

1991

Annual Report of the Iowa Academy of Science, 1990-91

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University of Northern Iowa

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Annual Report of the Iowa Academy of Science, 1990-91

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PREFACE

Starting in 1976, annual reports have served as a continuing record of the activities of the Iowa Academy of Science. These augment a 100 year history of the Academy which was written in the centennial year of 1975.

This report covers the period from July 1, 1990 to June 30, 1991. It is based on the official records of the Academy (committee reports, Board minutes, correspondence) as well as the recollections, impressions and musings of the author.

THE 103RD ANNUAL MEETING

The shores of the Mississippi River provided the setting for the 103rd Annual Meeting of the Iowa Academy of Science held at Loras College in Dubuque, Iowa, on April 19 and 20, 1991. The weather was mixed, with sunshine and rain, as Iowa was in the midst of its wettest spring season on record. The rugged bluffs on which the campus is built provided beautiful scenery as members and guests moved about to the various sessions. The attendance reached to over 500 during the two days, making it a surprising success. Several buildings provided the locations for the symposia and section meetings with the general sessions being held in the auditorium of historic Hoffman Hall. Professor Jay Kopp, from the Loras Physics Department, was in charge of local arrangements and was ably assisted by a supporting cast from other Loras departments as well as the staff at the Collan College Center.

The meeting was organized through the efforts of Gary Downs, Director of Meetings and Programs, who called the Annual Meeting Committee together at Loras in September of 1990. The committee consisted of the following individuals:

Annual Meeting Committee

Local Arrangements Committee Chair

Jay Kopp

Section Chairs:

Agricultural Sciences

Richard Wilson, Iowa State University

Anthropology

Michael J. Perry, University of Iowa

Cellular & Molecular Biology

Mike Lee, Iowa State University

Botany

Mark Loeschke, Iowa DNR

Chemical Education

John Bonte, Clinton Community College

Chemistry, Inorganic, Physical, Analytical

Edward Maslowsky, Loras College

Chemistry, Organic and Biological

Dan Quinn, University of Iowa

Conservation

Neil Bernstein, Mount Mercy College

Earth Science Teaching

Mark Brockmeyer, Coralville, Iowa

Elementary Science Teaching

Kelly Drumm, Davenport Monroe Elementary School

Engineering

Theodore Smith, University of Iowa

Geology

William Simpkins, Iowa State University

Linguistics

Clyde Thogmartin, Iowa State University

Nursing

Joelle Jensen, University of Iowa

Physics

Jay Kopp, Loras College

Physiology

Mary Guest, Clarke College

Psychology

Thomas Turnage, Iowa State University

Science Teaching

Jim Kubicek, West Marshall

Zoology

Steven Lehtinen, Luther College

The committee discussed possible topics for symposia and general session speakers. The program was blocked and section chairs were briefed on their responsibilities. Details of implementation leading up to the meeting were handled by the Director of Meetings and Programs, the Executive Director, the Administrative Assistant, and the section chairs.

The meeting was held April 19-20, 1991. The various aspects of the meeting are described in the following sections.

Iowa Junior Academy of Science Program

Russ Wiley, Junior Academy Director, and the Student Programs Committee, under its Chair Larry Schwinger, planned a program of invited poster papers and oral presentations involving students who had been working on science projects during the year. Section chairs and committee members acted as judges for the selection of individuals to participate in the junior academy programs held in conjunction with the AAAS meeting in Chicago, Ill., in February of 1992. Students and their projects are listed below.

"Lead Poisoning of Migratory Waterfowl"

Steven W. Ashton, Central High School, Davenport

"Color Genetics in New Zealand Rabbits"

Megan Becker, North High School, Davenport

"A Comparison of Nitrate Use by Different Parent Stock of *Zea mays*"

Eric G. Berggren, Marshalltown Senior High School

"Using Atmospheric Buoyancy to Launch Space Vehicles"

Jared Buntain, Maharishi School of the Age of Enlightenment, Fairfield

"Electrical Propagation of Proteinase Inhibitor II Presence in Poplar Hybrids"

Nupur Ghoshal, Ames High School

- "Pneumatic Tube Transportation"
Travis L. Koberg, North High School, Davenport
- "Polymer Recycling via Cracking Process"
Jeff Merkel, East High School, Sioux City
- "Compress it to the Max"
Cristi Taylor, Stuart-Menlo High School
- "A Comparison of Limestone from the Lower Mississippian System"
Marci L. Thomas, Marshalltown High School
- "Aloe Vera's Effect on Crown Gall Tumors"
Penny Thompson, North School, Davenport
- "Seasonal Determination of Trihalomethanes; By-products of Common Chlorination"
Karin Wilhelm, Stuart-Menlo High School

Program Summary

The program consisted of three general sessions, three symposia, and 17 section meetings involving 136 presentations (poster papers included). There were two formal meals including the Awards Luncheon and the President's Banquet. An informal box luncheon was also held. The following gives the details of the events on the program.

