


1988

Annual Report of the Iowa Academy of Science, 1987-88

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Annual Report of the Iowa Academy of Science, 1987-88

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PREFACE

Since 1975 when a history of the Iowa Academy of Science was written for the centennial of the founding of the Academy, an Annual Report has acted as a continuing record of the Academy's activities.

This report encompasses the year beginning July 1, 1987 to June 30, 1988 and is based on minutes of committee meetings, Board minutes and recollections of the author. Each part represents a major activity of the Academy.

THE 100TH ANNUAL MEETING

In 1986 it was recognized that in 1988 the Academy would be conducting its 100th Session on the Iowa State University campus. To begin planning for this centennial session the Annual Meeting Committee, chaired by **Gary Downs**, Director of Meetings and Programs, was formed in the Fall of 1986 to begin the two year planning process. The whole committee met on October 25, 1986, February 7, 1987 and October 29, 1987 for detailed planning of the speakers, symposia, and special events. The local arrangements committee met separately on April 2, 1986, April 23, 1986 and September 21, 1987 for planning the logistics of the meeting.

Annual Meeting Committee

(The Section Chairs constitute the Annual Meeting Committee)

Local Arrangements Committee Chair

Harry T. Horner, Iowa State University

Agricultural Sciences

H. Tachibana, Iowa State University

Anthropology

Shirley Schermer, University of Iowa

Biotechnology

Arthur Weissinger, Pioneer Hi-Bred International, Inc.

Botany

Thomas J. Blewett, Clarke College

Chemical Education

Donald N. Langr, North Iowa Area Community College

Chemistry, Inorganic

Mono Mohan Singh, Wartburg College

Chemistry, Organic

William J. Scott, University of Iowa

Conservation

John Fleckenstein, Iowa Department of Natural Resources

Earth Science Teaching

Carolyn Brockway, Cedar Rapids

Elementary Science Teaching

Carl W. Bollwinkel, Price Laboratory School, UNI

Engineering

David Luerkens, University of Iowa

Geology

Karl Seifert, Iowa State University

Linguistics

Bruce Willis, Luther College

Nursing

Martha J. Craft, University of Iowa

Physics

Eugene S. Takle, Iowa State University

Physiology

William O. Reece, Iowa State University

Psychology

Fred Ribich, Wartburg College

Science Teaching

Richard H. Kruse

Zoology

Daryl Howell, Department of Natural Resources

The Annual Meeting Committee recommended General Session speakers, symposia and planned the blocking of the program. Details of the program were handled by the Executive Director, Director of Meetings and Programs and the Local Arrangement Committee. The section chairs planned the contributed paper portion of their section program.

The Annual Meeting was held April 21-23, 1988 in the Scheman Center on the Iowa State University campus. Preceding the opening session on April 21, the Governor presented the Governor's Science Medals in the Brunner Gallery of the Scheman Center. Award winners were:

Science Application

Steven J. Phillips, M.D.,

Director of Cardiac and Thoracic Surgery

Veterans Administration Hospital

Des Moines, IA

William L. Brown, Ph.D

Pioneer Hi-Bred International

Des Moines, IA

Science Achievement

Glen A. Russell, Ph.D

Distinguished Professor of Science and Humanities

Iowa State University

Ames, IA

Donald J. Burton, Ph.D.

Professor of Chemistry

University of Iowa

Iowa City, IA

Science Teaching

Detroy E. Green, Ph.D.

Professor of Agronomy

Iowa State University

Ames, IA

Iowa Junior Academy of Science Program

The Director of the Iowa Junior Academy of Science, **Lynn Glass** and the chair of the Student Programs Committee, **Ross Iverson**, planned the IJAS program of invited papers. The following 14

*Executive Director, IAS

student poster papers and oral presentations were judged by a committee made up from vice chairs of the sections and members of the student programs committee.

Teresa Creswell, Montezuma

Eric Gogerty, Algona High School

"How does pollination delay affect corn production?"

Richard R. Harms, Sentral of Fenton High School

"A Computer controlled party line: an Apple IIGS innovation"

Susan Havercamp, Davenport Central

Jill Leggett, Davenport North High School

"8-OH and PM1000 as Serotonin1A receptor agonists"

Brenda Mains, Stuart-Menlo High School

Christina Masey, Oelwein Community High School

"Nitrate filtration with trickling systems"

Nirmal D. C. Pugh, Maharishi School of the Age of Enlightenment, Fairfield

"The Breakdown of Serotonin is related to psychological well-being and the group dynamics of consciousness"

Sara Schneckloth, Davenport Central High School

"Analysis of the insecticidal properties of citrus peel oil"

Lisa Snider, Davenport West High School

"The effects of calcium on ascorbic acid's stability"

William Staib, Davenport Central High School

"Development of an artificial intelligence computer music composition system"

John Stoffel, Bettendorf High School

"Is low dose radiation stimulatory to bush bean seeds?"

Gareth Wallace, Maharishi School of the Age of Enlightenment, Fairfield

"The effects of herbal preparations on cancer cells: immunotherapy or chemotherapy?"

Michelle Wells, Marshalltown Senior High School

"The effect of fertilizer run-off on pond ecosystems - Phase II"

Program Summary

The senior Academy had 290 papers which included General Session speakers, symposia presentations and contributed papers. The following is a summary of the Annual Meeting program activities.

PROGRAM SUMMARY

THURSDAY, APRIL 21

12:00	Board of Directors Meeting and Dinner
4:00	Governor's Science Medals
5:00	Reception for Recipients
7:30	General Session I President Lenore T. Durkee, presiding "Global Change/Earth System Science Research" Dr. Francis P. Bretherton , Office of Interdisciplinary Earth Studies, University Corporation for Atmospheric Research, Boulder, Colorado Panel discussion on implications of Global Change moderated by Iowa State University President, Dr. Gordon Eaton Panelists: Biology, Ecology: Dr. Harold Mooney , Department of Biological Sciences, Stanford University

Climate: **Dr. Robert Dickinson**, National Center for Atmospheric Research, Boulder, Colorado

Atmospheric Chemistry: **Dr. Susan Solomon**, Atmospheric Chemistry Program, NOAA/ERL, Boulder, Colorado.

