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Annual Report of the Iowa Academy of Science, 1983-84

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Annual Report of the Iowa Academy of Science, 1983-84

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PREFACE

The year 1984 marks the 109th anniversary of the founding of the Academy in 1875. Since the review of the first 100 years published in the centennial issue of the *Proceedings* in March 1975, the "Annual Report" has been a running history of the organization. The previous reports were written by Robert W. Hanson, the Executive Director from 1967 to 1983. In keeping with this tradition, this author will review this year's activities of the Academy.

This year's report encompasses the year beginning July 1, 1983 and ending June 30, 1984, and is based on Board minutes, committee reports and recollections of the author.

Many of the details of the Academy's activities have appeared in the *I.A.S. Bulletin* but will be restated in this report for addition to the Academy's history.

THE 96th SESSION

The 96th Annual Meeting of the Iowa Academy of Science was held in the Memorial Union on the campus of the University of Iowa.

The Local Arrangements Committee, chaired by Jerry Kollros of the University of Iowa, provided excellent assistance to the Executive Director in planning and executing the meeting on April 27 and 28, 1984. The Section Chairs along with the University of Iowa representatives provided excellent planning guidelines for the meeting. The Annual Meeting Committee met once in September to suggest general session speakers, propose symposia and generally provide blocking for the two-day program.

It was possible to coordinate the I.A.S. meeting with the University of Iowa College of Medicine Research Day IX which was scheduled for April 26 and 27. An offer was made to allow poster presenters of Research Day IX to submit an abstract to be published in the *Proceedings* with the I.A.S. abstracts.

Programs of invited and contributed papers were planned for the 15 sections of the Academy. This was the first program for the newly formed Linguistics Section.

The Iowa Junior Academy of Science poster papers presented on Friday morning included 11 students from 8 high schools. Both their posters and their oral presentations were judged by a committee made up of section vice chairs and the Student Programs Committee. The senior poster session had 16 papers in 7 sections.

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

Thursday, April 26

10:00 COLLEGE OF MEDICINE RESEARCH DAY IX

2:00 p.m. Board of Directors Meeting

Friday, April 27

8:00 VIDEOTAPE FESTIVAL

8:00 SECTION MEETINGS
Botany
Conservation
Zoology

8:30 IJAS POSTER PAPERS

9:00 WALKING GEOLOGY TOUR

10:30 GENERAL SESSION I
President Duane C. Anderson, presiding
Welcome: D. C. Spriestersbach, Vice-president and
Dean of the Graduate College
Speaker: Gene Rasmusson, Climate Analysis Center, National
Oceanic and Atmospheric Administration, Washington, DC
"The El Nino/Southern Oscillation Phenomenon and
Global Climate Fluctuations"12:00 AWARDS LUNCHEON
President Duane C. Anderson, presiding
This served luncheon honored groups and individual students who
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 VIDEO TAPE FESTIVAL

1:30 ANNUAL BUSINESS MEETING

2:00 CONCURRENT SESSIONS
A. Symposium: "Computer Aided Engineering"
(Sponsored by the Engineering Section)
B. Symposium: "Iowa's Loess Hills"
(Sponsored jointly by Botany, Conservation, Geology and
Zoology Sections, the Conservation and Preserves Committee
of the Iowa Academy of Science and the Iowa Natural History
Association.
C. Symposium: "New Developments in Iowa Geology — A
Review by Geologic Systems"
(Sponsored by the Iowa Geological Survey, Iowa Geological
Society and the Geology Section.)
D. Symposium "Space Physics Research at the University of
Iowa"2:00 SECTION MEETINGS
Botany
Chemistry C
Chemistry D

4:00 POSTER SESSIONS

6:30 PRESIDENT'S BANQUET

8:00 GENERAL SESSION II
President Richard S. Wacha, presiding
Speaker: Timothy White, Department of Anthropology,
University of California, Berkeley "Pliocene Ancestors:
Progress and Prospects"

