1987

Annual Report of the Iowa Academy of Science, 1986-87

James G. MacMillan
University of Northern Iowa

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Annual Report of the Iowa Academy of Science, 1986-87

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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, 1986 to June 30, 1987 and is based on committee meetings, Board minutes and the recollections of the author. Each part represents a major activity of the Academy.

THE 99th ANNUAL MEETING

The 99th Annual Meeting was held April 24-25, 1987 on the Grinnell College campus.

Annual Meeting Committee

The Annual Meeting Committee which was chaired by Gary Downs, Director of Meetings and Programs, met October 1, 1986 in Grinnell to begin planning the program. The Annual Meeting Committee was composed of the Local Arrangements Committee, Benjamin Graham and Irving Fishman both of Grinnell and the chairs of the sections as follows:

Agricultural Sciences
- Richard B. Hall, Iowa State University

Anthropology
- James M. Gifford, Iowa State University

Biotechnology
- Dwight T. Tomes, Pioneer Hi-Bred International

Botany
- L.H. Durkee, Grinnell College

Chemical Education
- Roland Stout, Drake University

Chemistry, Inorganic, Analytical & Physical
- Gary W. Small, University of Iowa

Chemistry, Organic & Biological
- Jon Hutchins, Buena Vista College

Conservation
- Roger Bachmann, Iowa State University

Earth Science Teaching
- Bill Peterson, Sioux City

Elementary Science Teaching
- Gary E. Downs, Iowa State University

Engineering
- Otto Buck, Iowa State University

Geology
- Lynn A. Brant, University of Northern Iowa

Linguistics
- Philip E. Webber, Central College

Nursing
- Martha Craft, University of Iowa

Physics
- Robert R. Cadmus, Jr., Grinnell College

Physiology
- James A. Dykens, Grinnell College

Psychology
- Lloyd L. Avant, Iowa State University

Science Teaching
- Dean Hartman, Grant Wood AEA; Karen Murphy, Weeks

Transitional School

Zoology
- Richard W. Coleman, Upper Iowa University

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

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, Joe Moore, planned the IAS program of invited papers. The following 17 student poster papers and oral presentations were judged by a committee made up of vice chairs of the sections and members of the Student Programs Committee.

Bill Deninger, Marshalltown Senior High School
- The Effects of Changing Electromagnetic Radiation on an Eco-system

Mark Griffith, Linn-Mar High School, Marion
- Lectin Staining in Malignant Effusions

Richard R. Harms, Central High School, Fenton
- Taking a "Byte" Out of Crime

Stephen Hise, Central High School, Davenport
- Further Studies of Transient Responses in Glass Electrodes

Brett R. Iverson, Green Mountain High School
- A Low Temperature Germination Study of Amaranthus

Laura Jones, Stuart-Menlo High School
- Phenol: Physiological Effects of NaNCl on Rhus norvegicus

Blane A. Krause, Rockwell City Community High School
- The Mechanical Manipulation of Randomly Oriented Parts

Amy Louise Lemke, Guthrie Center High School
- Antibiotic Residues Found in Lactating Cows

Melinda M. McFarlin, West High School, Davenport
- Radiation Effect on Normal Flora of the Throat

Jeff Ryant, North Winneshiek High School, Decorah
- What Are Composites?

Sara Schneckloth, Central High School, Davenport
- The Effect of Methubanthine Application on Mung Bean Plants

William E. Staib, Central High School, Davenport
- Can Computers Compose Aesthetic Music with Applied Counterpoint?

Christine Stoffel, Bettendorf High School
- Evidence for Allelopathy in Buckhorn Plantain: Experimentation and Chemical Analysis

Chair Tyne, Stuart-Menlo High School
- "C" — A Virus Defender?

Gareth Wallace, Maharishi School of the Age of Enlightenment, Fairfield
- Herbal Exogenous Biological Response Modifiers for Natural Killer Cells; A New Approach to Cancer Therapy

*Executive Director, IAS
Michelle Wells, Marshalltown Senior High School
The Effect of Fertilizer Run-off on Pond Ecosystems
Julan White, Maharishi School of the Age of Enlightenment, Fairfield
Universal Symbolic Language for Artificial Intelligence

Program Summary
The senior Academy program had 253 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 23
1:00 Workshop
2:00 Board of Directors Meeting and Dinner

FRIDAY, APRIL 24
8:00 VIDEO FILM PREVIEW
8:00 IJAS POSTERS
8:00 SECTION MEETINGS
Botany-Session A
Session B
(8:15)
Conservation
Zoology
8:30 IJAS PRESENTATIONS
10:00 GENERAL SESSION I
President Paul Waite, presiding
Welcome: George A. Drake, President, Grinnell College
"Impact of Biotechnology on Agricultural Production"
Dr. Roger A. Kleese, Molecular Generics, Inc., 10320 Bren Road East, Minnetonka, Minnesota
11:15 ANNUAL BUSINESS MEETING
12:00 AWARDS LUNCHEON
This served luncheon honored groups and individual students who have performed in an exemplary manner in science activities throughout Iowa. Several teachers were honored as they received the Iowa Academy's Excellence in Science Teaching Award.
1:00 SECTION MEETINGS
Chemistry D
Linguistics
Psychology
1:30 CONCURRENT SYMPOSIA
THE IOWA SCIENCE FOUNDATION: REVIEW OF THIRD-YEAR PROJECTS
IOWAS INTERIOR STREAMS
BIOTECHNOLOGY: IMPACT ON IOWAS AGRICULTURAL ECONOMY
TEACHING FOR, OF AND ABOUT THINKING SKILLS IN SCIENCE
1:30 WORKSHOPS/DISCUSSIONS
THE HUMAN VOCAL TRACT: ANATOMY, FUNCTION, DEVELOPMENT AND EVOLUTION
SCIENCE FAIRS: HOW THEY FLOW AND SCHEDULE FOR THE FUTURE
COMPUTER-ASSISTED RESEARCH FOR STUDENTS
GAMEPORT INTERFACING IN THE TEACHING OF CHEMISTRY (PREREGISTRATION REQUIRED)
4:00 IAS POSTERS
5:00 SOCIAL HOUR
6:15 PRESIDENT'S BANQUET
President Paul Waite, presiding
Presentation of Iowa Academy of Science Awards
Installation of new president and remarks by outgoing President Waite
Response by President Lenore T. Durkee
8:00 GENERAL SESSION II
President Lenore T. Durkee, presiding
"I, the Great Paracelsus"
Dr. Cathy Haustein and R. Bruce Haustein, Central College, Pella

