological Survey, 1985
 Burton Loupee, Cedar Rapids, 1986

Section Chairs

Agricultural Sciences — Marr D. Simons, Iowa State University
 Anthropology — Katherine Spielmann, The University of Iowa
 Biotechnology — Walter Fehr, Iowa State University
 Botany — Diane C. Robertson, Grinnell College
 Chemical Education — Steve Heideman, Iowa State University
 Chemistry Inorganic — Edward Shane, Morningside College
 Chemistry Organic — Jim Swartz, Grinnell College
 Conservation — Harlo Hadow, Coe College
 Engineering — Mike Murtha, Iowa State University
 Geology — Dennis O'Brien, Drake University
 Linguistics — Clyde Thogmartin, Iowa State University
 Nursing — Geraldene Felton, University of Iowa
 Physics — David Robinson, Drake University
 Physiology — Susan R. McGuire, Central College
 Psychology — Larry D. Sensenig, Morningside College
 Science Teaching — Robert Wilson, Belmond
 Zoology — James L. Christiansen, Drake University

Standing Committees

Annual Meeting Committee

(The Section Chairs constitute the Annual Meeting Committee.)

Committee on Committees

John C. Downey (chair), University of Northern Iowa
 Laura E. Sweets, Iowa State University
 G. Edgar Folk, Jr., University of Iowa
 Sr. Marguerite Neumann, Clarke College
 Kenneth M. Cook, Coe College
 Benjamin F. Graham, Grinnell
 Board Liaison: John Downey

Conservation and Preserves Committee

William P. Pusateti, Iowa Conservation Commission
 Wayne I. Anderson (chairman), University of Northern Iowa
 George D. Schrimper, Museum of Natural History, The University of Iowa
 Richard B. Hall, Iowa State University
 Donald Farrar, Ex-officio, Iowa State University
 James L. Christiansen, Drake University
 Robert H. Hibbs, Marshalltown
 Board Liaison: Jean Prior

Education Committee

Jack Gerlovich, Des Moines
 Catherine Cate, Des Moines
 Carolyn Brockway (chair), Cedar Rapids
 Trevor G. Howe, Iowa State University
 Paul H. Joslin, Drake University
 Janice Kemp, Central College
 Joe R. Moore, Ex-officio, Luana
 Lynn Glass, Ex-officio, Iowa State University

Robert Ward, University of Northern Iowa
 Board Liaison: Jack Gerlovich

Election Committee

Duane Anderson (chairman), University of Iowa
 Nels Lersten, Iowa State University
 David Roslien, Luther College
 Richard Bovbjerg, The University of Iowa
 Donald L. Koch, Iowa Geological Survey
 Board Liaison: Duane Anderson

Finance Committee

Frank Starr, IAS Treasurer (chairman), Waterloo Community Schools
 Irving Y. Fishman, Grinnell College
 George G. Karas, Iowa State University
 Gilbert E. Hewett, Cedar Falls
 Jay P. Kopp, Loras College
 Robert Lancaster, Cedar Rapids
 Burton Loupee, Cedar Rapids
 Donald Duvick, Pioneer Hi-Bred Intl., Inc.
 Board Liaison: Frank Starr

Membership Committee

Gene A. Lucas, Drake University
 William Jagiello, Des Moines
 Bill Gilbert, Simpson College
 Don C. Norton, Iowa State University
 Gordon Searle, The University of Iowa
 Bernard J. White, Iowa State University
 Board Liaison: Lenore Durkee

Parish Farm Committee

Karl E. Goellner (chairman), Cedar Rapids
 Wallace E. Akin, Drake University
 George Knaphus, Iowa State University
 Bruce Menzel, Iowa State University
 Jonas Miller, Madrid
 Daryl Smith, University of Northern Iowa
 Board Liaison: Burton Loupee

Recognition and Awards Committee

Marc C. Albertsen, Pioneer Hi-Bred, Intl., Inc.
 David L. Fagle, Marshalltown Community Schools
 Paul Rider, University of Northern Iowa
 Lois H. Tiffany, Iowa State University
 L. H. Durkee, Grinnell College
 Charles C. Wunder (chairman), The University of Iowa
 Board Liaison: G. Edgar Folk, Jr.