Saturday, April 28

8:00 SECTION MEETINGS
Agricultural Sciences
Botany
Chemistry C
Chemistry D
Conservation

*Executive Director, IAS

	Engineering
	Geology
	Physics
	Physiology
	Psychology
	Science Teaching
	Zoology
8:00	VIDEO TAPE FESTIVAL
9:30	SLIDE SHOW Continuous presentation of "The Loess Hills — Iowa's Western Wilderness" sponsored by the Iowa Chapter of the Nature Conservancy
11:00	GENERAL SESSION III President Richard S. Wacha, presiding Speaker: Leo Neuringer, National Magnet Laboratory, Massachusetts Institute of Technology, Cambridge, MA "NMR: A New Frontier in Medicine and Science"
1:00	TOURS NMR Chemistry NMR Medical Engineering Computer Facilities
	SECTION MEETINGS Agricultural Sciences Anthropology Linguistics Physiology Science Teaching
	VIDEO TAPE FESTIVAL

Total attendance for the two-day meeting is shown in Table 1. The 582 total attendance represented an increase of 78 attendees over last year. From Table 1 it is clear that 62% of the registered attendees were members, 31% nonmembers and 7% guests. Of these persons presenting papers, 51% were either regular or student members while the remaining 49% were either nonmember regular or student attendees. Also, 48% of all papers were given by students. The total of 227 papers represents a 16% increase over 1983 and the 582 registered attendees represent a 15% increase in total attendance over 1983. Most of the student nonmember papers were co-authored by Academy members.

Table 1. Registered Attendance, 1984

Category	Pre-registered		Walk-in		Total
	Papers*	Others	Fri.	Sat.	
Members:					
Regular	83	149	58	18	308
Student	33	9	11	—	53
Subtotal	116	158	69	18	361
Nonmembers:					
Regular	35	13	19	4	71
Student	76	6	24	2	108
Subtotal	111	19	43	6	179
Guests, etc.	—	42	—	—	42
TOTAL	227	219	112	24	582

*Some attendees presented more than one paper.

Table 2 shows that 490 persons attended the 215 contributed paper sessions. The attendance counts were based on the best estimates of the section chairperson. The distribution of attendance was fairly even over all sections.

Table 2. Attendance Summary, 96th Session, 1984

	No. of Papers	Attendance
<i>Contributed Papers:</i>		
Agricultural Science	15	22
Anthropology	12	32
Botany	41	40
Chemistry C	14	40
Chemistry D	14	34
Conservation	13	30
Engineering	16	20
Geology	8	35
Physics	14	35
Physiology	15	27
Psychology	11	20
Science Teaching	18	75
Zoology	15	55
Linguistics	9	25
TOTALS	215	490
<i>Invited Papers:</i>		
Symposium: Computer Aided Engineering	4	30
Symposium: Iowa's Loess Hills New Developments in Iowa	18	65
Symposium: Geology — A Review by Geologic Systems	10	50
Symposium: Space Physics Research at the U of I	6	35
TOTALS	38	180
General Session I		300
General Session II		325
General Session III		275
<i>Special:</i>		
Annual Business Session		50
Awards Luncheon		157
President's Banquet		170

The four symposia were well attended. The Iowa's Loess Hills symposium included six papers as part of the Botany Section, one in Geology and five in the Zoology Section. The March issue of the *Proceedings* will include papers from this symposium.