SATURDAY, APRIL 25
8:00 SECTION MEETINGS
Agricultural Sciences
Anthropology
Biotechnology
Botany - Session A
Session B
Chemical Education
Chemistry C
Chemistry D
Elementary Science
Business Meeting
Section Meeting
Engineering - Session A
Session B
Session C
Geology
Nursing
Physics
Physiology
Science Teaching
Business Meeting
Section Meeting
Zoology
The Awards Luncheon
One hundred and sixty persons attended the Awards Luncheon in Gardner Lounge on Friday noon. 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: Gary L. Garton, City High School, Iowa City
- Chemistry: Mary Frances Fedderson, North High School, Sioux City
- Earth Science: H. John Verdon, Waverly-Shell Rock Senior High
- Elementary Science: Candace Kilburg, Center Point Consolidated
- Junior High Science: Lynn Altemeier, Indian Hills Jr. High, Des Moines
- Physics: Peter Harold Sweedy, Bettendorf 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 American Junior Academy of Science program in Boston in February 1988. The scholarship winners were:

- Laura K. Jones, Stuart-Menlo High School
- Christine Stoffel, Bettendorf High School

The AJAS representatives are:

- William E. Staib, Central High School, Davenport
- Gareth Wallace, Maharishi School of the Age of Enlightenment, Fairfield

Alternates:

- Sara Schnellloth, Central High School, Davenport
- Brett R. Iverson, Green Mountain High School

The President's Banquet
Following a social hour in the Main Hall lounge Friday evening, one hundred and eighty persons attended the President's Banquet in the Quad Dining Room. At the conclusion of the meal President Paul Waite introduced Robert Carmichael of the Recognition and Awards Committee, who introduced the nominators for the following Iowa Academy of Science Awards:

- Distinguished Fellow Award
  - William M. Furnish, University of Iowa
- Distinguished Iowa Scientist
  - Robert H. Shaw, Iowa State University
- Distinguished Service Award

Council for Agricultural Science and Technology (CAST)
President Waite reviewed the Academy's activities for the year prior to presenting the gavel to the new President, Lenore Durkee. President Durkee presented her goals for the Academy during the next year. Both presentations appeared in the June Iowa Academy of Science Bulletin.

Attendance
Both the 1987 and five year attendance are shown in Tables 1 and 2.

Table 1. Registered Attendance 1987

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<th>Pre-registered</th>
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<td>Members</td>
<td>Fri.</td>
<td>Sat.</td>
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<td></td>
<td>Regular</td>
<td>Total</td>
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<tr>
<td></td>
<td>98</td>
<td>47</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>124</td>
<td>48</td>
<td>11</td>
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|       | SUB-TOTAL     |       |       |
|       | 253           | 69     | 66    |

<table>
<thead>
<tr>
<th></th>
<th>Nonmembers</th>
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<td></td>
<td>Regular</td>
<td>Fri.</td>
<td>Sat.</td>
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<td>48</td>
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<tr>
<td></td>
<td>125</td>
<td>21</td>
<td>19</td>
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<tr>
<td></td>
<td>SUB-TOTAL</td>
<td>69</td>
<td>66</td>
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</table>

* Includes General Session, Symposia and contributed papers. Authors counted once.

Table 2. Five Year Average Attendance

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Members</th>
<th>Non-members</th>
<th>Guests</th>
<th>Total</th>
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<tbody>
<tr>
<td>1983</td>
<td>328</td>
<td>132</td>
<td>44</td>
<td>504</td>
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<tr>
<td>1984</td>
<td>361</td>
<td>179</td>
<td>42</td>
<td>782</td>
</tr>
<tr>
<td>1985</td>
<td>306</td>
<td>116</td>
<td>45</td>
<td>467</td>
</tr>
<tr>
<td>1986</td>
<td>316</td>
<td>131</td>
<td>24</td>
<td>471</td>
</tr>
<tr>
<td>1987</td>
<td>376</td>
<td>222</td>
<td>34</td>
<td>632</td>
</tr>
</tbody>
</table>

* Number in parentheses are percentages

The six hundred and thirty-two persons in attendance at the two-day meeting represent a 34 percent increase over last year and the largest Annual meeting ever for the Academy. With the increase in attendance there was also an increase in the number of contributed papers (16.5%). The distribution between members (59.4%) and nonmembers (35.1%) shows a slight increase in the number of nonmembers attending. Although there is no definitive reason for the large increase in attendance this year, the central Iowa location of Grinnell College may have been significant.
Macmillan reported that the Board's actions and $32,122.64 in uncollected state appropriation. Although the negative balance in the checking account looked unusual, the Academy does the accounting for several projects and the total checking for all accounts showed a positive balance. Macmillan pointed out that the state appropriation was for unexpended Iowa Science Foundation grants and that these funds would be completely expended by the end of June; consequently, when one subtracts the state appropriation from the assets the net assets of the Academy are $75,699.97. This represents an increase of $12,639.88 over last year at the end of June 1986. He noted that the expenses of the Annual Meeting and additional farm income would change these figures by the end of June 1987.

Macmillan reported that the end of March the farm income had been $13,800 and that since the first of April an additional $7,000 had been received. With an additional 2,800 bushels of soybeans yet to be sold he felt that the income from the farm should exceed the anticipated $30,000 needed for the budget.

To complete this report, Macmillan presented a chart which showed the cash assets of the Academy on a monthly basis for the past three years. He noted that the increase in cash assets was probably due to several good years for the Academy farm, to an increase in membership and to the increase in dues to $20 in 1984.

1987-88 Budget — Macmillan reported that the Board of Directors at the April 23 meeting approved a budget of $148,815 based on an expected income of the same amount. This budget which was developed by the Finance Committee for presentation to the Board, assumes $57,195 in state appropriations, $30,000 in farm income, $26,000 from dues and $34,900 from publications, meeting registrations, and investment income. The projected expenses are $53,740 for grants, $36,925 for honoraria and wages, $7,200 for postage, $8,100 for supplies and services, $25,300 for printing and $17,500 for committee travel. Macmillan presented this budget from the Board of Directors to the membership for approval.

Hornor moved to approve the budget. Durkee seconded the motion. The motion passed unanimously.

Election Report — Past President Downey reported that the Election Committee had selected a slate of candidates for President-elect and Board of Directors. This slate of officers was approved by the Board of Directors and a ballot was sent to all members. The ballots were counted on April 7. Paul Christiansen, Cornell College, was elected President-elect while Bruce Menzel, Iowa State University, and Samuel Tuthill, Iowa Electric Power and Light, were elected as Board members.