FRIDAY, APRIL 22

8:00	VIDEO FILM PREVIEW
8:00	IJAS POSTERS
8:00	SECTION MEETINGS Anthropology Botany - A & B Chemistry C Chemistry D Geology
8:30	IJAS PRESENTATIONS
10:00	SYMPOSIUM I Bioethics: "The Scientist's Role in the Controversy over Genetic Engineering, Regulation, and Utilization of Microorganisms."
12:00	AWARDS LUNCHEON 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 Science Teaching Award.
1:30	ANNUAL BUSINESS MEETING
2:00	SYMPOSIUM II "Preservation and Utilization of Iowa Natural Resources"
4:00	GENERAL SESSION II President Lenore T. Durkee, presiding "Communications Network" Professor John W. D. Connolly , Center for Computational Sciences, University of Kentucky, Lexington
4:00	SENIOR POSTERS
5:30	SOCIAL GATHERING
6:00	PRESIDENT'S BANQUET President, Lenore Durkee, presiding Presentation of Iowa Academy of Science Awards Installation of new president and remarks by outgoing President Durkee Response by President Paul Christiansen
8:00	GENERAL SESSION III President Paul Christiansen, presiding "Science Education - Getting More Important - But Not Easier" Dr. George Pimentel , University of California, Berkeley

SATURDAY, APRIL 23

8:00	SECTION MEETINGS Agricultural Sciences Anthropology Biotechnology Botany - A & B
	Engineering - A & B Geology A & B Nursing Physiology

	Chemistry C	Psychology
	Chemistry D	Science Teaching
	Conservation	Zoology
	Elementary Science Teaching	
8:00	VIDEO FILM PREVIEW	
10:00	SYMPOSIUM III	
	"Science Education and Public Understanding of Science"	
12:00	LUNCH BREAK	
1:00	SECTION MEETINGS	
	Agricultural Sciences	Engineering A & B
	Botany	Geology
	Chemistry C	Nursing
	Chemistry D	Physics
	Conservation	Physiology
	Earth Science Teaching	Science Teaching
	Elementary Science Teaching	
	SUNDAY, APRIL 24	
9:00	Field trip to Ledges State Park and Hallett Gravel Pits	

The Awards Luncheon

One hundred and eighty persons attended the Awards Luncheon in room 220-240 of the Scheman Center. The awards for Excellence in Science Teaching were presented by Roy Unruh, the Director of the Excellence In Science Teaching program. The following persons received awards:

- Biology - Doug Herman, East High School, Sioux City
- Chemistry - Bernard Hermanson, Sumner High School
- Earth Science - Ed Rezabek, Glidden-Ralston
- Elementary Science - Reta Lemon, Mentzer Elementary
- Junior High Science - Bonnie Sankot, South Tama Middle School
- Physics - Rollan Freel, Marshalltown Senior High School

Following the ESTA awards, Lynn Glass, the Director of the Iowa Junior Academy of Science, introduced the participants in the IJAS morning program and announced the winners of the two \$500 scholarships and the students who would represent Iowa at the 1989 American Junior Academy of Science program in San Francisco. The scholarship winners were:

- Sara Schneckloth, Davenport Central High School
- William Staib, Davenport Central High School

The AJAS representatives were:

- John Stoffel, Bettendorf High School
- Michelle Wells, Marshalltown Senior High School

The Presidents Banquet

Following a social hour in the second floor lobby of the Scheman Center Friday evening, one hundred and seventy five persons attended the President's Banquet in room 220-240. During the banquet, Sharon Kaye Ferris, harpist, provided musical entertainment. On conclusion of the meal President Lenore Durkee, introduced George Burnet, chair of the Recognition and Awards Committee, who introduced the nominators for the following Iowa Academy of Science Awards:

- Distinguished Fellow Award
- Don Kirkham, Iowa State University
- Jerry Kollros, University of Iowa

Distinguished Iowa Scientist Award
Peter A. Peterson, Iowa State University

Distinguished Service Award

Jean C. Prior, Iowa Geological Survey Bureau, DNR

President Durkee introduced Harry Horner, who presented a special recognition to James Macmillan for his service to the Academy from 1983-88.

President Durkee reviewed the Academy's activities for the year prior to presenting the gavel to new President Paul Christiansen. President Christiansen presented his goals for the Academy during the next year. Both presentations appeared in the August issue of the Iowa Academy of Science Bulletin.

Attendance

Both the 1988 and five year attendances is shown in Tables 1 and 2.

Table 1. Registered Attendance 1988

	Pre-registered		Walk-in			TOTAL
	Papers*	Regular	Thurs.	Fri.	Sat.	
Members:						
Regular	113	249	9	34	20	425
Student	31	8	1	5	1	46
SUB-TOTAL	144	257	10	39	21	471
Nonmembers:						
Regular	21	19	5	9	3	57
Student	95	13		15	2	125
SUB-TOTAL	116	32	5	24	5	182
Guests, ect.		45	2	2		49
TOTAL	260	334	17	65	26	702

* Includes General Session, Symposia and contributed papers.

Authors counted once.

** New Members included in member count

Table 2. Five Year Average Attendance*

YEAR	Members	Non-members	Guests	Total	Papers	Ratio
1984 ¹	361 (62.0)	179 (30.7)	42 (7.2)	582	215	2.7
1985 ²	306 (65.5)	116 (24.8)	45 (9.6)	467	173	2.7
1986 ³	316 (67.0)	131 (27.8)	24 (5.0)	471	191	2.3
1987 ⁴	376 (59.4)	222 (35.1)	34 (5.3)	632	237	2.7
1988 ⁵	471 (67.0)	182 (25.9)	49 (6.9)	702	285	2.5

* Number in parentheses are percentages

- 1 University of Iowa
- 2 Central College
- 3 Wartburg College
- 4 Grinnell College
- 5 Iowa State Univ.

The seven hundred and two persons in attendance at the three-day meeting made this the largest Annual Meeting of the Academy and represented an 11.1% increase over the 1987 meeting in Grinnell, the previous largest meeting. This was not unexpected due to the central location of Iowa State University and to the fact that this was the 100th Session of the Academy as well as being a three day meeting. It is unlikely this trend will continue as the meeting moves further from the central portion of the state. With the increase in attendance there was also an increase in the number of contributed papers from 237 in 1987 to 285 in 1988; a 20% increase. Interestingly, whereas the attendance has gone up over the past five years the ratio of persons attending to the number of contributed papers has remained about constant or gone down slightly indicating that fewer people are attending the meeting without giving papers. The distribution

between member, non-member and students remains about constant with the members representing about 64%, non-member 29% and guests 7%.

Table 3 shows the number of papers given in each section and the average number of persons attending each section program. Attendance at section programs this year was up probably due to the fact that section programs were not conducted during General Sessions. The attendance at General Session II was low probably due to it being held at 4:00 p.m. following a symposium and just before the social hour. The attendance was disappointingly low for this general session. The Annual Business Meeting was held in the Benton Auditorium following the Awards Luncheon and was also very poorly attended. Most people took a break preceding the afternoon symposium.

Table 3. Attendance Summary, 100th Session, 1988

	Number of Papers	Attendance
<i>Contributed Papers</i>		
Agricultural Sciences	18	38
Anthropology	11	16
Biotechnology	9	18
Botany	36	50
Chemistry C	19	25
Chemistry D	18	25
Conservation	12	35
Earth Science Teaching	3	16
Elementary Sci. Teaching	7	28
Engineering	36	40
Geology	30	30
Linguistics	4	7
Nursing	6	13
Physics	16	20
Physiology	18	23
Psychology	13	26
Science Teaching	14	70
Zoology	15	35
TOTAL	285	
<i>Invited Papers</i>		
Symposium: Global Change/Earth System System Science Research		240
Symposium: Bioethics: The Scientists Role in the Controversy over Genetic Engineering, Regulation and Utilization of Microorganisms		220
Symposium: Preservation and Utilization of Iowa's Natural Resources		230
Symposium: Science Education and the Public's Understanding of Science		204
TOTAL		894
General Session I		240
General Session II		52
General Session III		310
Field Trip		50
Video Film Festival		75
Special Events:		
Annual Business Meeting		48
Awards Luncheon		180
President's Banquet		175

MINUTES OF THE ANNUAL BUSINESS MEETING

Benton Auditorium, 1:30 p.m., April 22, 1988

The Annual Business Meeting was called to order by President **Lenore Durkee** at 1:35 p.m.. With approximately 48 persons in attendance, a quorum was declared. President Durkee reported the following items to the membership.