PROGRAM SUMMARY

-
- THURSDAY, APRIL 18**
- 6:00 Board of Directors Dinner and Meeting
- FRIDAY, APRIL 19**
- 8:00 EXHIBITS
IJAS POSTERS
IJAS PRESENTATIONS
- 8:30 SECTION MEETINGS
- 10:30 GENERAL SESSION I
President Wayne Anderson, presiding
"Future of the Earth's Environment"
Dr. Gerald Barney, Director, Institute for 21st Century Studies, Arlington, VA
- 12:00 AWARDS LUNCHEON
- 1:30 BUSINESS MEETING
- 2:00 STANDING COMMITTEE MEETINGS
SPECIAL EVENT — USE OF MULTIMEDIA IN SCIENCE EDUCATION
W.C. Brown Publishing Company
- 2:30 CONCURRENT SYMPOSIA
HISTORY OF IOWA NATURAL HISTORY
COMPUTER TECHNOLOGY IN PHYSICS TEACHING
MICRO SCALE TECHNIQUES IN GENERAL AND INORGANIC CHEMISTRY
- 3:00 SPECIAL EVENT — NUCLEAR MAGNETIC RESONANCE
Dr. A. Bramante of Hitachi Instruments, Inc.
- 4:00 SENIOR POSTERS
- 5:00 SOCIAL HOUR
- 6:15 PRESIDENT'S BANQUET
President Wayne Anderson, presiding
Presentation of Iowa Academy of Science Awards
Installation of new president and remarks by outgoing president Anderson
Response by President Luther Erickson

- 8:00 GENERAL SESSION II
"The Course of the Upper Mississippi River"
Dr. Richard C. Anderson, Department of Geology, Augustana College, Rock Island, IL

SATURDAY, APRIL 20

- 8:00 REGISTRATION
- 8:00 EXHIBITS
- 8:00 SECTION MEETINGS
- 11:00 GENERAL SESSION III
"Toward a Sustainable Agriculture"
Dr. John Pesek, Department of Agronomy, Iowa State University, Ames
- 12:00 BOX LUNCH
- 1:00 SECTION MEETINGS
Iowa Natural History Association Meeting
- 1:30 TOUR OF FOUR MOUNDS PRESERVE

The Awards Luncheon

This took place in the Field House on the upper campus. There were 100 individuals present. Larry Schwinger, chair of the Student Programs Committee, recognized students who had participated in science fairs and other science related activities in Iowa during the past year.

Junior Academy Director Russ Wiley presented the two high school scholarship winners and the two representatives who will be a part of the AJAS activities at the AAAS meeting in Chicago in February of 1991. The scholarship winners were:

Megan Becker, North High School, Davenport
Nupur Ghoshal, Ames High School

The AJAS representatives were:

Cristi Taylor, Stuart-Menlo High School
Karin Wilhelm, Stuart-Menlo High School
Alternate: Jeff Merkel, East High School, Sioux City

Because of some logistical problems, some of the Excellence in Science Teaching Awards had not been made in time for presentation at this meeting. Consequently, it was decided that the 1991 awards would be presented at the annual Fall Conference of the Iowa Science Teachers Section in Des Moines in October. The 1992 awards will be selected such that they will be presented at the 104th Annual Meeting to be held on the UNI campus in April.

The President's Banquet

The President's banquet following the social hour was also held in the Field House. Attending were 119 members and guests. President Wayne Anderson introduced Robert Carmichael who was chair of the Recognition and Awards Committee. Only one of the two award winners was present and Dr. Carmichael introduced the nominator for that individual who presented the award winner to the audience and described his accomplishments. The winners were:

Distinguished Fellow Award
Donald Duvick, Pioneer Hi-Bred
Distinguished Iowa Scientist Award
Louis Thompson, Iowa State University
Distinguished Service Award
(no award was given in this category)

President Anderson presented the year in review for the Academy before presenting the gavel to incoming President Luther Erickson. President Erickson spoke to the gathering of his goals for the coming year.

The banquet adjourned so that those attending could attend the evening general session featuring Richard Anderson, a geologist from Augustana College in Moline, IL.

Attendance

Tables 1 and 2 present attendance figures for the 1991 meeting and for the past five meetings, respectively.

Table 1. Registered Attendance 1991

	Pre-registered**		Walk-in**		TOTAL
	Regular		Fri.	Sat.	
Members:					
Regular	242		24	9	275
Student	43		11	4	58
SUB-TOTAL	285		35	13	333
Nonmembers:					
Regular	20		7	3	30
Student	34		3	0	37
SUB-TOTAL	54		10	3	67
Guests, etc.	23		2	0	25
TOTAL	362		47	16	425

**New Members included in member count

Table 2. Five Year Average Attendance

YEAR	Members	%	Non- members	%	Guests	%	Total	Papers	Ratio
1987	376	59.4	222	35.1	34	5.3	632	237	2.7
1988	471	67	182	25.9	49	6.9	702	285	2.5
1989	338	68.5	129	26.1	26	5.2	493	197	2.5
1990	447	77.2	103	17.7	29	5	579	229	2.5
1991	333	78.3	67	15.7	25	5.8	425	137	3.1
1	Grinnell College		3		Buena Vista College				
2	Iowa State University		4		Drake University				
			5		Loras College				

There was an expected decline in the total attendance due to the location of the meeting which was away from the population center of Iowa. But the attendance was still strong and much credit goes to the planning committee and the local arrangements people who put a good meeting together to attract members and others. The comparisons to last year suggest that fewer members decided to attend at the last minute and walk in, instead of registering in advance.