Membership — Gene Lucas, chair of the Membership Committee, presented a report of the Membership Committee. The membership of the Academy as of April 15, 1987 was 1596 members; regular members 1024, student members 138, fellows 265, emeritus 97, life members 47, corporate members 5 and distinguished fellows 20. Although the committee reviewed applications for fellow no fellows were recommended this year.

During the year the following persons were granted emeritus membership.

- Warren Classon, Davenport
- Sister Marguerite Neumann, Dubuque
- James O. Osburn, Iowa City
- Gordon Searle, Iowa City
- Agnes Spera, Council Bluffs
- Donald Stout, Des Moines
- R.J. Vanden Branden, Des Moines
- Ralph Wallace, Mason City
- Joe Woods, Des Moines
- Lucas recognized the following persons as members who had passed away since the last annual meeting.

- John Chellevold, Waverly
- H.L. Dean, Iowa City
- Sister Joseph Therese Geiger, Chicago
- Henry Gilman, Ames
- Robert W. Hanson, Eden Prairie, MN
- Clarence Lindahl, Ames
- Reverend Warren E. Nye, Waverly
Resolutions — Wayne Anderson, Board liaison to the Conservation and Preserves Committee, presented the following resolutions which had been approved by the Board of Directors.

RESOLUTIONS

I. FIFTH ANNUAL STATE PRAIRIE HERITAGE WEEK

The Iowa Academy of Science hereby encourages Governor Terry Branstad to proclaim the week of September 6-12th, 1987, as the Fifth Annual State Prairie Heritage Week, thereby promoting statewide appreciation and preservation of Iowa’s prairie heritage. It urges all schools, colleges, universities, state and county agencies to take an active lead in developing and implementing the programs which encourage public awareness of Iowa’s prairie history. The Academy recognizes the leading role of the State Preserves Advisory Board for originating this observance and its continuing effort to sponsor prairie preservation through state-wide educational activities.

The resolution was moved and seconded for adoption. The question was asked about the date being so early in September. It was pointed out that the State Preserves Board had discussed the date and although it was early in the fall it was still the best date for visiting the prairies. The motion passed unanimously.

II. GROUNDWATER QUALITY IN IOWA

The Iowa Academy of Science recognizes that the continued contamination and degradation of our state’s groundwater poses a significant threat to the environment and that the continued contamination of our water resources can result in impaired health of our citizens, severe economic losses in many sectors and serious long-term ecological consequences. In addition, we recognize that excessive reliance upon chemicals for fertilization and pest control contributes to groundwater contamination. Therefore, the Iowa Academy of Science urges the implementation of strategies that would both protect Iowa’s groundwater from further degradation and also remedy existing pollution.

The resolution was moved and seconded for adoption. Following no discussion, the motion was passed unanimously.

Position Paper on Pseudo-sciences — Don Huffman, chair of the controversial Issues Committee, read the following position paper from the committee which had been approved by the Board of Directors.

STATEMENT OF THE POSITION OF THE IOWA ACADEMY OF SCIENCE ON PSEUDOSCIENCE

(July, 1986)

The Iowa Academy of Science strongly opposes the public promotion of pseudoscience, whether through the media, the legislature, or classrooms of accredited educational institutions of Iowa.

Pseudoscience is a catch-all term for any mistaken or unsupported beliefs that are cloaked in the disguise of scientific credibility. Examples include assertions of scientific creationism, the control of actions at a distance through mediation, and the belief in levitation, astrology and UFO visitors. While the IAS opposes the promotion of such beliefs, it does not oppose critical examination of them, either in the public media or in classrooms. Indeed, there is much to be learned from critical examination of pseudoscience.

One main concern is public confusion over what science is and what it is not. This cannot be resolved merely by contriving tighter definitions of science or its methods. In fact, authoritative definitions inadvertently provide a model that counterfeiters need in order to better fashion their “cloaks of scientific credibility”. To clear up the confusion between real and bogus science we must focus not on their definitions, but on their differences.

In contrast to pseudoscientists, scientists seek out, expose and correct any logical fallacies or other errors which could weaken their theories or interpretations. To assure complete scrutiny, open criticism is not only tolerated but often rewarded, particularly when it results in significant revisions of established views. The debate is held in refereed scientific journals and in meetings, and anyone, well known or not, can submit pro or con arguments for publication or presentation before peers.

By contrast, open criticism is not welcomed by pseudoscientists. They usually avoid publishing in refereed scientific journals, and subsequently their theories are not self-correcting; thus they fail to experience the progressive changes characteristic of science. Astrology and creationism, for example, have experienced nothing comparable to Copernican or Darwinian revolutions (paradigm shifts) which have occurred in astronomy and biology.

The Iowa Academy of Science is prepared to assist citizens, teachers, public officials and the media who seek information on issues involving science and pseudoscience.

Huffman moved that the position paper be accepted. Ruth Swenson seconded the motion. It was asked if the position paper reflected the position of the Iowa Academy of Science Board of Directors. Huffman reported that it had been submitted to the Board and that they had revised it with the committee’s approval. Motion passed unanimously.

The Business meeting adjourned at 11:50 p.m.

REVIEW OF ACADEMY ACTIVITIES IN 1986-87

Committee Activities

During 1986-87, the Academy affairs have been handled by the Board of Directors, the Executive Director, the Director of the Iowa Junior Academy of Science, thirteen committees, three ad hoc committees and three editors. In all, over 130 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 a year end report in May which summarized their activities for the year. These reports appeared in the June IAS BULLETIN.

Annual Meeting

Chair: Gary Downs

The committee met October 1, 1986 to begin planning for the 99th Annual Meeting to be held at Grinnell College in Grinnell, Iowa. The Committee agreed on blocking for the meeting, suggested names for General Session speakers and suggested symposium topics. Section chairs were instructed on how to prepare their section program. Details for the meeting were handled by the Local Arrangements Committee.

The final program was summarized earlier in this report.

Committee on Committees

Chair: President-Elect Lenore Durkee

The committee met on November 15, 1986 to discuss committee appointments for 1987-88. Recommendations for committee appointments were accepted by committee chairs and the Committee on Committees. The list of possible candidates prepared for each committee was acted upon by the IAS office. All appointments were made prior to the 1987 Annual Meeting.

Conservation and Preserves Committee

Chair: William Pusateri

The committee met three times during the year and carried out some of their activities by mail and phone. The committee submitted the two resolutions; 1. “Groundwater Quality in Iowa” and 2. “Fifth Annual State Prairie Heritage Week” mentioned earlier in this report.