The Awards Luncheon

Awards for excellence in science teaching were presented to the following teachers by **Gary Downs**, Iowa State University, Director of the E.S.T.A. program, on behalf of the Academy:

- Sister Lois Wagner** (Biology), Wahlert High School, Dubuque
- David Vogel** (Chemistry), Oskaloosa High School
- Bruce Iverson** (Earth Science), Spencer Junior High School
- Jan Anderson** (Elementary Science), Cedar Heights Elementary, Cedar Falls
- Freida Griffin** (Junior High Science), McCombs Transitional School, Des Moines
- Dan McGrail** (Physics), Carlisle High School

Four secondary students who had been invited to present poster papers were selected to represent Iowa at the May 1985 meeting of the American Junior Academy of Science in Los Angeles. Two of the four (as indicated below) will serve as alternates:

Raymond T. Rosario, Central High School, Davenport
Christy Stoffel, Bettendorf High School
Royal M. Becker, Central High School, Davenport (alternate)
Erin Ward, Colfax High School (alternate)

The following programs for secondary students were acknowledged and their directors commended for their work in providing incentives for science achievement among pre-college students:

The Drake Physics Prize
 The Eastern Iowa Science and Engineering Fair
 The Hawkeye Science Fair
 The Iowa Science Teachers Section Fall Program
 The Iowa State University Summer Program
 The NSTA/NASA Space Shuttle Program
 The Northeast Iowa Regional Science and Engineering Fair
 The Physics Olympics
 The Quad-Cities Area Science and Engineering Fair
 The University of Iowa Science, Engineering and Humanities Symposium
 The University of Iowa Summer Program
 The UNI Science Symposium
 The Westinghouse Iowa State Science Talent Search

Governor Branstad expressed regret that he was unable to be present to personally congratulate the students who were recognized at the Awards Luncheon.

The President's Banquet

Following the Friday evening banquet, President Anderson introduced **Darrel Hoff** of UNI, chairman of the Academy's **Recognition and Awards Committee**, who in turn introduced nominators for the following awards:

Distinguished Fellow Award:
John M. Bremner, ISU
 Distinguished Iowa Scientist Award:
Wilbert A. Russell, ISU
 Distinguished Service Award:
G. Edgar Folk, Jr., The University of Iowa

Following the awards, President Anderson made his final comments as president and turned the gavel over to Richard S. Wacha, who responded with his first address as president for 1984-85. Both presentations were reported in the June 1984 *I.A.S. BULLETIN*.

MINUTES OF THE ANNUAL BUSINESS SESSION

April 27, 1984

The meeting was called to order by President Duane Anderson of the University of Iowa in the Main Lounge of the Iowa Memorial Union following the Awards Luncheon. With 50 members in attendance a quorum was declared.

The first item of business was a report by Harry Horner of ISU, chair of the Election Committee on the results of the spring election. For President-elect, John Downey of UNI was elected for 1984-85. For Board of Directors, Jack Gerlovich of the Department of Public Instruction and Paul Christiansen of Cornell College were elected for three-year terms — 1984-87.

The four bylaws changes relating to membership proposed by the Board of Directors were approved by mail ballot. The following changes were made:

CONSTITUTION & BYLAWS

- (1) Drop Section 1d, Article III, Constitution (Associate member category) and renumber following sections.

- (2) Change Emeritus Fellow to Emeritus Member/Fellow
- (3) Change Student Associate to Student Member
- (4) Add new section 3d, Article XII, Bylaws and renumber following sections. The following changes will result:

Constitution, Article III

Section 1. Categories of membership. The membership shall consist of Emeritus Members/Fellows, Fellows, Members, Student Members, Corporate Sponsors, and Institutional Associates. No candidate for membership shall be excluded on the basis of sex, religion, race, color, or national origin.

1a. Emeritus Members/Fellows. Upon retirement, Members/Fellows who have been members in good standing for a total of 15 years may request transfer to the status of Emeritus Member/Fellow.

1d. Drop

1e. Renumber to 1d. Student Members. Students in institutions of higher learning may apply for membership as Student Members. Their student status must be vouched for by a professor in the department of the institution in which they are enrolled.

1f. Renumber to 1e.

Bylaws, Article XII, Finance

Section 3. Dues

3a. Emeritus Members/Fellows shall be exempt from all fees and dues.

3d. (NEW) Student Members will pay one-half annual dues.

Renumber 3d, 3e, 3f, to 3e, 3f, 3g.