James G. Macmillan has resigned as Executive Director of the Iowa Academy of Science as of July 31, 1988. Durkee expressed the appreciation of the members for Jim's excellent leadership. She announced that Paul E. Rider, Professor of Chemistry at the University of Northern Iowa, had been appointed by the Board of Directors to succeed Jim as Executive Director and introduced him to the membership.

Durkee reported that a new desktop publishing system has been acquired by the Academy and was used for the most recent IAS Bulletin and the Annual Meeting program.

Two more members were added to the Recognition and Awards Committee (for a total of eight members). That committee is also in the process of developing an appropriate set of guidelines for granting the Carothers Award, named after Wallace Carothers (a Des Moines native and inventor of nylon) which would be funded by a grant from the Du Pont company.

In Board actions the Controversial Issues Committee was made a standing committee and the Publications Committee, which was an ad hoc group, was discharged with appreciation for its efforts.

Hertz Farm Management had reported the status of the Parish Farm crop production to the Board as well as its support and interest in research projects using the farm.

The Board decided against having the Academy supervise NSF grant monies as a general principle, although the Academy may lend its support to those who apply for grants.

The discussions in the Academy this year have involved a number of significant matters including the situation in which the Academy may require the services of a full-time Executive Director in the future. Durkee encouraged members to fill out the questionnaire of the Long Range Planning Committee at the meeting (since returns had been minimal). Forms were available at the registration desk.

Financial Report - Following President Durkee's report, **James Macmillan** gave the membership a report on the financial condition of the Academy as of March 31, 1988. The assets of the Academy included \$13,938.42 in checking, \$64,217.79 in savings, \$826.00 in Iowa's Natural Heritage books and \$38,331.68 in unused state appropriation. The latter was for Iowa Science Foundation grants and would be expended by June 30, 1988. The only other liabilities that existed were for payroll taxes which are paid on a quarterly basis. Consequently the total liabilities were \$38,331.68.

At the end of last fiscal year, June 30, 1987, the restricted fund balance was \$22,785.57 and the unrestricted fund balance was \$46,576.11. The net income as of March 31, 1988 was \$8,632.22. He reported that this did not include a major portion of the income or expenses for the Annual Meeting which would change the picture considerably.

He reported that attendance at the 100th Annual Meeting would probably exceed 700 which would be a record (surpassing last year's record established at the meeting at Grinnell College).

1988-89 Budget - **George Karas**, Finance committee chair, presented the proposed budget for the next fiscal year 1988-89 as developed by the Finance Committee and modified and approved by the Board of Directors. The balanced budget based on an expected income of \$152,015 included \$53,340 for grants and dues, \$35,925 for honoraria and wages, \$8,400 for postage, \$7,650 for supplies and services, \$28,900 for printing and \$17,800 for travel and committee activities. Karas moved approval of the budget which was seconded by Dwight Tomes. The motion passed.

Election Report - Paul Waite, the Election Committee chair, reported the results of the recent election. **Ruth Swenson** of Iowa State University was elected President-Elect.

He indicated that the mistake on the original ballot for election to the Board of Directors created confusing and uncertain results, depending upon interpretation. He reported that the present board of directors ruled that the election should be held again and that a new ballot would be sent to the membership as soon as possible.

Membership Report - Gene Lucas, Membership Committee chair, gave the report of the committee. He indicated that problems existed relative to current members identifying potential new members, both in terms of seeking them and doing so in a timely fashion.

He reported that new sections had resulted in a substantial increase in the total membership.

He mentioned that the committee was concerned about elevating present members to "fellow" status. He reminded the membership of the criteria (excellent scholarship, involvement in Academy affairs, Academy membership for at least five years) and indicated that approximately 500 current members were eligible for fellow status. He encouraged members to get nomination forms at the registration desk and to nominate themselves or others if interested.

He indicated that there were presently 1260 Regular Members, 132 Student Members, 250 Fellows, 96 Emeritus Members, 47 Life Members, 6 Corporate Members, and 41 Distinguished Fellows.

He reported the following new fellows, new emeritus members, and deceased members.

Fellows -

Carl Bollwinkel
Richard Markuszewski
Peggy Lee Steffen
Harry C. Vaughan
Thomas D. Wheelock

Emeritus -

Homer O. Clark
William C. Kunsch
Wayne J. McIlrath

Deceased -

Wise Burroughs
Henry J. Dickinson
R. V. Drexler
Larry A. Kelsey
Reggie H. Stevens
William J. Zimmerman

With no new business being brought up to the membership, Waite moved (seconded by several) adjournment. Motion passed.

The meeting adjourned at 2:00 p.m.

REVIEW OF ACADEMY ACTIVITIES 1987-88

Committee Activities

During 1987-88, the Academy affairs have been handled by the Board of Directors, the Executive Director, the Associate Executive Director, the Director of Meetings and Programs, the Director of the Iowa Junior Academy of Science, thirteen committees, three ad hoc committees and three editors. In all, over one hundred persons were involved in the Academy's committees and administration. The membership on the Board of Directors, committees and special program directors is listed at the end of this report.

At the beginning of the year the committees were asked to set goals for the year. They submitted year end reports which summarized their activities for the year.

Annual Meeting

Chair: Gary Downs

The 100th Annual Meeting Committee began their work two years in advance of the meeting. The committee, chaired by Gary Downs, Director of Meetings and Programs, met on October 25, 1986, February 7, 1987 and October 29, 1987 for detailed planning of the speakers, symposia, and special events. The local arrangements committee met separately on April 2, 1986, April 23, 1986 and September 21, 1987 for planning the logistics of the meeting. The section programs were arranged by the section chairs.

Committee on Committee

Chair: President Elect Paul Christiansen

The committee met on November 20, 1987 to discuss committee appointments for 1987-88. After a list of potential committee appointments was prepared from recommendations of the committee chairs and the members of the committee on committees, the IAS office contacted individuals by mail. All appointments were made prior to the 1988 Annual Meeting.

Conservation and Preserves

Chair: William Pusateri

The committee did not formally meet during the year but carried out some of their activities by mail and phone. The committee submitted a list of nominees in the spring of 1988 for appointment by the Governor to the State Preserves Advisory Board.