The committee submitted a list of nominees to the Governor for several positions available on the State Preserves Advisory Board and the Department of Natural Resources Commission.
Ad Hoc Controversial Issues
Chair: Don Huffman

The committee became a standing committee of the Academy. The committee submitted a position paper on pseudo-sciences to the Board of Directors. The final position paper was approved by the membership at the 99th Annual Meeting. The chair of the committee submitted an analysis of the position paper to the Des Moines Register which appeared June 11, 1987.

Education Committee
Chair: Janice Kemp

The committee met several times to conduct the Search for Excellence in Science Education for 1987. Council Bluffs Community School District was selected as the Iowa nominee for the award for Science Supervision. City High School, Iowa City, was selected as the Iowa nominee for the award in Biology.

They selected the nominees for the Presidential Award for Excellence in Science Education. The Iowa nominees were Donald E. Murphy, Herbert Hoover High School, Des Moines; Sandra J. Walton, Dubuque Senior High School; Elwyn Maloy, Linn-Mar Junior High School, Marion.

Election
Chair: Past President John Downey

The committee met January 26, 1987 and selected the following slate of candidates for President Elect and Board of Directors for the 1987-88 ballot.

President-elect: George Burnet
Paul Christiansen,
Irving Y. Fishman
Bruce Menzel
Samuel J. Tuthill
Bernard J. White

The committee chair validated the election results and reported them at the Annual Meeting.

The committee maintained awareness of the foundation by conducting a symposium at the 1987 Annual Meeting.

Long Range Planning Committee
Chair: Harry Homer

The committee was not given a charge by the Board of Directors and consequently did not meet during 1986-87.

Membership Committee
Chair: Gene Lucas

The committee solicited nominations for Fellow through the fall issue of the IASB. The committee evaluated the nominations received but did not make any recommendations to the Board of Directors for Fellow appointments. The committee discussed ways of increasing membership.

Parish Farm
Chair: Daryl Smith

The committee met on the farm premises in October 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.

Public Information
Chair: Connie Mutel

The committee engaged Colleen Reilly as consultant to review the public relation activities of the Academy. As a consequence of the written and oral report to the committee and the Board of Directors, the committee recommended that an intern from the UNI public relations program be selected.

Finance Committee
Chair: George Kansa

The committee met three times during the year to assist the Executive Director on several tasks. The committee advised the Executive Director in establishing a short and long term investment program with Merrill-Lynch and investigated approaches to endowment fund raising. The committee assisted in developing the 1987-88 budget which was submitted to the Board of Directors for the April board meeting.

Iowa Science Foundation
Chair: Lois Tiffany

The committee solicited and evaluated proposals for the 1987-88 fiscal year. The following thirteen proposals were funded for a total of $52,640.

"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 Hypobalmus 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)"  
Nels R. Lerszen, Iowa State University  $3,500

"An Interactive Science Museum Exhibit of Transmission Holography"  
Kirk E. Brocker, Dale W. Olson, The Science Center of Iowa  $4,900

"Mineralogy, Paragenesis, and Stable Isotopic Compositions of Sulfide Mineral Deposits Associated with Late Paleozoic Karst Fills in Devonian Limestones in Eastern Iowa"  
Paul L. Garvin, Cornell College  $2,100

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

"The role of chorusing behavior in the reproductive behavior of a prairie katydid"  
Kenneth C. Shaw, Iowa State University  $4,800

"Dispersal of the European Alder Leafminer in an Intensive Culture Plantation"  
Richard B. Hall, Elwood R. Hart, Iowa State University  $5,750

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

"Promoting Science Careers for Women Through Education: A Pilot Program"  
Ruth W. Swenson, Iowa State University  $5,000
Ad Hoc Publications
Chair: Don Norton

The committee was not given a charge by the Board of Directors and consequently did not meet in 1986-87.

Recognition and Awards
Chair: George Burnet

The committee worked with the Governor's office in evaluating the nomination for the Governor's Science Medal. The Governor selected the following recipients:
- Science Application - Velmer A. Fassel, Ames Lab, Iowa State University
- Science Achievement - Donald A. Gurnett, University of Iowa
- Science Teaching - Kenneth A. Christiansen, Grinnell College

The committee solicited and evaluated the nominations for the Iowa Academy of Science Awards. The committee made and the Board of Directors approved the recommendations for the IAS awards. These are listed elsewhere in this report. The committee also reviewed and revised the nomination guidelines and forms for the IAS awards.

Student Programs
Chair: Joe Moore

The committee worked with Lynn Glass, Director of the Iowa Junior Academy of Science, in soliciting and evaluating student research grant applications. The committee approved $1824.79 in grants to the following secondary schools:
- "The Effects of a Space Station Environment on the Growth and Germination of Plants"
  Julie Wigton, Stuart-Menlo Community School
- "Up in Smoke Flame Retardation"
  Anne Wagner, Stuart-Menlo Community School
- "How Does the Shape of Objects Affect Airflow?"
  Robert Dean Gast, Stuart-Menlo Community School
- "C — A Virus Defender?"
  Chari Tyne, Stuart-Menlo Community School
- "The Effects of Environmental Conditions on the Mental Growth of a Rat"
  Heather Christiansen, Stuart-Menlo Community School
- "High Pressure Liquid Chromatography and Cigarette Smoke"
  Matt Millard, Stuart-Menlo Community School
- "Pictures/Colors Reveal Personalities as the Pupils Talk"
  Brenda Mains, Stuart-Menlo High School
- "Humboldt County Rural Well Water Analysis"
  Jeffrey Richard Wittrock, Humboldt Community High School
- "The Effects of Tradescantia as an Effective Radiation Detector (Geiger counter)"
  Christopher Howells, Miller Junior High School
- "The Antibiotic Affect of Giant Puffballs"
  Cort Iverson, Green Mountain Jr. High School
- "Agrobacterium tumefaciens (At) as a Neoplastic Agent in Insectivorous Plants"
  Angie Fish, Marshalltown Senior High School
- "An Investigation of the Effects of Selected Invertebrates in the Formation of Neo-plasias in Lysoperisium scutellatum"
  Douglas Joseph Renze, Marshalltown Senior High School
- "The Effect of Aloe Vera Extracts Upon Pure Cultures of Bacteria"
  Rachel Tiernan, Marshalltown Senior High School
- "The Etiology of Insects and the Manifestation of Microbes as Related to Livestock and Domesticated Animals"
  Justin Edward Jordebrek, Marshalltown Senior High School
- "The Effect of Commercial Fertilizers on Pond Fauna and Flora"
  Michelle Wells, Marshalltown Senior High School
- "Is There a Direct Relationship Between Caffeine and Plant Disease?"
  Sara E. Schneckloth, Davenport Central High School
- "The Effects of Aspartame on Growth of Bean Seeds as Compared with Sugar and a Control"
  Pam Atkinson, Davenport Central High School
- "Studies of the Relationship Between pH and Transient Response Height in Glass Electrodes"
  Steve Hise, Davenport High School
- "The study of Chymopapain and its catabolic effects on disc tissue"
  Angela Marie Wilson, Davenport North High School

The committee conducted a program at the Iowa Science Teachers Section Fall conference on conducting student research projects in addition to conducting programs at several Iowa science fairs to help teachers work with students on research projects.