The ratio of attendees to papers presented (3.1) was higher than it has been in recent years. This was due to the fact that there were only half as many papers presented while the attendance was about three-fourths as large in comparison to the Drake meeting.

The number of papers presented and number attending section meetings as well as the other sessions are given in Table 3. The section meetings were well-attended in relation to other years and this continues to be an important part of the function of the IAS in providing an opportunity for the presentation of research results by Iowa scientists and their students.

MINUTES OF THE ANNUAL BUSINESS MEETING

Foley Auditorium, 1:30 p.m., April 19, 1991

President Wayne Anderson called the meeting to order at 1:30 p.m.

1. President Anderson made a few remarks on the status of Academy efforts to raise funds from various sources and indicated that something might develop before too long. He commended Executive Director Rider for his efforts in trying to get the budget to be balanced and have the annual meeting self-supporting.

2. Ruth Swenson reported the results of the election. Sam Tuthill was elected as the new President-Elect and new Board members were Bill Gilbert and Connie Mutel. They were present and were introduced to those in attendance.
3. Membership Committee Chair Don Koch gave the report of the membership including deceased members (a moment of silence was observed). New emeritus members were named and also those elected to fellow status were announced. They were Robert Seager, John Patterson, and William Gilbert.
4. Executive Director Rider gave the financial report of the Academy (this information and other items are given later in this annual report). He indicated that the dues increase had been effective in bringing the budget more in line and that this helped in reducing a deficit. He also expressed the hope that the annual meeting would pay for itself.
5. There was no old or new business brought before the gathering.
6. The meeting adjourned at 1:50 p.m. so that standing committees could hold short meetings starting at 2:00 p.m.

Table 3. Attendance Summary, 103rd Session, 1991

	Number of Papers	Attendance
Contributed Papers		
Agricultural Sciences	5	11
Anthropology	4	10
Botany	12	35
Cellular/Molecular Biology	9	17
Chemistry C	10	20
Chemistry D	15	18
Chemical Education	0	NA
Conservation	7	45
Earth Science Teaching	0	NA
Elementary Sci. Teaching	7	25
Engineering	14	15
Geology	12	30
Linguistics	8	11
Nursing	2	NA
Physics	2	20
Physiology	4	12
Psychology	6	20
Science Teaching	13	22
Zoology	8	35
TOTAL	138	
Symposium: History of Iowa Natural History	8	120
Symposium: Computer Technology in Physics Teaching	4	40
Symposium: Micro Scale Techniques in General and Inorganic Chem. Perspectives	2	55
TOTAL	12	215
General Session I		180
General Session II		250
General Session III		205
Special Events:		
Annual Business Meeting		75
Awards Luncheon		100
President's Banquet		119

REVIEW OF ACADEMY ACTIVITIES 1990-91

The year was another successful one for the Academy, its leadership and its committees. Goals were established and most committees were able to perform their tasks in an effective way. The following information describes committee activities.

Annual Meeting

Chair: Gary Downs

The Annual Meeting Committee met on Sept. 27, 1990 in the Mississippi Room of the College Center on the Loras College campus in Dubuque, Iowa, to plan the program for the 103rd Annual Meeting. Director of Meetings and Programs, Gary Downs, called the group together after an initial meeting with the local arrangements committee. 14 of the 19 section chairs attended. Executive Director Paul Rider also attended.

Blocking of the program sections was discussed and several suggestions were made as to possible topics and speakers. The committee did not meet again and all planning went smoothly up and through the meeting.

Committee on Committees

Chair: Luther Erickson

This committee met on October 6, 1990 in Grinnell, Iowa, to consider the pool of potential committee members developed through solicitation of one-third of the membership, requests to standing committee chairs, and requests of Board members. Individuals were considered relative to IAS service and JIAS publications. Balancing committee membership was sought in relation to geographic location, gender, affiliation, IAS involvement (both long and short term).

Through efficient and careful consultation, most committee assignments were made before the end of the calendar year. Some were made near the time of the annual meeting.

Conservation and Preserves

Chair: Gary Phillips

This committee held one meeting and dealt with certain issues of importance. These included taking a more active role in the selection of individuals for the State Preserves Advisory Board (Lois Tiffany and Richard Baker were selected for this assignment), developing a statement on how the State should acquire and manage public lands (still in progress), and encouraging the development of the IAS data base so that the expertise of IAS members could be more easily identified and used in relation to issues of concern to the committee and State.

Controversial Issues

Chair: Lenore Durkee

The committee met four times during the year. Its goal was to investigate a number of issues that could lead to position papers on behalf of the IAS. Included as possible topics was the use of fetal tissue in research as well as the always present concern about pseudo-science and animals rights issues.

This committee is always one of the more active in IAS and provides excellent leadership in the state relative to a number of issues.

Education

Chair: Cathy Baker

The objectives of this committee included selection of PAESMT nominees for secondary and elementary science teachers. The committee met in April 1991 to select the nominees for these awards.