The Committee provided valuable input and advice in regular meetings and activities sanctioned by the State Preserves Advisory Board. These activities included the Fifth Annual State Prairie Heritage Week, the Twelfth Annual Natural History Foray, and the Twelfth Annual Loess Hills Seminar. The committee also contributed to several academic research projects, several State Preserves Management projects and to courses and research conducted at Iowa Lakeside Lab. The committee was in consultation for the filming of "Land Between Two Rivers"; a series being produced for Iowa Public Television.

Controversial Issues

Chair: George Magrane

The committee began discussions on the following issues: experimentation with laboratory animals, unified field theory, creationism, health related issues, and unorthodox scientists.

Information was gathered to begin work on a position paper concerning the experimentation with laboratory animals. It was felt that a symposium on the subject might be an effective means of airing all sides of the issue.

The committee monitored the impact made by advocates of the Unified Field Theory and the Science of Creative Intelligence. There was concern about the influence these advocates were having on the judging of science fair projects.

Although the committee saw a need to investigate areas relating to science and health, no issues could be clearly defined for consideration. Topics such as chiropractic, organ transplants, toxic wastes, and water quality were considered.

Education

Chair: Melba Strickler

The committee met several times to conduct the selection process for the selection of nominees for the Presidential Award for Excellence in Science and Mathematics Education. The Iowa nominees in science were **Gary L. Busby**, Johnston Middle School; **Morgan Masters**,

Chariton Community Schools; **Gerald Walsh**, Washington Junior High School.

Election

Chair: Past President Paul Waite

The committee met October 30 and selected the following slate of candidates for President Elect and board of directors for the 1988-89 ballot.

President-elect: **Joe D. Woods**, Drake University
Ruth W. Swenson, Iowa State University
 Directors: **Richard Baker**, University of Iowa
George Burnet, Iowa State University
William Deskin, Cornell College
Allan Orr, University of Northern Iowa

Shortly after the ballot was mailed, an error was discovered which indicated that one should vote for one director when the bylaws say that one should vote for two. A corrected ballot was mailed immediately following the discovery. There was a disappointing return on the second ballot with some persons not receiving the ballot. The election of President Elect was clear with **Ruth Swenson** being selected but with the confusion concerning the ballot the Board of Directors rejected the results for the election to the Board of Directors. After consultation with a parliamentarian, a third ballot was mailed dealing only with the election to the Board of Directors. A very good return was obtained with the election of the **Alan Orr**, University of Northern Iowa and **William Deskin**, Cornell College.

Finance

Chair: George Karas

The committee met on March 10, 1988 to assist the executive director on developing the 1988-89 budget which was submitted to the board of directors for the April board meeting. The committee recommended that \$20,000 of the long term investments be placed in a money market account.

The committee selected Carney, Alexander, Marold and Co. to conduct a financial audit of the Academy accounts after closing the 1987-88 books.

Iowa Science Foundation

Chair: Robert Yager

The committee solicited and evaluated proposals for the 1988-89 fiscal year. The following twelve proposals were funded for a total of \$42,531.

"A Project to Operationalize the Iowa Alliance for Science"
Lynn W. Glass, Iowa State University \$5,000
 "Blycoproteins as Markers of Regional Differentiation in the Ectoderm of Chicken Embryos"
Charles H. Sullivan, Grinnell College \$5,000
 "Protein Analysis of Flowering in a Rapid-Cycling *Brassica* using 2-D PAGE"
Alan R. Orr, University of Northern Iowa \$1,910
 "Accessory Chlorophyll Analyses of Selected Diatoms"
David B. Czarnecki, Loras College \$2,880
 "Investigations of the Effects of the Mutant Eyeless (*e/e*) gene upon the Developing Hypothalamus in the Axolotl"
Gerald W. Eagleson, Loras College \$4,000
 "A comparative and developmental study of polyacetylene ducts in native and weedy ragweed (*Ambrosia*) species (Asteraceae)" \$3,500
Nels R. Lersten, Iowa State University

"An Interactive Science Museum Exhibit of Transmission Holography" \$4,900

Kirk E. Brocker, Dale W. Olson, The Science Center of Iowa

"Mineralogy, Paragenesis, and Stable Isotopic Compositions of Sulfide Mineral Deposits Associated with Late Paleozoic Karst Fills in Devonian Limestones in Eastern Iowa" \$2,100

Paul L. Garvin, Cornell College

"In vitro effects of an unusual insulin, bullfrog insulin" \$4,200
Eugenia S. Farrar, Iowa State University

"The role of chorusing behavior in the reproductive behavior of a prairie katydid" \$4,800

Kenneth C. Shaw, Iowa State University

"Dispersal of the European Alder Leafminer in an Intensive Culture Plantation" \$3,750

Richard B. Hall, Elwood R. Hart, Iowa State University

"Laser Nucleation of Catalyst Clusters" \$5,000
David G. Rethwisch, University of Iowa

"Promoting Science Careers for Women Through Education: A Pilot Program" \$5,000

Ruth W. Swenson, Iowa State University

Long Range Planning

Chair: Donald Huffman

The committee was given the charge by the Board of Directors to survey the membership concerning the future direction of the Academy. The committee designed the survey instrument and reported the results to the Board of Directors.

Membership

Chair: Gene Lucas

The committee solicited nomination for Fellow through the fall issue of the IASB. The committee evaluated the nominations received and recommended to the Board of Directors that the following persons be appointed as Fellows. The committee discussed ways of increasing membership.

Carl W. Bollwinkel, Price Laboratory School, UNI
Richard Markuszewski, Iowa State University
Peggy L. Steffen, Ottumwa High School
Harry C. Vaughan, Iowa State University
Thomas D. Wheelock, Iowa State University

Parish Farm

Chair: George Knaphus

The committee met on the farm premises in August of 1987 to review with the farm manager the crop plantings for the year and the success of the 1986 crop. The committee agreed that the Parish Farm was meeting the expectations of the Academy.

It was recommended to the Board of Directors that a Farm Picnic be held on June 15, 1988. The program planned by the Farm Committee was attended by about 90 people. Tours were conducted by the Grundy County Conservation Commission and the Hertz Farm Management personnel.

The committee and the farm manager met with the Board of Directors to discuss the policies regarding the use of herbicides, insecticides and fertilizers on the farm. The Farm committee also cooperated with the Iowa Natural Heritage Foundation Demonstration Farm Project to conduct several test plantings in the summer of 1988. The test plots were to show the effect of nitrogen rates on corn

and the effectiveness of drilled soybeans vs. 30 inch row soybeans.

The Iowa Geological Survey began investigating the possibility of monitoring the effluent of field tiles for chemical residues; however, with the unusually dry summer no sampling was done.

Public Information

Chair: Connie Mutel

This year the Public Information Committee began work on a resource directory of IAS Members who would be willing to work with the media. A questionnaire was developed and mailed to all members. The resource directory will be developed during 1988-89.

The committee developed public service announcement regarding the 100th Annual Meeting and assisted with other Annual Meeting publicity.

A mailing list of newspapers, radio stations and television stations who carry science stories was compiled. This list was used to alert the media about important science stories.

The committee recommended that the Board of Directors continue to support the IPT program "Nature".