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 and American Junior Academy of Science delegates (both are listed elsewhere in this report). During the year the committee also selected the delegates and alternates to the following national programs:
- National Youth Science Camp
  Sheila Schmidt, Bellevue-Marquette High School
  Lisa Laxson, Maquoketa Valley High School, Delhi
- National Energy Institutes
  Livermore National Laboratory, California: Thomas Koch, Clarinda High School
  Brookhaven National Laboratory, New York: Jason McDermott, Cascade High School
  Lawrence Berkeley Laboratory, California: Michelle Enger, Treynor High School
  Fermi National Accelerator Laboratory, Illinois: Michael O'Mara, Don Bosco High School

Alternate to N.Y.S.C. and Energy Institutes:
- Ronald Fox, Abraham Lincoln High School, Council Bluffs
- Michael Christensen, Rolfe High School
- National Institute of Health
  Steven Hise, Central High School, Davenport

The committee selected 176 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 June 1987 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 University of Northern Iowa. Six subcommittees reviewed approximately 45 nominations to select the recipients of the awards. The awards were presented at the Awards Luncheon held at the IAS Annual Meeting in Grinnell, Iowa. (See Awards Luncheon for names of recipients.)

SECTION ACTIVITIES

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

Chemical Education

The Chemical Education Section held an afternoon and evening meeting at the Des Moines Area Community College, Ankeny Campus on Friday, September 26, 1986. Workshops on "Electroforming and Electroplating", "Coulometric Titrations" and "Chemical Hazards and the Employee Right to Know" were presented. Approximately 25 persons were in attendance.

Iowa Science Teachers Fall Conference

The Iowa Science Teachers Fall Conference was held October 30, 1986 at the Strouffer Five Seasons Hotel in Cedar Rapids, Iowa. In addition to the 36 small group presentations, Carolyn Sumners, director of Astronomy and Physics, Museum of Natural History, Houston, Texas gave a presentation on "The Science of Informal Experiences" at the noon luncheon. The attendance figures are shown in Table 4.

Table 4. ISTS Fall Conference Attendance

<table>
<thead>
<tr>
<th>Registration Pre-registrations</th>
<th>Walk-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members</td>
<td>146</td>
</tr>
<tr>
<td>Students</td>
<td>32</td>
</tr>
<tr>
<td>Non-members</td>
<td>161</td>
</tr>
<tr>
<td>Guests</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>404</td>
</tr>
<tr>
<td>Exhibitors</td>
<td>24</td>
</tr>
<tr>
<td>Total Attendance</td>
<td>483</td>
</tr>
</tbody>
</table>

The Iowa Science Teachers Outstanding Service Award for 1986 was presented to Charles Harman, former editor of the Iowa Science Teachers Journal.

ADMINISTRATION

Personnel

During the 1986-87 year there were no changes in the Academy office personnel. Doris Mitchell continued as office manager and James Macmillan as executive director. Debra Davis continued 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. NSP support for the project was assumed by the University of Northern Iowa. The Academy continued support of the Iowa Department of Education grant to conduct teacher workshops on microcomputer interfacing with funds received in 1985-86. The project is directed by Kenneth Hartman of Ames High School, Ames, Iowa and Donald Murphy of Hoover High School in Des Moines, Iowa. The Iowa Department of Education awarded the Academy a grant of $7,250.00 for the establishment of an Elementary Science Education Section and newsletter. The Board of Directors established a new section with special membership dues of $10 for a two year trial period. The grant paid the dues of the new members for the first year. The Academy received $1,000 from AAAS to support the IJAS secondary student research grants while $5,000 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 basis. In 1986, Volume 93, four issues were published containing 24 articles, and 192 pages from 42 authors. Several persons authored more than one article. Issue number 3 constituted the second of two issues dedicated to the Loess Hills Symposium held during the 96th Annual Meeting at the University of Iowa April 24, 1986. The Iowa Science Teachers Journal, edited by Carl W. Bolwinkel of the University of Northern Iowa, is published on a yearly basis. In 1986, Volume 23, had three issues containing 92 pages, with 12 articles from 15 authors. 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 Education Section, edited by Susan Kelley, Meeker Elementary, Ames, Iowa.

National Activities

President-elect Lenore Durkee 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 Chicago, Illinois, February 14-17, 1987. They attended the NAAS meetings as well as the AJAS banquet and the meeting to form the new Section Y of AAAS.

Table 5. Membership 1983-1987

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate</td>
<td>1</td>
<td>3</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Member</td>
<td>806</td>
<td>941</td>
<td>876</td>
<td>921</td>
<td>1103</td>
</tr>
<tr>
<td>Student</td>
<td>142</td>
<td>160</td>
<td>151</td>
<td>148</td>
<td>145</td>
</tr>
<tr>
<td>Fellow</td>
<td>349</td>
<td>334</td>
<td>310</td>
<td>289</td>
<td>265</td>
</tr>
<tr>
<td>Life Member</td>
<td>37</td>
<td>41</td>
<td>41</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>Emeritus</td>
<td>89</td>
<td>91</td>
<td>93</td>
<td>92</td>
<td>93</td>
</tr>
<tr>
<td>Distinguished Fellows</td>
<td>14</td>
<td>18</td>
<td>20</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Corporate</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1440</td>
<td>1491</td>
<td>1494</td>
<td>1516</td>
<td>1680</td>
</tr>
</tbody>
</table>

Table 5 shows the membership trends for the years 1983-87. In 1983 the Associate Membership category was eliminated and Associate members were made regular members. The membership which stood at 1680 as of June 30, 1987, represents an increase of 164 members over the same date in 1986. This 10.8% 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. The growth is largely in the numbers of Fellows. By 1986 there were 104 fellows who were at the end of 1987 there were 265. When one considers that candidates for President Elect and Board of Directors must be fellows, the pool is getting smaller for potential candidates. This year there was an increase in the number of Life Members. Several persons took advantage of taking our life memberships before the new tax laws went into effect January 1, 1987. Emeritus members have stayed constant over the past five years as has the number of Corporate members.
the number of Distinguished Fellows.