Tony Heiting of the Department of Education provided the materials on the eligible nominees and those committee members present selected **Verlin Fleagle** of Central Clinton High School (DeWitt), **Bernard Hermanson** of Sumner Jr/Sr High School and **Theresa Knapp** of Valley High School (West Des Moines) as the secondary school nominees from Iowa. The elementary nominees were **Joan Braunagel McShane** of Jefferson Elementary School (Davenport), **Margaret Sadeghpour**, Lincoln Community School (Mechanicsville) and **JoAnn Tews**, Walnut Grove Elementary School (Council Bluffs).

Election

Chair: Ruth Swenson

The committee met twice and selected two candidates for President-elect and four for the Board of Directors. Ballots were mailed from the IAS office in March and returned by April 19, 1991. They were tallied and the results were reported on April 19, 1991 at the business meeting in Dubuque. The **President-elect** was **Sam Tuthill** of Amana, and new board members were **Connie Mutel** of the University of Iowa, and **Bill Gilbert** of Simpson College.

Finance

Chair: Burton Loupee

This committee did not have a formal agenda during the year and fund raising activities were carried on by President Anderson and Executive Director Rider. This committee does not usually advise the executive director on budget matters which are regarded as a Board responsibility.

Iowa Science Foundation

Chair: Dale Olson

The committee solicited and evaluated proposals for the 1990-91 fiscal year. It met on February 7, 1991, at the University of Northern Iowa to distribute proposals to committee members for review. A second meeting on May 9, 1991 at UNI was held to select awardees. The committee also discussed the possibility of another workshop to assist individuals in proposal writing. It was decided to hold one next year at the ISTS Meeting in the fall in Des Moines. New chair Warren Dolphin will conduct this.

There were 42 proposals for grants of which the following were awarded a total of \$40,000.00 This amount consisted of \$38,000 in state funds and \$2,000 in private funds from Rockwell-Collins and IAS. Those receiving grants were:

"Value of Roadside Habitats to Avian Wildlife in Northcentral Iowa"	\$2,332
Louis B. Best , Iowa State University	
"Documentation of Petrified Root Systems in Pennsylvanian Sediments at Wilcox Wildlife Preserve"	\$4,140
Douglas R. Zehr , William Penn College	
"Models of Amine Luminescence in Tissues"	\$2,834.05
Catherine Haustein , Central College	
"Understanding Sinkholes — A Model and Tour"	\$2,662.50
Don R. Menken , Clayton County Conservation Board	
"Star Search: The Work of Annie Jump Cannon"	\$3,179.10
Karen M. Larson , Putnam Museum	
"A Study of the Carbon Isotopes and Age of Groundwater in Glacial Till and Bedrock Aquifers in Central and East-Central Iowa"	\$4,500
William W. Simpkins , Iowa State University	
"Transport of Nickel in Iowa Soils"	\$4,500
Michael L. Thompson , Iowa State University	
"Upper Mississippi River Prehistory and Paleocology"	\$4,400
Mary K. Whelan , University of Iowa	
"Diatoms Living on Cladocerans: An Analysis of a New Symbiosis Discovered in Iowa Lakes"	\$1,225
Roger W. Bachmann , Iowa State University	
"Chronology of the Archaic Period in Central Iowa"	\$4,495
John Bower , E. Arthur Bettis, Iowa State University	
"Effects of Soil Water Content on Allantoic and Amniotic Fluids in Turtle Eggs During Incubation"	\$3,695
Thomas A. Davis , Loras College	
"A Digistar and Multi-image Based Planetarium Program for Elementary Students"	\$4,100
Kirk E. Brocker , The Science Center of Iowa	

Membership

Chair: Don Koch

The committee did not meet during the year. It discussed the matter of fellow nominations over the phone among its members. Three individuals were selected to be fellows upon approval of the Board of Directors.

Parish Farm

Chair: William Reece

The committee met four times during the year and was very active in a number of ways. Recommendations were made regarding improvements on buildings and grounds. One building was taken by the Grundy County Conservation Board and the old class room foundation hole was filled in by the manager. The garage and corn crib were painted, the well was plugged and the cesspool filled, and the water hydrant was removed.

The woodlot was inventoried and plotted and the Grundy County Conservation Board was consulted on a number of matters. The committee decided to prepare a proposal to the Leopold Center for making a video presentation of the farm. Paul Garvin also prepared an excellent display of the farm for the annual meeting in Dubuque which received rave reviews.

There was also a Farm Day on June 22, 1991, with 50-60 individuals in attendance. It was a great success.

Public Information

Chair: Tom Fenton

The committee met September 14, 1990, at Iowa State University and April 19, 1991, at the annual meeting in Dubuque.

Most of the IAS sweatshirts have been sold but several T-shirts remain. These will be sold at meetings until they are gone. Loras College handled the publicity for the annual meeting as have other host institutions. Tony Heiting and Ron Warnet made the availability of IAS expertise and equipment known to some of our high school science teacher coordinators. The committee also recommended to the Board that IAS continue to support Nature on IPTV.