Ad Hoc Publications

Chair: Don Norton

The Board of Directors, at the committees request, dissolved this committee since it had not been given a charge for two years.

Recognition and Awards

Chair: George Burnet

The committee worked with the Governors office in evaluating the nomination for the Governor's Science Medal.

The Awards ceremony was held April 21, 1988 in the Brunner Gallery of the Scheman Center just prior to the opening of the 100th Annual Meeting of the Academy. (Recipients are listed elsewhere in this report.)

The Committee solicited and evaluated the nominations for the Iowa Academy of Science Awards. The committee recommended, and the Board of Directors approved, the following persons for the Iowa Academy of Science Awards.

Distinguished Fellow

Donald Kirkham, Iowa State University

Jerry Kollros, Iowa State University

Distinguished Iowa Scientist

Peter A. Peterson, Iowa State University

Distinguished Service Award

Jean Prior, Geological Survey Bureau

The committee accepted the charge from the Board of Directors to develop the guidelines for a Wallace H. Carothers Scholarship in Chemistry to honor Dr. Carothers, the inventor of Nylon while working for E. I. du Pont de Nemours and Company. Dr. Carothers was a native of Iowa and received most of his education in Iowa. The committee prepared a proposal to DuPont Company for fund of the scholarship.

Student Programs

Chair: Ross Iverson

The committee worked with the Lynn Glass, Director of the Iowa Junior Academy of Science, in soliciting and evaluating student research grant applications. The Committee approved \$993.64 in

grants to the following secondary schools:

"Do varied levels of ultraviolet rays affect the mutation rate in the deoxyribonucleic acid of specific chromogenic bacteria"

Justin E. Jordebrek, Marshalltown Senior High School

"Land snails and their causal effects in the stimulation of neo-plasias in *Lycopersicon Esculentum*"

Douglas J. Renze, Marshalltown Senior High School

"Evidences of "medical practices" in archaeological artifacts in the Americas"

Jennifer Stephens, Marshalltown Senior High School

"The Effect of Fertilizer Run-off on Pond Ecosystems - Stage 2"

Michelle Wells, Marshalltown High School

"The Presence of Radon in Marshalltown, Iowa"

Abby Mack, B.R. Miller Junior High

"The Effects of Low Doses of Radiation on the Development and Growth of Bean Seeds"

John T. Stoffel, Bettendorf High School

"The Effect of Black and White on the Sensitive and Maidenhair Ferns"

Sara Koopman, B.R. Miller Junior High

"The Antibacterial Effect of Common Woodland Plants"

Cort Iverson, Green Mountain - Garwin

"Quantitative Comparison and Spectroscopic Analysis of Citrus Oil Insecticides"

Sara Schneckloth, Davenport Central High School

"The Effects of Neural Network Simulations on Computer Composed Music"

William Staib, Davenport Central High School

"Economic Effects from the Replacement of Manufacturing Jobs with Service Jobs"

Michael Stolze, Davenport Central High School

"Filling Bats with Foreign Substances"

Jeremy Wells, Stuart-Menlo Comm.

"Calculation of Absolute Magnitudes Through Infra-red & Color Photographic Image Diameters, Print Calibration & Apparent Magnitudes"

Ken Tyne, Stuart-Menlo High School

"The Effect of Centrifical Force on *Glycine Max*"

Julie Wigton, Stuart-Menlo High School

"Personalities From Pupils?"

Brenda Mains, Stuart-Menlo High School

The committee conducted a program for teachers at the Iowa Junior Science and Humanities Symposium in addition to several Iowa science fairs.

The committee invited the winners of state and local science fairs and symposia to present their research at the IJAS Program at the IAS Annual Meeting. The papers presented are listed elsewhere in this report. As a result of judging the presentations at the Annual Meeting the following awards were made:

\$500 scholarships to graduating seniors.

Sara Schneckloth, Davenport Central High School

William Staib, Davenport Central High School

The AJAS representatives were:

John Stoffel, Bettendorf High School

Michelle Wells, Marshalltown Senior High School

During the year the committee also selected the delegates and alternates to the following national programs:

National Youth Science Camp

Delegates:

Curt Clifton, Maquoketa Valley High School
Laura Kain, Abraham Lincoln H.S., Des Moines

Alternates:

Catherine Harmon, West Burlington, Arnold
Bruce Vander Lee, Sheldon Comm. H.S.

National DEO Summer Student Research Program

Todd L. Duncan, Bettendorf High School

Argonne National Laboratory, Illinois

Carla Marie Tiarks, Treynor High School

Oak Ridge National Laboratory, Tennessee

Patrick Dumstorff, Bancroft St. John

Lawrence Berkeley Laboratory, California

John R. Lofgren, Ankeny Senior High School

Brookhaven National Laboratory, New York

Peter D. Soley, Dubuque Senior High School

Lawrence Livermore National Laboratory, California

Jeff Moehlis, Cedar Falls High School

The committee selected 177 high school seniors to receive the Outstanding Science Student Award. One award was allowed for each accredited high school in Iowa. The names of the students appeared in the August 1988 IAS Bulletin.

The IJAS helped sponsor the Iowa Physics Olympics and several other student activities.

Support for the student programs came from contributions from Pioneer Hi-Bred International, Rolscreen Company and AAAS.

Excellence in Science Teaching Award

The Excellence in Science Teaching program was directed by **Roy Unruh** of the University of Northern Iowa. Six subcommittees reviewed approximately 40 nominations to select the recipients of the awards. The awards were presented at the Awards Luncheon during the IAS Annual Meeting in Ames Iowa. (See Awards Luncheon for the names of the recipients.)

SECTION ACTIVITIES

Section Reorganization

At the request of President **Lenore Durkee** all sections discussed the possibility of section reorganization and the establishment of new sections. Although most sections felt that their section did not require reorganization, Conservation and Zoology saw that they could combine. The Science Teaching Section felt that reorganization should be approached cautiously but felt that the other teaching sections (Chem Ed., Elementary Science Teaching, and Earth Science Teaching) might find it advantageous to be a sub section of the Science Teaching Section.

There appeared to be a need for new sections or the renaming of old sections to attract scientists who do not see how their specialty is presently covered by the present sections.

Chemical Education

The Chemical Education section held an afternoon and evening meeting at Hoover High School, Des Moines Iowa, on Friday September 25, 1987. The group of 25 persons heard a report on the Chem Ed '87 meeting in Kingston, Ont. and held a discussion on the disposal of hazardous chemicals. There was some discussion of what

people were doing to celebrate National Chemistry Day, November 6.

The section also met at the Annual Meeting to discuss what would be a good topic for the fall meeting.

Iowa Science Teachers Fall Conference

The Iowa Science Teachers Fall Conference was held October 22, 1987 at the Stouffer Five Seasons Hotel in Cedar Rapids, Iowa. In addition to 44 small group presentation, Dr. James Van Allen, Carver Professor of Physics, University of Iowa, gave a presentation at the noon luncheon. The attendance figures are shown in Table 4.