Table 6 shows 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.

Table 6. Membership by Section, June 30, 1987

<table>
<thead>
<tr>
<th>Section</th>
<th>Relative Section Interest</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Sciences</td>
<td>136</td>
<td>8.1</td>
</tr>
<tr>
<td>Anthropology</td>
<td>46</td>
<td>2.7</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>33</td>
<td>2.0</td>
</tr>
<tr>
<td>Botany</td>
<td>287</td>
<td>17.1</td>
</tr>
<tr>
<td>Chemical Education</td>
<td>107</td>
<td>6.4</td>
</tr>
<tr>
<td>Conservation</td>
<td>247</td>
<td>14.8</td>
</tr>
<tr>
<td>Engineering</td>
<td>69</td>
<td>4.1</td>
</tr>
<tr>
<td>Geology</td>
<td>177</td>
<td>10.6</td>
</tr>
<tr>
<td>Inorganic, Analytical</td>
<td>176</td>
<td>10.5</td>
</tr>
<tr>
<td>Physical Chemistry</td>
<td>128</td>
<td>7.6</td>
</tr>
<tr>
<td>Linguistics</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Nursing</td>
<td>32</td>
<td>1.9</td>
</tr>
<tr>
<td>Organic &amp; Biological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>128</td>
<td>7.6</td>
</tr>
<tr>
<td>Physics</td>
<td>144</td>
<td>8.6</td>
</tr>
<tr>
<td>Physiology</td>
<td>128</td>
<td>7.6</td>
</tr>
<tr>
<td>Psychology</td>
<td>41</td>
<td>2.4</td>
</tr>
<tr>
<td>Science Teaching</td>
<td>608</td>
<td>36.3</td>
</tr>
<tr>
<td>Earth Sci. Teaching</td>
<td>9</td>
<td>0.5</td>
</tr>
<tr>
<td>Elementary Sci. Teaching</td>
<td>147</td>
<td>8.8</td>
</tr>
<tr>
<td>Zoology</td>
<td>242</td>
<td>14.5</td>
</tr>
</tbody>
</table>

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

Table 7. Balance Sheet June 30, 1987

<table>
<thead>
<tr>
<th></th>
<th>IAS Assets</th>
<th>Combined Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking</td>
<td>$553.22</td>
<td>$10,312.15</td>
</tr>
<tr>
<td>Savings</td>
<td>63,901.08</td>
<td>64,901.08</td>
</tr>
<tr>
<td>Certificates, ISTS</td>
<td>2,438.73</td>
<td></td>
</tr>
<tr>
<td>PRISMS Guides</td>
<td>1,808.59</td>
<td></td>
</tr>
<tr>
<td>Bonds</td>
<td>6,140.00</td>
<td>6,140.00</td>
</tr>
<tr>
<td>Book Inventory</td>
<td>693.50</td>
<td>693.50</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$71,287.80</strong></td>
<td><strong>$86,294.05</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Fund Balance &amp; Liability</th>
<th>Fund Balance &amp; Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes Payable</td>
<td>$1,476.12</td>
<td>$1,476.12</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>1,476.12</strong></td>
<td><strong>1,476.12</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1985 Fund Balances</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>State Appropriation</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Restricted Fund Balance</td>
<td>20,214.18</td>
<td>20,214.18</td>
</tr>
<tr>
<td>Unrestricted Fund Balance</td>
<td>41,133.25</td>
<td>41,133.25</td>
</tr>
<tr>
<td>PRISMS Co. Fund Balance</td>
<td>6,438.82</td>
<td></td>
</tr>
<tr>
<td>ISTS Fund Balance</td>
<td>2,316.00</td>
<td></td>
</tr>
<tr>
<td>Iowa DE Grant Fund Balance</td>
<td>616.40</td>
<td></td>
</tr>
<tr>
<td><strong>Total Fund Balance</strong></td>
<td><strong>61,347.43</strong></td>
<td><strong>70,718.65</strong></td>
</tr>
<tr>
<td><strong>Net Income (Loss)</strong></td>
<td><strong>8,464.25</strong></td>
<td><strong>14,699.28</strong></td>
</tr>
<tr>
<td><strong>Total Fund Balance and Liabilities</strong></td>
<td><strong>71,287.80</strong></td>
<td><strong>86,294.05</strong></td>
</tr>
</tbody>
</table>

FINANCIAL REPORT

Balance Sheet

Table 7, the balance sheet for the year ending June 30, 1987, is for both the Academy and for the combined assets of IAS, ISTS, and several grants. The total assets of the Academy were $71,287.80 and $86,294.05 for the combined organizations. The liabilities at year's end were for payroll taxes to be paid in July for $1,476.12. The combined restricted and unrestricted fund balances from 1986 were $61,347.43. Consequently, the net income for the year was $8,464.25 for the Academy. The combined fund balance for all organizations was $70,718.65, which results in a net income for all organizations of $14,099.28.

INCOME STATEMENT

At the April 25, 1986 Annual Business Meeting, a balanced operating budget of $133,695 was adopted. This budget assumed a state appropriation of $57,494.

Table 8 shows that the actual income was $154,278.49 which was equal to the budgeted amount. Table 9 also shows how the income was distributed to the various program and activities of the Academy.

Table 9 shows that the actual expenses for the year were $145,814.24. Although this was higher than the budget expectations it was well below the actual income.

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 $187,114.03 in income and $173,014.75 in expenses.

In Tables 8-11 it is shown that the University of Northern Iowa makes a contribution of $10,829.42. This represents the time provided for the Executive Director and for some printing and the mailing of the Iowa Science Teachers Journal.

During 1986-87 the Academy received funds from the Iowa Department of Education for an Elementary Science Teaching Section (ESTS) and to conduct workshops on computer interfacing (Micro). The funds available at the end of 1987 will be carried over as fund balances for 1987-88.

The PRISMS Co. which was an outgrowth of the U.S. Department of Education project, showed a net income of $836.50 which resulted from the sale of the PRISMS materials. This income was made available to the PRISMS project for expenses not covered by the grant.

Endowment

For a number of years the Academy has had some investments which have served as an endowment. These are funds which have been set aside for specific purposes. Table 12 shows the status of these funds as they are presently invested with Merrill-Lynch. The column marked "investment" indicates the invested funds and the dividends received while the column marked "market value" indicates what would be received if these funds were redeemed.

The dues paid by Life Members are placed in a special fund of which only the interest can be used for operating expenses. This year a number of persons purchased Life Memberships; consequently, the fund has grown from $783.44 in 1986 to $2,557.90 in 1987. Dividends from this fund are used for operating expenses.