Recognition and Awards

Chair: Robert Carmichael

The committee worked with the Governor's office in selecting awardees for the Governor's Science Medals. These awards recognize and honor achievement in Iowa's science and technology community. At the awards ceremony and luncheon at the State Capitol in May of 1991, the following were honored:

Science Achievement — **Dr. Thomas Wheelock**
 Science Application — **Dr. Dennis Johnson**
 Science Teaching — **Drs. Mardith Baenziger and Robert Yager**

The committee also reviewed and selected awardees for the Academy's own awards. These are described in the annual meeting section.

The Academy approved the Committee's proposal and nomination form for a new award for College Science Teaching. This is to encourage and promote good and innovative teaching at the undergraduate college level.

Student Programs

Chair: Larry Schwinger

The committee worked with Russ Wiley, Director of the Iowa Junior Academy of Science, in soliciting and evaluating student research grants. Grants were made to the following students:

"Thigmomorphogenetic Response to Touch by Two Spring Barley (*Hordeum vulgare* L.) Cultivars" \$50.00

Alan Adams, Regis High School, Cedar Rapids

"The Effects of Varying Amounts of Sulfur in Crude Oil on Selected Freshwater Crustaceans" \$150.00

Sarah E. Renze, Marshalltown High School

"The Effect of Microwave Radiation on Selected Food Spoilage Bacteria — Phase II" \$100.00

David M. Wadle, Marshalltown High School

"A Comparison of Limestone From the LeGrand and Ferguson Quarries" \$100.00

Marci L. Thomas, Marshalltown High School

"The Effects of Agricultural Pesticides on *Lumbricus terrestris*" \$100.00

Marie Peleck, Marshalltown High School

"Determination if Nutrients are Lost While Presoaking Bean Seeds; Determination of Maximum Soaking in Soil for Bean Growth" \$55.66

David Stoffel, Bettendorf High School

"Radon Testing" \$153.89

Christina Danielsen, O.B. Laing Middle School

"To See If Ants and Worms Make a Difference in Compaction of the Soil" \$100.00

Tim O'Brien, Stuart-Menlo Community School

"Trihalomethanes Rise to the Surface THM Determination of Southwestern Iowa Water Focused on the Temperature Variable" \$150.00

Karin Wilhelm, Stuart-Menlo Community School

"Radon: Can We Control It?" \$100.00

Troy Donnelly, Stuart-Menlo Community School

The committee was involved in science fair activity throughout the state and several individuals were invited to give papers at the annual meeting. After these papers were judged scholarship awards in the amount of \$500 each were made to:

Megan Becker, North High School, Davenport

Nupur Ghoshal, Ames High School

Representatives chosen for the AJAS trip to Chicago, IL in 1992 were:

Cristi Taylor, Stuart-Menlo High School

Karin Wilhelm, Stuart-Menlo High School

Alternate: **Jeff Merkel**, East High School, Sioux City

Students selected for the Governor's National Youth Science Camp were:

Delegates:

Gail Gavin, Cascade High School

Mark Mcdermott, North Tama High School, Traer

Alternates: **Michelle Gottschalk**, Columbus High School, Waterloo

Kelly Jean Martens, Hempstead High School, Dubuque

Those selected for National Energy Institutes were:

Argonne National Laboratory

Thomas Allan Mueller, South O'Brien School, Paullina

Alternate: **Andrew Keppler**, Starmont Community School, Strawberry Point

Brookhaven National Laboratory

Alan Adams, Regis High School, Cedar Rapids

Alternate: **Douglas G. Bielenberg**, Cedar Falls High School

Fermi National Accelerator Laboratory

Christopher T. Eggers, Waverly-Shell Rock High School

Alternate: **Andrew Liad**, Ames High School

Lawrence-Berkeley Laboratory

Michelle Stohlmeyer, Wahlert High School, Dubuque

Alternate: **Teri A. Oltmans**, Underwood High School

Livermore-Livermore National Laboratory

Shannon E. Harris, Shenandoah High School

Alternate: **Marty Jo Hebler**, Washington High School, Cherokee

Oak Ridge National Laboratory

Mat McKinney, Clinton High School

Alternate: **Nickole Harmon**, West High School, Waterloo

Pacific Northwest Laboratory

Beth L. Keehner, MFL Community School, Monona

Alternate: **Sheila Peuse**, Sioux Center High School

A total of 152 students were selected from Iowa high schools to receive the Outstanding Science Student medallion.

The IJAS assisted in the Iowa Physics Olympics and support for student programs came from Pioneer Hi-Bred, Rolscreen Company, and the AAAS.

The committee also developed an award arrangement for three high school teachers and one student each (\$100/\$50) to recognize participation in science related activities.

Excellence in Science Teaching Award

This program was directed by Dr. Roy Unruh of the University of Northern Iowa. Eight subcommittees reviewed several applicants and selected winners. The awards were not made at the Awards Luncheon at the Annual Meeting at Loras because of some problems with the mail system. They will be made this year at the ISTS fall meeting instead.

SECTION ACTIVITIES

The sections held sessions as part of the annual meeting. The response to calls for papers was good. The Earth Science Teaching Section started publishing a newsletter.