Table 4. ISTS Fall Conference Attendance

Registration	Pre-registrations	Walk-in
Members	130	32
Students	39	11
Non-members	328	56
Guests	59	0
Total	556	99
Exhibitors	25	
Total Attendance	680	

The Iowa Science Teachers Outstanding Service Award for 1987 was presented to **Peggy Steffen**, secondary science teacher in the Ottumwa Community Schools and secretary of the Iowa Science Teacher Section.

ADMINISTRATION

Personnel

During the 1987-88 year there were a few changes in the Academy office personnel. Although **Doris Mitchell** continued as Office Manager, **James Macmillan** who has served as Executive Director since 1983, submitted his resignation effective August 1, 1988. In anticipation of his leaving the IAS Board of Directors solicited applications for an Associate Director in the fall of 1987. **Paul Rider**, University of Northern Iowa, was selected from the applications. He will continue as Executive Director as of August 1, 1988.

With the graduation and leaving of **Debra Davis** who had worked for two years as a student office assistant, **Tracy Fontanini** was hired as a student office assistant.

Grants

The Academy continued involvement with the PRISMS project by selling PRISMS Guides and keeping accounts of the expenses for the printing and mailing of guides. With the University of Northern Iowa receiving NSF support for the PRISMS project, the Academy transferred the remaining funds and books to the University of Northern Iowa at the end of the fiscal year.

The Iowa Department of Education awarded the Academy a grant of \$5000.00 for continued support of the elementary science education section and newsletter. The Board of Directors established the Elementary Science Teaching Section in 1985 with special membership dues of \$10. The grant has paid the dues of the new members for the first two years. The Elementary Science Teaching Section has grown to over 230 new members.

In 1987 the Iowa Department of Education awarded the Academy \$7,000 for a secondary science student program called Surface Water Analysis Program (SWAP). This project was co-directed by **Cherin Lee**, University of Northern Iowa, **Erwin Richter**, University of Northern Iowa, and **Ross Iverson**, Marshalltown Community Schools.

The Academy received \$1,000 from AAAS to support the IJAS secondary student research grants while \$3,000 was received from

Pioneer Hi-Bred International to support the student activities.

Publications

The Proceedings of the Iowa Academy of Science, edited by **Roger and Marilyn Bachmann** of Iowa State University, is published on a calendar year. In 1987, Volume 94, four issues were published containing 18 articles and 148 pages from 39 authors. Several persons authored more than one article.

After a survey of the Academy membership, the ad hoc Publications Committee recommended to the IAS Board of Directors that the name of the Proceedings of the Iowa Academy of Science be changed to the Journal of the Iowa Academy of Science. In addition to the title change, the cover was redesigned, printed on silver gray stock using forest green ink. The distribution of the first issue of the Journal occurred at the 100th Annual Meeting in Ames, Iowa.

The Iowa Science Teachers Journal, edited by **Carl W. Bollwinkel** of the University of Northern Iowa, is published on a yearly basis. In 1987, Volume 24, had three issues containing 88 pages, with 16 articles from 19 authors.

In the fall of 1987, **Carl Bollwinkel** resigned as editor of the Iowa Science Teachers Journal effective with the spring issue of volume 25. As of June 30, 1988 a new editor had not been appointed by the Board of Directors.

The Academy has three newsletters; the I.A.S. Bulletin edited by **James G. Macmillan**, the IJAS Newsletter edited by **Joe Moore**, Keystone AEA Elkader, Iowa and SPARKS, the newsletter for the Elementary Ed Section, edited by **Susan Kelley**, Meeker Elementary, Ames, Iowa.

National Activities

President-elect **Paul Christiansen** and Executive Director **James Macmillan** were the Iowa Academy of Science representatives to the National Association of Academies of Science held in conjunction with the AAAS meeting in Boston, Massachusetts February 11-14, 1988. They attended the NAAS meetings as well as the AJAS banquet and the meeting to form the new Section Y of AAAS.

MEMBERSHIP

Table 5 shows the membership trends for the years 1984-88. In 1985 the Associate Membership category was eliminated and Associate members were made regular members. The membership which stood at 1878 as of June 30, 1988, represents an increase of 198 members over the same date in 1987. This 11.8% increase is due largely to the growth in the new Elementary Science Teaching Section. This section which was formed in 1986 has attracted a large amount of attention from elementary school teachers. Student membership which now stands at 131, has been on a slow decline since 1984 when there were 160 student members. This may be due to the lack of sufficient membership publicity at the colleges and universities.

Table 5. Membership 1984-1988

Category	1984	1985	1986	1987	1988
Associate Member	3	—	—	—	—
Student	160	151	148	145	131
Fellow	334	310	289	265	245
Life Member	41	41	40	47	47
Emeritus	91	93	92	93	94
Distinguished Fellows	18	20	20	21	24
Corporate	3	3	6	6	6
TOTAL	1491	1494	1516	1680	1878

Table 6. Membership by Section, June 30, 1988

Section	1988	Relative Section Interest* Percent
Agricultural Sciences (U)	141	7.5
Anthropology (H)	43	2.3
Biotechnology (K)	42	2.2
Botany (G)	275	14.6
Chemical Education (S)	111	5.9
Conservation (J)	246	13.1
Engineering (M)	69	3.7
Geology (E)	177	9.4
Inorganic, Analytical Physical Chemistry (C)	171	9.1
Linguistics (R)	42	2.2
Nursing (N)	29	1.5
Organic & Biological Chemistry (D)	125	6.7
Physics (B)	145	7.7
Physiology (O)	125	6.7
Psychology (I)	47	2.5
Science Teaching (Q)	670	35.7
Earth Sci. Teaching (Qg)	16	0.9
Elementary Sci. Teaching (Qe)	249	13.3
Zoology (F)	228	12.1

*Relative Section Interest is the percentage of all IAS members indicating a particular section interest.

The slow decline in the number of Fellows has been a concern of both the Membership Committee and Board of Directors. In 1983 there were 349 fellows while at the end of 1988 there were 245. When one considers that candidates for President Elect and Board of Director must be fellows, the pool of potential candidates is getting smaller.

Table 6 show the number of persons showing an interest in the 19 sections. Since an individual can indicate an interest in more than one section the percentages are not additive.

FINANCIAL REPORT Balance Sheet

Table 7, the balance sheet for the year ending June 30, 1988, is for both the Academy and for the combined assets of IAS, ISTS, and several grants. The total assets of the Academy were \$53,796.59 and \$62,899.95 for the combined organizations. The liabilities at years end were for payroll taxes to be paid in July of \$1,672.91. The combined restricted and unrestricted fund balances for the Academy from 1987 were \$69,259.08. Consequently, the net income for the Academy was (\$17,135.40). The combined fund balance for all organizations were \$62,899.95 which results in a net income (loss) for all organizations of (\$23,038.29).

It should be noted that at the beginning of the 1987-88 fiscal year the Academy held a bond with a face value of \$6,140 which had been paying 15% interest. In September this bond was called and paid \$6,846.50.