The Robert W. Hanson Publications 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 $5,203.39 as of June 30, 1987 due to the reinvestment of dividends and further contributions by members. The market value, if redeemed, is $5,724.78. The Board of Directors can use the dividends from this
Table 8. IAS Income Allocation 1985-86

<table>
<thead>
<tr>
<th>INCOME</th>
<th>Amount</th>
<th>Publications</th>
<th>Programs</th>
<th>Meetings</th>
<th>Administration</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Gifts</td>
<td>$6,841.00</td>
<td></td>
<td>$5,041.00</td>
<td>$1,800.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dues</td>
<td>27,637.60</td>
<td>$15,668.06</td>
<td></td>
<td>7,349.10</td>
<td>4,058.01</td>
<td></td>
</tr>
<tr>
<td>Farm Transfer</td>
<td>33,800.00</td>
<td></td>
<td></td>
<td>30,000.00</td>
<td>3,800.00</td>
<td></td>
</tr>
<tr>
<td>Grants</td>
<td>1,000.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Cont.</td>
<td>421.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>421.00</td>
</tr>
<tr>
<td>Interest/Dividends</td>
<td>5,663.17</td>
<td></td>
<td></td>
<td></td>
<td>185.24</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1,252.46</td>
<td></td>
<td></td>
<td>1,252.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Fees</td>
<td>4,750.50</td>
<td>$1,800.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publications Sales</td>
<td>7,432.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration Fees</td>
<td>6,370.75</td>
<td></td>
<td></td>
<td>425.00</td>
<td>5,945.75</td>
<td></td>
</tr>
<tr>
<td>Reimbursements</td>
<td>598.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>598.51</td>
</tr>
<tr>
<td>Reprint Sales</td>
<td>1,017.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Aid</td>
<td>57,494.00</td>
<td>4,150.00</td>
<td></td>
<td></td>
<td>53,344.00</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$154,278.49</td>
<td>$29,677.56</td>
<td>$59,810.00</td>
<td>$11,648.68</td>
<td>$44,678.00</td>
<td>$8,464.25</td>
</tr>
<tr>
<td>UNI Subsidy</td>
<td>11,349.19</td>
<td>1,650.00</td>
<td></td>
<td></td>
<td></td>
<td>9,699.19</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>$165,627.68</td>
<td>$31,327.56</td>
<td>$59,810.00</td>
<td>$11,648.68</td>
<td>$54,377.19</td>
<td>$8,464.25</td>
</tr>
</tbody>
</table>

Table 9. IAS Expense Allocation 1986-87

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>Amount</th>
<th>Publications</th>
<th>Programs</th>
<th>Meetings</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>$693.76</td>
<td></td>
<td></td>
<td></td>
<td>$693.76</td>
</tr>
<tr>
<td>Banquet/meals</td>
<td>3,171.00</td>
<td></td>
<td></td>
<td></td>
<td>3,171.00</td>
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<tr>
<td>Clerical</td>
<td>14,150.94</td>
<td></td>
<td>892.07</td>
<td></td>
<td>13,258.87</td>
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<tr>
<td>Equipment</td>
<td>686.80</td>
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<td></td>
<td></td>
<td>686.80</td>
</tr>
<tr>
<td>Equipment Service</td>
<td>1,839.60</td>
<td></td>
<td></td>
<td></td>
<td>1,839.60</td>
</tr>
<tr>
<td>Grants</td>
<td>50,699.12</td>
<td></td>
<td></td>
<td></td>
<td>50,699.12</td>
</tr>
<tr>
<td>Honoraria</td>
<td>17,854.68</td>
<td>1,415.00</td>
<td></td>
<td>500.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>Postage &amp; Shipping</td>
<td>8,440.67</td>
<td>$2,045.17</td>
<td></td>
<td>1,206.89</td>
<td>827.09</td>
</tr>
<tr>
<td>Printing</td>
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<td>21,322.79</td>
<td>2,205.14</td>
<td>3,240.82</td>
<td>2,908.81</td>
</tr>
<tr>
<td>Special Proj.</td>
<td>2,500.00</td>
<td></td>
<td></td>
<td>2,000.00</td>
<td>500.00</td>
</tr>
<tr>
<td>Supplies</td>
<td>2,532.22</td>
<td></td>
<td></td>
<td>772.18</td>
<td>314.82</td>
</tr>
<tr>
<td>Taxes</td>
<td>1,822.63</td>
<td></td>
<td></td>
<td></td>
<td>1,822.63</td>
</tr>
<tr>
<td>Telephone</td>
<td>605.51</td>
<td></td>
<td></td>
<td></td>
<td>605.51</td>
</tr>
<tr>
<td>Travel</td>
<td>11,139.75</td>
<td>112.63</td>
<td></td>
<td>2,295.86</td>
<td>3,094.95</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>$145,814.24</td>
<td>$24,895.59</td>
<td>$60,571.26</td>
<td>$12,148.68</td>
<td>$48,198.71</td>
</tr>
<tr>
<td>UNI Subsidy</td>
<td>$11,358.19</td>
<td>$1,650.00</td>
<td></td>
<td></td>
<td>$9,688.19</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>$157,152.43</td>
<td>$26,545.59</td>
<td>$60,571.26</td>
<td>$12,148.68</td>
<td>$57,886.90</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>$165,627.68</td>
<td>$31,327.56</td>
<td>$59,810.00</td>
<td>$11,648.68</td>
<td>$54,377.19</td>
</tr>
</tbody>
</table>

**fund to support publication projects in honor of Robert W. Hanson.**

At the beginning of this year the Academy held a note with a face value of $4,285.76 that was called in September. This note sold for $5,200.00. This represented a net gain of $714.24 in addition to the interest received over the time that the note was held. The Academy also holds a bond for $6,140 which pays 15% interest.

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, 1987 the investment value of this account was $16,358.46 with a market value of $18,044.51.

In addition to the restricted funds shown in Table 12, the Academy has $39,781.33 in unrestricted savings. These funds are available for use by the Board of Directors. At present only the interest from these unrestricted funds are being used for operating expenses.