Iowa Science Teachers Fall Conference

The fall conference of the ISTS was held on October 25, 1990 at the Convention Center in Des Moines, Iowa. The attendance was down some from previous years but a regional meeting of the NSTA had been held not too long before this meeting, a factor that probably reduced attendance somewhat. The details of the attendance appear in Table 4.

Convention speakers included Hans Anderson of Indiana University, NSTA President, and Joseph Novak, science educator from Cornell University. The featured luncheon speaker was Thomas Dunstan, a Western Illinois University professor who spoke on birds of prey.

Table 4. ISTS Fall Conference Attendance

Registration	Pre-registration	Walk-in	Total
**Members	303	52	355
Students	18	0	18
*Non-members	156	21	177
Guests	3	0	3
Total	480	73	553
Exhibitors	33	0	33
Total Attendance	513	73	586

**Includes non-members joining and presenters

*Includes presenters

ADMINISTRATION

Personnel

The IAS continues to be well-served by Administrative Assistant Doris Mitchell who has assumed additional responsibilities under her new title. The office is also assisted by student helpers Sara Paar and Kathy Rider.

Executive Director Paul Rider completed his third year in his position and has one remaining year on his appointment.

Grants

The Academy received a \$1000 grant from the AAAS for IJAS activities. Pioneer Hi-Bred also supplied \$3000 for these activities.

The Iowa Science Foundation grant from the state is now administered through the University of Northern Iowa.

Publications

The Journal of the Iowa Academy of Science was edited by newly appointed editor, Ken Windom, of Iowa State University. The calendar

year 1990 Volume 97 was published in 4 issues. There were 21 articles and 200 pages by 75 authors.

The Iowa Science Teachers Journal was edited by Carl Bollwinkel with Volume 27, issues 1, 2, and 3 were published.

The publication of the IAS Bulletin did not occur during the year in order to save money. The one page "IAS Update" was published a few times. The IJAS Newsletter was not published but the SPARKS newsletter was edited by Suzanne Kelly of Meeker Elementary School in Ames, Iowa.

National Activities

President-elect Luther Erickson and Executive Director Paul Rider represented the Iowa Academy of Science at the AAAS Meeting in February in Washington, D.C. They attended meetings of the National Association of Academies of Science and Section Y of the AAAS.

MEMBERSHIP

The membership data for the past five years are presented in Table 5. A slight decrease in membership has occurred during the current year, amounting to a loss of 12 members.

The section membership figures are given in Table 6 for the current year. There were twelve sections that gained membership with the science teaching sections experiencing the largest growth. There were seven sections that lost membership with Conservation, Botany and Physics losing over 20 members each. Hopefully, our colleagues will work at getting these sections back up.

Table 5. Membership 1987-91

Category	1987	1988	1989	1990	1991
Member	1103	1331	1534	1715	1703
Student	145	131	146	187	181
Fellow	265	245	245	238	241
Life Member	47	47	47	46	46
Emeritus	93	94	97	94	99
Distinguished Fellows	21	24	25	26	27
Corporate	6	6	5	5	2
TOTAL	1680	1878	2099	2311	2299

Table 6. Membership by Section, June 30, 1991

Section	1991	Relative Section Interest* Percent
Agricultural Sciences	(U) 152	7.2
Anthropology	(H) 48	2.3
Botany	(G) 262	12.5
Cellular/Molecular Biology	(K) 63	3.0
Chemical Education	(S) 142	6.8
Conservation	(J) 250	11.9
Engineering	(M) 83	4.0
Geology	(E) 179	8.5
Inorganic, Analytical		
Physical Chemistry	(C) 165	7.9
Linguistics	(R) 38	1.8
Nursing	(N) 32	1.5
Organic & Biological		
Chemistry	(D) 123	5.9
Physics	(B) 147	7.0
Physiology	(O) 116	5.5
Psychology	(I) 57	2.7
Science Teaching	(Q) 730	34.8
Earth Sci. Teaching	(Qg) 89	4.2
Elementary Sci. Teaching	(Qe) 670	31.9
Zoology	(F) 234	11.1

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

FINANCIAL REPORT
Balance Sheet

The balance sheet for the Iowa Academy of Science as a comprehensive organization (combined) as well as an operational unit (IAS) within that comprehensive organization is given in Table 7.

The net income loss for the IAS, discounting the built-in \$30,000 deficit due to the artifact in the accounting system that treats the transfer of farm funds as a debit in the IAS account, was \$1329.13. This is less than the loss last year and reflects the effect of on going attempts to reduce expenses.

Total IAS assets (\$51,668.20) were slightly above last year (\$50,721.89) while combined assets decreased (\$169,971.68 to \$157,788.73), largely due to the completion of two math grants.

INCOME STATEMENT

Tables 8 and 9 show the income and expenses for the IAS portion of the combined organization. Dues and state aid provide the largest amounts of income for the organization. The state aid is primarily used to fund grants for the Iowa Science Foundation. Some of those funds (less than \$10,000) are used for publication costs and other programs. The state aid remained at \$50,000 of which \$40,000 went to the Iowa Science Foundation grants with the rest covering printing and administrative costs.