Student Programs Committee

Don E. Murphy, Des Moines
 Joe D. Woods, Drake University
 Lynn W. Glass, Iowa State University, Director IJAS (ex-officio)
 Suzanne Z. Kelly, Ames
 Joe R. Moore (chairman), Luana
 Shirley Crawford, Ankeny
 Jack A. Gerlovich, Des Moines (ex-officio)
 Steven A. Feller, Cedar Rapids
 Board Liaison: Frank Starr

Special Committees*Controversial Issues Committee*

Peter DeJong (chair), Coe College
 Warren Dolphin, Iowa State University
 Harlo Hadow, Coe College
 Donald Huffman, Central College
 George Magrane, Ottumwa
 Donald Shepherd, St. Ambrose College
 John W. Patterson, Iowa State University
 Board Liaison: Paul Christiansen

Iowa Science Foundation

Duane C. Anderson (chairman), University of Iowa
 Harry T. Horner, Iowa State University
 George G. Karas, Iowa State University
 Burton Loupee, Cedar Rapids
 Lois H. Tiffany, Iowa State University
 Robert Yager, University of Iowa
 Board Liaison: Duane Anderson

Iowa's Natural Heritage Steering Committee

James G. Macmillan (co-chairman), University of Northern Iowa
 Gerald Schnepf (co-chairman), Iowa Natural Heritage Foundation
 William J. Fultz, Des Moines
 Glenn Leggett, Grinnell
 Richard Wacha, Drake University
 Board Liaison: Richard Wacha

Long Range Planning Committee

Julio Chiarella, Pella
 Gerald D. Flesch, Iowa State University
 Lynn W. Glass, Iowa State University
 Donald M. Huffman, Central College
 Harry T. Horner, (chairman), Iowa State University
 George Knaphus, Iowa State University
 James G. Macmillan, University of Northern Iowa (ex-officio)
 Frank Starr, Waterloo Community Schools
 Wanda Wehner, University of Northern Iowa
 Board Liaison: Richard Wacha

Public Information Committee

Dorothy Baringer, Woodburn
 Robert S. Hansen, Iowa State University
 Otto Knauth, Des Moines
 Connie Mutel (chair), University of Iowa
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PAPER PRESENTATIONS, ANNUAL MEETING 1985*Invited Junior Academy Papers*

Mark E. Anderson, Davenport Central High School — Analyzing Rutherford Backscattering (RBS) Spectra Formed with Lithium Ions
 William C. Carr, Jr., Davenport Central High School — Splash Chambers: Can They be Used to Study Aerodynamics?
 Gretchen Edlund, Davenport Central High School — The Digestion of Wrigley's Chewing Gum
 Tom Egger, West Middle School, Muscatine — *In situ* Capture of Sulfur Dioxide by Limestone in Fluidized Bed Combustion of Coal
 Geoffrey S. Francis, Marshalltown Senior High School — The Effects of Radiation on Integrated Circuits
 Rod Hauser, Marshalltown Senior High School — Field Testing Germination of Prairie Grasses in a Compacted Seed Bed
 Chong C. Lee, Mason City High School — Quantitative and Qualitative Aspects of B Lymphocyte Separation Systems
 Martha Jo Myers, Davenport Central High School — The Effect of Increased Light Exposure on Grafted Hibiscus Plants
 Gail Marie Slama, Mar-Mac High School, McGregor — The Preliminary Studies of the Effects of Phorbol Ester and Lipopolysaccharid on IgA Production on Murine Myeloma Cells *in vitro*
 Christine Stoffel, Bettendorf High School — Further Investigations into the Allelopathic Activities of Buckhorn Plantain

Contributed Papers

(All abstracts of contributed papers received on time appeared in the March 1985 PROCEEDINGS as an insert).