INCOME STATEMENT

Tables 8 and 9 shows that the actual income and expenses for 1987-88. Table 8, in addition to showing a total income of \$164,654.10, also show how the income was distributed to the various programs and activities of the Academy. The income for publications and the Annual Meeting do not cover the expenses for these two activities; therefore, part of the dues income was assigned to each to balance the expense.

The farm transfer shows the amount transferred from the Parish

Table 7. Balance Sheet June 30, 1988

	IAS	Combined
	Assets	Assets
Checking	(\$ 120.24)	\$6,507.06
Savings	52,493.33	52,493.33
Certificates, ISTS		1,368.57
PRISMS Guides		1,107.49
Bonds	0.00	0.00
Book Inventory	1,423.50	1,423.50
Total Assets	\$53,796.59	\$62,899.95
	Fund Balance & Liability	Fund Balance & Liability
Taxes Payable	\$ 1,672.91	\$ 1,672.91
Total Liabilities	1,672.91	1,672.91
1985 Fund Balances		
State Appropriation	0.00	0.00
Restricted Fund		
Balance	22,682.97	22,682.97
Unrestricted Fund		
Balance	46,576.11	46,576.11
PRISMS Co. Fund		
Balance		7,275.32
ISTS Fund Balance		3,722.49
Iowa DE Grant Fund Balance	4,008.44	
Total Fund Balance	\$69,259.08	\$84,265.33
Net Income (Loss)	(17,135.40)	(23,038.29)
Total Fund Balance and Liabilities	53,796.59	62,899.95

Farm operation and does not reflect the actual farm income. Hertz Farm Management reports on a crop year and the \$28,500 represents the amount transferred between June 30, 1987 and June 30, 1988. The 1987 crop income will be in excess of this amount.

Table 9 show how the actual expenses of \$181,789.50 were allocated to the programs of the Academy. This year to meet the expenses it was necessary to use Academy reserves. The net loss of (\$17,135.40) was the first loss in a number of years. To a large extent this was due to the purchase of the new computer system which greatly improved the data processing and desk top publishing capabilities of the office and due to the high cost of the 100th Annual Meeting held this year.

Tables 10 and 11 show the income and expenses respectively for all the programs and projects that the Academy administers. For all projects there was \$200,855.99 of income and \$223,894.28 in expenses.

In Table 8-11 it is shown that the University of Northern Iowa makes a contribution of \$11,961.40. This represents the release time provided for the Executive Director and for some printing and mailing of the Iowa Science Teachers Journal.

During 1987-88 the Academy received funds from the Iowa Department of Education to form an Elementary Science Teaching Section (ESTS), to conduct workshops on computer interfacing (Micro) and to develop a junior high school chemistry project on Surface Water Analysis Program (SWAP). The funds available at the end of 1988 will be carried over as fund balances for 1988-89.

The PRISMS Co. which was an out growth of the U.S. Department of Education project, showed a net income of (\$6,167.83). At the end of the 1987-88 fiscal year the remaining funds from the PRISMS company were transferred to the University of Northern Iowa. At that time the Academy cut it's ties with the PRISMS project. PRISMS was a very exciting endeavor for the Academy.

Restricted Assets

For a number of years the Academy has had some investments which have been set aside for special purposes. Table 12 show the status of these funds as they are presently invested with Merrill-Lynch. These amounts indicates what was invested in the fund in addition to the dividends which are reinvested. There is a decreasing penalty for early withdrawal for the first four years of investment consequently the indicated values do not represent the redeemed value.

Within this fund the dividends are distributed to the various categories. For example, the dues paid by Life Members are placed in a special fund of which only the interest can be used for operating expenses.

The Robert W. Hanson Publication Fund was established when **Robert W. Hanson** retired as Executive Director of the Academy. This account has grown from \$4,141.38 on June 30, 1986 to \$6,467.03 as of June 30, 1988 due to the reinvestment of dividends and further contributions by members. Dividends were reinvested in this fund. The Board of Directors can use the dividends from this fund to support publication projects in honor of **Robert W. Hanson**.

In 1985 the Board of Director established a restricted savings of \$15,000 as a result of the exceptional income from the Parish Farm. Dividends from this fund have been reinvested in the account. As of June 30, 1988 the investment value of this account was \$16,473.38.

In addition to the restricted funds shown in Table 12, the Academy has \$23,737.47 in unrestricted savings. These fund are available for use by the Board of Director.

ACADEMY LEADERSHIP 1987-88

Officers

President — Lenore T. Durkee, Grinnell College
 Past-President — Paul Waite, Des Moines, State Climatologist
 President-elect — Paul Christiansen, Cornell College
 Executive Director — James G. Macmillan, University of Northern Iowa

Directors

Wayne I. Anderson, University of Northern Iowa, 1988
 Ruth W. Swenson, Iowa State University, 1988
 Arthur J. Bosch, Central College, 1989
 Donald L. Koch, Geological Survey Bureau, Iowa City, 1989
 Bruce W. Menzel, Iowa State University, 1990
 Samuel J. Tuthill, Amana, 1990

Standing Committees

Annual Meeting Committee

(The Section Chairs constitute the Annual Meeting Committee.)

Committee on Committees

Paul Christiansen (chair), Cornell College
 John C. Downey, University of Northern Iowa
 Laura E. Sweets, Iowa State University
 Charles C. Wunder, University of Iowa
 William H. Gilbert, Simpson College
 Don Norton, Iowa State University
 Board Liaison: Paul Christiansen

Conservation & Preserves Committee

William P. Pusateri (chair), Des Moines
 Neil P. Bernstein, Mount Mercy College
 Paul D. Whitson, University of Northern Iowa
 George D. Schrimper, University of Iowa
 Harlo H. Hadow, Coe College
 Richard Lampe, Buena Vista College
 Lawrence Eilers, University of Northern Iowa
 Board Liaison: Wayne Anderson

Table 8. IAS Income Allocation 1987-88

INCOME	ALLOCATION OF INCOME					
	Amount	Publications	Programs	Meetings	Administration	Reserves
Corporate Gifts	\$18,870.65		\$14,455.00	\$ 4,415.65		
Dues	28,326.00	\$ 9,888.52		12,014.64	6,422.84	
Farm Transfer	28,500.00				28,500.00	
Individual Cont.	1,120.00				120.00	1,000.00
Interest/Dividends	5,362.22			5,362.22		
Miscellaneous	2,218.92				2,218.92	
Other Fees	5,996.00	2,261.00		3,735.00		
Publications Sales	6,459.00	6,459.00				
Registration Fees	8,080.00		300.00	7,780.00		
Reimbursements	1,296.31				1,296.31	
Reprint Sales	988.00	988.00				
State Aid	57,437.00	4,581.18	52,855.82			
TOTAL	\$164,654.10	\$24,177.70	\$67,610.82	\$27,945.29	\$43,920.29	\$1,000.00
UNI Subsidy	11,961.40	1,000.00			10,961.40	
TOTAL INCOME	\$176,615.50	\$25,177.70	\$67,610.82	\$27,945.29	\$54,881.69	\$1,000.00