The annual meeting, again, cost more than the income taken in from registration fees, banquet ticket purchases, and contributions from the host institution. The difference amounted to approximately \$650, which was, again, a substantial portion of the deficit between net income and expenses for the IAS. The Board left the registration fees at their previous level for the Loras meeting. The deficit was only 20% of what it was last year. Registration fees will remain the same for the meeting at the University of Northern Iowa and additional attempts will be made to economize even further in order to bring meeting costs in line with registration and other meeting income.

The University of Northern Iowa continues to contribute a subsidy to Academy operations through released time for the executive director, printing costs for the Iowa Science Teachers Journal, and student assistant costs used by the ISTJ editor. This amount is \$16,420.80. Provision of physical facilities and utility costs are not included in this amount.

Tables 10 and 11 show the combined income and expenses for the organization. The accounting procedures recognize "companies" in the combined organization. These include the IAS operations, the Parish Farm, the Iowa Science Teaching Section (ISTS), and two state math grants. The Elementary Science Teaching Section (ESTS, which was funded by a state grant), and the Surface Water Program (SWAP, which was also funded by a state grant) were expended last year and

Table 7. Balance Sheet June 30, 1991

CATEGORY	IAS	COMBINED
	Assets	Assets
Checking	\$ 9,669.37	\$23,220.80
Savings	29,334.68	29,334.68
Office Equipment	16,540.95	16,540.98
Accumulated Depreciation	(4,118.30)	(4,118.30)
Heritage Book Inventory	(175.00)	(175.00)
State Appropriation	0.00	0.00
Sweatshirt Inventory	416.50	416.50
Certificates, ISTS		4,672.12
Parish Farm		
Deferred Coop Dividend	-	21,896.95
PIK Certificate Inventory	-	0.00
240 Acre Farm	-	66,000.00
TOTAL ASSETS	51,668.20	157,788.73
	IAS	COMBINED
	Liabilities	Liabilities
Taxes Payable	\$ 0.00	0.00
State Appropriations	0.00	0.00
TOTAL LIABILITIES	0.00	0.00
	IAS	COMBINED
	Fund Balances	Fund Balance
Restricted Fund Balance	\$27,582.72	\$93,582.72
Unrestricted Fund Balance	20,764.61	53,272.93
Farm Transfer to IAS	35,000.00	35,000.00
Farm Transfer from Farm	-	(35,000.00)
ISTS Fund Balance	-	4,323.88
SWAP Fund Balance	-	0.00
ESTS Fund Balance	-	0.00
Math Text Fund Balance	-	13,240.58
Math Computer Fund Balance	-	476.89
TOTAL FUND BALANCE	\$83,347.33	\$164,897.00
	IAS	COMBINED
Total Fund Balance	\$83,347.33	\$164,897.00
Net Income (Loss)	(31,329.13)	(6,758.30)
Total Equity	52,018.20	158,138.70
TOTAL EQUITY		
& LIABILITIES	\$52,018.20	\$158,138.70

were not longer funded. The math grants were carried over from the previous year.

Table 8. IAS Income Allocation 1990-91

INCOME	ALLOCATION OF INCOME				
	Amount	Publications	Programs	Meetings	Administration
Corporate Gifts	\$ 5,650.65		\$5,650.65	\$ 0.00	
Dues	39,027.00	\$ 8,827.27		1,136.80	\$29,062.93
Individual Cont.	930.00	0.00	930.00		
Interest/Dividends	3,583.35			0.00	3,583.35
Miscellaneous	2,552.51				2,552.51
Other Fees	4,678.00	2,268.00		2,410.00	
Publications Sales	7,676.15	7,676.15			
Registration Fees	8,074.50		835.00	7,239.50	
Reimbursements	2,311.29				2,311.29
Reprint Sales	877.25	877.25			
State Aid	50,000.00	10,000.00	40,000.00		
TOTAL	\$125,360.70	\$29,648.67	\$47,415.65	\$10,786.30	\$37,510.08
UNI Subsidy	16,420.80	1,650.00			14,770.80
TOTAL INCOME	\$141,781.50	\$31,298.67	\$47,415.65	\$10,786.30	\$52,280.88

Table 9. Expense Allocation 1990-91

EXPENSES	ALLOCATION OF INCOME				
	Amount	Publications	Programs	Meetings	Administration
Accounting/Ins.	\$ 1,843.00				\$ 1,843.00
Banquet/meals	3,219.10			\$ 3,219.10	
Clerical	19,339.91				19,339.91
Equipment	531.20				531.20
Equipment Service	1,499.40				1,499.40
Grants	41,061.20		\$40,836.20		225.00
Honoraria	26,833.94	\$ 2,666.68	1,000.00	1,500.00	21,667.36
Misc. Expenses	174.85				174.85
Postage & Shipping	8,035.44	1,252.70	602.04	496.55	5,684.15
Printing	36,945.67	25,729.29	1,769.63	3,052.71	6,394.04
Special Proj.	2,300.00		2,300.00		
Supplies	4,204.61		1,863.42	487.90	1,853.29
Taxes	3,707.63				3,707.63
Telephone	339.27				339.27
Travel	6,654.61		2,614.32	2,030.04	2,010.25
TOTAL	\$156,689.83	\$29,648.67	\$50,985.61	\$10,786.30	\$65,269.35
UNI Subsidy	\$ 16,420.80	\$ 1,650.00			\$14,770.80
TOTAL EXPENSES	\$173,110.63	\$31,298.67	\$50,985.61	\$10,786.30	\$80,040.15
TOTAL INCOME	\$141,781.50				
NET IAS INCOME (LOSS)	(\$ 31,329.13)				