**ACADEMY LEADERSHIP 1986-87**

- **Officers**
  - President — Paul Waite, Des Moines State Climatologist
  - Past-President — John C. Downey, University of Northern Iowa
  - President-elect — Lenore T. Durkee, Grinnell College
  - Executive Director — James G. Macmillan, University of Northern Iowa

- **Directors**
  - Arthur J. Bosch, Central College, 1989
  - Donald L. Koch, Geological Survey Bureau, Iowa City
  - Paul Christiansen, Cornell College, 1987
  - Jack A. Gerlovich, Des Moines, 1987
  - Wayne I. Anderson, University of Northern Iowa, 1988
  - Ruth W. Swenson, Iowa State University, 1988
Table 10. Combined Income Allocation 1986-87

<table>
<thead>
<tr>
<th>INCOME</th>
<th>Amount</th>
<th>IAS</th>
<th>ISTS</th>
<th>ESTS</th>
<th>Micro</th>
<th>PRISMS Co.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Gifts</td>
<td>$ 6,841.00</td>
<td>$ 6,841.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dues</td>
<td>27,637.60</td>
<td>27,637.60</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Farm Transfer</td>
<td>33,800.00</td>
<td>33,800.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants</td>
<td>8,250.00</td>
<td>1,000.00</td>
<td></td>
<td>$7,250.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Cont.</td>
<td>421.00</td>
<td>421.00</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest/Dividends</td>
<td>6,238.56</td>
<td>5,663.17</td>
<td>$262.85</td>
<td>97.30</td>
<td>$31.66</td>
<td>$183.58</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>8,285.61</td>
<td>1,252.46</td>
<td>1,275.00</td>
<td></td>
<td>648.70</td>
<td>5,109.45</td>
</tr>
<tr>
<td>Other Fees</td>
<td>4,750.50</td>
<td>4,750.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publication Sales</td>
<td>14,367.99</td>
<td>7,432.50</td>
<td>6,935.49</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Registration Fees</td>
<td>17,412.26</td>
<td>6,370.75</td>
<td>9,858.00</td>
<td>45.00</td>
<td></td>
<td>1,138.51</td>
</tr>
<tr>
<td>Reimbursements</td>
<td>598.51</td>
<td>598.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reprint Sales</td>
<td>1,017.00</td>
<td>1,017.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Aid</td>
<td>57,494.00</td>
<td>57,494.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$187,114.03</td>
<td>$154,278.49</td>
<td>$11,395.85</td>
<td>$7,392.30</td>
<td>$1,818.87</td>
<td>$12,228.52</td>
</tr>
</tbody>
</table>

| UNI Subsidy             | $10,829.42 | $10,829.42 | | | | |

**TOTAL INCOME** | $197,943.45 | $165,107.91 | $11,395.85 | $7,392.30 | $1,818.87 | $12,228.52 |

Table 11. Combined Expense Allocation 1986-87

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>Amount</th>
<th>IAS</th>
<th>ISTS</th>
<th>ESTS</th>
<th>Micro</th>
<th>PRISMS Co.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>$ 693.76</td>
<td>$ 693.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banquet/Meals</td>
<td>8,923.83</td>
<td>3,171.00</td>
<td>$5,752.83</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Clerical</td>
<td>14,150.94</td>
<td>14,150.94</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Contract Services</td>
<td>3,504.00</td>
<td></td>
<td>$1,370.00</td>
<td>$150.00</td>
<td>$1,984.00</td>
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</tr>
<tr>
<td>Equipment</td>
<td>686.80</td>
<td>686.80</td>
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<td></td>
</tr>
<tr>
<td>Equipment Service</td>
<td>1,839.60</td>
<td>1,839.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grants</td>
<td>50,699.12</td>
<td>50,699.12</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Honoraria</td>
<td>18,348.03</td>
<td>17,894.68</td>
<td>479.35</td>
<td>14.00</td>
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</tr>
<tr>
<td>Misc. Expenses</td>
<td>250.00</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postage &amp; Shipping</td>
<td>9,478.46</td>
<td>8,440.67</td>
<td>329.32</td>
<td>559.15</td>
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<td>149.32</td>
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<tr>
<td>Printing</td>
<td>32,278.14</td>
<td>29,677.56</td>
<td>1,253.93</td>
<td>1,165.75</td>
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<td>180.90</td>
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<tr>
<td>Special Proj.</td>
<td>2,500.00</td>
<td>2,500.00</td>
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<td></td>
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<tr>
<td>Supplies</td>
<td>9,788.60</td>
<td>2,532.22</td>
<td>148.60</td>
<td>243.60</td>
<td>1,790.16</td>
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</tr>
<tr>
<td>Taxes</td>
<td>1,822.63</td>
<td>1,822.63</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>613.71</td>
<td>605.51</td>
<td>6.41</td>
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<td></td>
<td>1.79</td>
</tr>
<tr>
<td>Travel</td>
<td>17,069.70</td>
<td>11,139.75</td>
<td>1,651.49</td>
<td>276.47</td>
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<td>4,001.99</td>
</tr>
<tr>
<td>Regional Prog., ISTS</td>
<td>367.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>$173,014.75</td>
<td>$145,814.24</td>
<td>$9,989.36</td>
<td>$3,878.97</td>
<td>$1,940.16</td>
<td>$11,392.02</td>
</tr>
</tbody>
</table>

| UNI Subsidy             | $10,829.42 | $10,829.42 | | | | |

**TOTAL EXPENSES** | $183,844.17 | $156,643.66 | $9,989.36 | $3,878.97 | $1,940.16 | $11,392.02 |

**TOTAL INCOME** | $197,943.45 | $165,107.91 | $11,395.85 | $7,392.30 | $1,818.87 | $12,228.52 |

**NET INCOME** | $14,099.28 | $8,464.25 | | | | |

Standing Committees

**Annual Meeting Committee**
(The Section Chairs constitute the Annual Meeting Committee.)

**Committee on Committees**

Lenore Durkee (chair), Grinnell College
Laura E. Sweets, Iowa State University
Don Norton, Iowa State University
Charles C. Wunder, University of Iowa
G. Edgar Folk, Jr., University of Iowa
Se. Marguerite Neumann, Clarke College
Kenneth M. Cook, Coe College
Benjamin E Graham, Grinnell

Donald L. Koch, Iowa Geological Survey
Board Liaison: Lenore Durkee

Table 12. Restricted Assets

<table>
<thead>
<tr>
<th>Restricted Assets</th>
<th>Investment</th>
<th>Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Member Fund</td>
<td>$ 2,557.90</td>
<td>$ 2,736.11</td>
</tr>
<tr>
<td>Robert W. Hanson Publications</td>
<td>5,203.39</td>
<td>5,724.78</td>
</tr>
<tr>
<td>Bonds</td>
<td>6,140.00</td>
<td>6,140.00</td>
</tr>
<tr>
<td>Savings</td>
<td>16,358.46</td>
<td>18,044.51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$30,259.75</td>
<td>$32,645.40</td>
</tr>
</tbody>
</table>