Table 9. IAS Expense Allocation 1987-88

EXPENSES	ALLOCATION OF INCOME				
	Amount	Publications	Programs	Meetings	Administration
Accounting	\$ 0.00				\$ 0.00
Banquet/meals	6,265.60			6,265.60	
Clerical	15,343.47				15,343.47
Equipment	12,568.08				12,568.08
Equipment Service	1,509.05				1,509.05
Grants	52,279.95		52,039.95		240.00
Honoraria	23,248.00	2,333.32	1,000.00	3,450.00	16,464.68
Misc. Expenses	199.55				199.55
Postage & Shipping	10,262.36	\$2,227.05	702.06	2,536.85	4,796.40
Printing	28,914.52	19,617.33	1,924.00	3,049.95	4,323.24
Special Proj.	2,200.00		2,200.00		
Supplies	12,626.36		2,562.95	6,788.36	3,275.05
Taxes	2,697.60				2,697.60
Telephone	726.64				726.64
Travel	12,948.32		3,321.26	5,854.53	3,772.53
TOTAL EXPENSES	\$181,789.50	\$24,177.70	\$63,750.22	\$27,945.29	\$65,916.29
UNI Subsidy	\$ 11,961.40	\$ 1,000.00			\$10,961.40
TOTAL EXPENSES	\$193,750.90	\$25,177.70	\$63,750.22	\$27,945.29	\$76,877.69
TOTAL INCOME	\$176,615.50				
NET IAS INCOME	(\$17,135.40)				

Controversial Issues Committee

George Magrane (chair), AEA #15, Ottumwa
 Vern Durkee, Grinnell College
 John W. Patterson, Iowa State University
 Frank Goodkin, Grinnell College
 Charles Wunder, University of Iowa
 Thomas J. Blewett, Clarke College
 James J. Hungerford, Marshalltown Senior High
 Donald M. Huffman, Central College (ex-officio)
 Board Liaison: Ruth Swenson

Education Committee

Melba Strickler (chair), Grinnell
 Carolyn Brockway, Cedar Rapids
 Darrell G. Phillips, University of Iowa
 Dale R. Phillips, Grant Wood AEA, Cedar Rapids
 Robert T. Ward, University of Northern Iowa

Charles Windsor, Ames

Jack A. Gerlovich, Des Moines (ex-officio)
 Ross L. Iverson, Marshalltown (ex-officio)
 Lynn W. Glass, Iowa State University (ex-officio)
 Board Liaison: Ruth Swenson

Election Committee

Paul Waite (chair), Des Moines
 John C. Downey, University of Northern Iowa
 Nels R. Lersten, Iowa State University
 David J. Roslien, Luther College
 G. Edgar Folk, Jr., University of Iowa
 Burton J. Loupee, Cedar Rapids
 Board Liaison: Paul Waite

Finance Committee

George G. Karas (chair), Iowa State University

Table 10. Combined Income Allocation 1987-88

INCOME	ALLOCATION OF INCOME						
	Amount	IAS	ISTS	ESTS	Micro.	PRISMS Co.	SWAP
Corporate Gifts	\$ 18,870.65	\$ 18,870.65					
Dues	28,326.00	28,326.00					
Farm Transfer	28,500.00	28,500.00					
Grants	12,000.00			\$5,000.00			\$7,000.00
Individual Cont.	1,120.00	1,120.00					
Interest/Dividends	5,939.84	5,362.22	\$306.30	109.76	\$6.81	154.75	
Miscellaneous	6,898.65	2,218.92			126.08	4,553.65	
Other Fees	5,996.00	5,996.00					
Publication Sales	11,366.54	6,459.00				4,907.54	
Registration Fees	22,117.00	8,080.00	13,270.00	(208.00)	975.00		
Reimbursements	1,296.31	1,296.31					
Reprint Sales	988.00	988.00					
State Aid	57,437.00	57,437.00					
TOTAL	\$200,855.99	\$164,654.10	\$13,576.30	\$4,901.76	\$132.89	\$10,590.94	\$7,000.00
UNI Subsidy	\$ 11,961.40	\$ 11,961.40					
TOTAL INCOME	\$212,817.39	\$176,615.50	\$13,576.30	\$4,901.76	\$132.89	\$10,590.94	\$7,000.00

Table 11. Combined Expense Allocation 1987-88

EXPENSES	ALLOCATION OF INCOME						
	Amount	IAS	ISTS	ESTS	Micro	PRISMS Co.	SWAP
Accounting	\$ 0.00						
Banquet/Meals	13,795.00	6,265.60	\$7,529.40				
Clerical	15,435.97	15,343.47				\$ 92.50	
Contract Services	2,105.89			\$1,320.00	\$85.89		\$700.00
Equipment	12,568.08	12,568.08					
Equipment Service	1,509.05	1,509.05					
Grants	52,279.95	52,279.95					
Honoraria	26,308.00	23,248.00	200.00			400.00	2,460.00
Misc. Expenses	514.47	199.55		314.92			
Postage & Shipping	11,425.03	10,262.36	448.33	680.66	0.22	18.47	14.99
Printing	31,918.47	28,914.52	1,019.20	1,984.75			
PRISMS Closing	7,553.65					7,553.65	
Special Proj.	2,700.00	2,200.00	500.00				
Supplies	23,272.63	12,626.36	169.81	318.03	870.54	6,573.80	2,714.90
Taxes	2,697.60	2,697.60					
Telephone	1,076.85	726.64	145.59	8.25			196.37
Travel	18,459.81	12,948.32	2,494.98	259.87		2,120.35	636.29
Regional Prog., ISTS	273.83		273.83				
TOTAL EXPENSES	\$223,894.28	\$181,789.50	\$12,781.14	\$4,886.48	\$956.65	\$16,758.77	\$6,721.74
UNI Subsidy	\$ 11,961.40	\$ 11,961.40					
TOTAL EXPENSES	\$235,855.68	\$193,750.90	\$12,781.14	\$4,886.48	\$956.65	\$16,758.77	\$6,721.74
TOTAL INCOME	\$212,817.39	\$176,615.50	\$13,576.30	\$4,901.76	\$132.89	\$10,590.94	\$7,000.00
NET INCOME	(\$ 23,038.29)	(\$ 17,135.40)	\$795.16	\$15.28	(\$823.76)	(\$6,167.83)	\$278.26

James L. Christiansen, Drake University
 Maxine F. Huffman, Central College
 Donald N. Duvick, Pioneer Hi-Bred Intl., Inc.
 William L. Brown, Johnston
 Gerald F. Schnepf, Des Moines
 Board Liaison: Arthur Bosch

Reggie H. Stevens, University of Iowa
 Board Liaison: Bruce Menzel

Iowa Science Foundation

Robert Yager (chair), University of Iowa
 Harry T. Horner, Iowa State University
 George G. Karas, Iowa State University
 Kenneth Christiansen, Grinnell College
 David Speckhard, Loras College

Table 12. Restricted Assets

	Investment
Life Member Fund	\$ 2,857.90
Robert W. Hanson Publications	\$ 6,467.03
Savings	\$16,473.38
Total	\$25,008.06