Table 10. Combined Income Allocation 1990-91

INCOME	ALLOCATION OF INCOME				
	Amount	IAS	ISTS	PARISH FARM	MATH GRANTS
Corporate Gifts	\$ 5,650.65	\$5,650.65			
Dues	39,027.00	39,027.00			
Parish Farm	67,687.12			\$67,687.12	
Grants	0.00				
Individual Cont.	930.00	930.00			
Interest/Dividends	4,645.53	3,583.35	\$ 478.21	554.20	\$29.67
Miscellaneous	17,309.04	2,552.51	6,545.00	8,211.53	
Other Fees	4,678.00	4,678.00			
Publications Sales	7,676.15	7,676.15			
Registration Fees	22,539.00	8,074.50	14,464.50		
Reimbursements	2,311.29	2,311.29			
Reprint Sales	877.25	877.25			
State Aid	50,000.00	50,000.00			
TOTAL	\$223,331.03	\$125,360.70	\$21,487.71	\$76,452.85	\$29.67
UNI Subsidy	\$ 16,420.80	\$16,420.80			
TOTAL INCOME	\$239,751.83	\$141,781.50	\$21,487.71	\$76,452.85	\$29.67

The net incomes of the Parish Farm and ISTS were positive while those for IAS and the two state math grants were negative. As mentioned previously, some of the farm funds are transferred to the IAS budget, which reduces its deficit. These combined companies experienced a total income of \$239,751.83 and a total expense of \$246,510.13, for a net loss of \$6,758.30. This loss was only due to the fact that math grant monies had been carried over from the previous year and had to be listed as expenses but could not be counted as income. Without this artifact, the actual net income would have been positive in the amount of \$6,959.17.

The executive director is somewhat encouraged that the deficit situation has been rectified. This was due to the dues increase and another good year on the Parish Farm.

The goal of the annual meeting paying for itself was almost achieved and should be realized through careful planning and the cooperation of the host institution. It is hoped that the registration fees for the meeting can remain at their present level for the time being.

Restricted Assets

Table 12 shows the restricted assets of the Academy. These are distributed among three funds. The Life Member Fund was shifted to a different investment program that provides on going operating income for the IAS budget. The Robert W. Hanson Publication Fund has grown due to contributions and interest to the value shown. The savings listed are to be used as a reserve fund, should farm income drop below anticipated budgetary allowances.

The amounts listed are based on the market value of the Merrill-Lynch funds in which the money is invested, as of June, 1991. These amounts may shift as the market experiences changes.

Table 12. Restricted Assets

	Investment
Life Member Fund	\$ 7,660.00
Hanson Publication Fund	\$ 7,616.72
Savings	\$14,059.03
Total	\$29,335.75

Table 11. Combined Income Allocation 1990-91

EXPENSES	ALLOCATION OF INCOME				
	Amount	IAS	ISTS	PARISH FARM	MATH GRANTS
Accounting	\$ 1,843.00	\$ 1,843.00			
Banquet/meals	10,143.87	3,219.10	\$6,924.77		
Clerical	19,339.91	19,339.91			
Contract Services	2,500.00				\$2,500.00
Equipment	7,068.55	531.20			6,537.35
Equipment Service	1,499.40	1,499.40			
Parish Farm	41,446.77			41,446.77	
Grants	41,061.20	41,061.20			
Honoraria	28,238.55	26,833.94	1,404.61		
Misc. Expenses	3,682.95	174.85	3,508.10		
Postage/Shipping	8,478.01	8,035.44	442.57		
Printing	40,109.53	36,945.67	3,163.86		
Special Proj.	2,800.00	2,300.00	500.00		
Supplies	8,634.00	4,204.61	479.39		3,950.00
Taxes	3,707.63	3,707.63			
Telephone	429.78	339.27	90.51		
Travel	9,106.18	6,654.61	1,691.68		759.89
Regional Prog., ISTS	0.00		0.00		
TOTAL	\$230,089.33	\$156,689.83	\$18,205.49	\$41,446.77	\$13,747.24
UNI Subsidy	\$ 16,420.80	\$ 16,420.80			
TOTAL EXPENSES	\$246,510.13	\$173,110.63	\$18,205.49	\$41,446.77	\$13,747.24
TOTAL INCOME	\$239,751.83	\$141,781.50	\$21,487.71	\$76,452.85	\$ 29.67
NET INCOME (LOSS)	(\$6,758.30)	(\$31,329.13)	\$3,282.22	\$35,006.08	(\$13,717.57)

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Contributed Papers

All abstracts of contributed papers received on time for the 1991 meeting were printed in an abstract booklet which is available from the IAS office.