3g. Members and Fellows who have been withdrawn from the membership non-payment of dues may be reinstated without loss of continuous membership by payment of unpaid dues at the current rate along with dues in advance for the forthcoming year. A former Member or Fellow may apply as a new Member only after a period of two or more years of non-membership.

Three changes in the Articles of Incorporation were proposed by the Board of Directors and were approved by the membership.

ARTICLES OF INCORPORATION

1. Change Article I to read:
 Article I. The name of the corporation shall be The Iowa Academy of Science.
2. Change registered agent from Robert W. Hanson to James G. Macmillan.
 Article III. The principal place of business of this corporation shall be located in Cedar Falls, Black Hawk County, Iowa. The registered office shall be located in the Science Building, University of Northern Iowa, Cedar Falls, Iowa, and the registered agent shall be James G. Macmillan at the same address.
3. Change the amount of indebtedness from Three Thousand Dollars to Ten Thousand Dollars.

Sister **Marguerite Neumann** presented the Membership Committee report. The following Members had been promoted to Fellow during the past year:

Marc C. Albertsen
John R. F. Bower
Harlo H. Hadow
Marlyn (Mike) Murtha
Joseph Tiffany

Promoted to Emeritus:

Harold Bechtoldt
Lena M. Keithann
Willis Skrdla
Harry Svec
Adolph F. Voigt

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

John Balinsky
Robert H. Chapman
Joseph Danforth

Merwin Dougal
 Alfred Englehorn
 S. W. Geiser
 Martin J. Kalina
 Waclaw Olszak
 Frank Riecken
 David W. Staniforth

Executive Director **James Macmillan** made the following report of the Board of Director's activities since the Annual Business Meeting on April 26 at Luther College.

The Board of Directors met three times since the last Annual Meeting; on 8 October 1983, 25 February 1984 and 26 April 1984.

At the 8 October 1983 meeting the following actions were taken:

1. The Amendments to the Articles of Incorporation, Constitution and Bylaws were adopted and put before the membership for vote. These amendments were adopted by the membership in the spring election.
2. The Board adopted the following statement of policy on holding joint meetings:

Organizations wishing to hold joint meetings with the I.A.S. are requested to discuss possible arrangements a minimum of one year in advance of such an event. If agreement is reached on such matters as division of the proceeds from registration fees, timing of events, and kind and nature of cooperation anticipated, a memorandum of understanding will be executed and signed by appropriate officials of the participating organizations. Memoranda may be drafted to cover cooperative programs for periods of time up to two years. Initial contact should be made with: Executive Director, Iowa Academy of Science, University of Northern Iowa, Cedar Falls, IA 50614.

Groups which regularly met with I.A.S. could have a continuing agreement which could be reviewed yearly.

3. It was reported that the newly established *ad hoc* Committee on Public Information was staffed with William Brown of Pioneer Hi-Bred Intl., as chair. Also, Don Huffman of Central College had agreed to chair the reformed Committee on Controversial Issues.
4. The Board referred a manuscript on the biography of Louis Pammel, an early president of the Academy, to the Managing Editor for consideration of publication by the Academy.
5. The Board also agreed to act as the fiscal agent on a book by Lois Tiffany, George Knaphus and Don Huffman on Mushrooms to be published by Iowa State Press. The manuscript was referred to the Managing Editor for review.
6. It was reported that the Academy had received a \$132,000 grant from the U.S. Department of Education. This project on Physics Resources and Instructional Strategies for Motivating Students (PRISMS) will be directed by Roy Unruh of UNI with the Academy acting as the financial manager. The grant was awarded for January 1 to December 31, 1984. It is expected that the grant will be continued for a second year.

On 25 February 1984 the Board held its second meeting. In addition to considering the progress and reports of committees (these reports are available in the Academy office) the following actions were taken:

1. The board approved six resolutions presented by the Conservation and Preserves Committee for vote by the membership at the Annual Business Meeting.
2. It was reported that the Rolscreen Corporation of Pella, Iowa had made a \$17,600 contribution to the Student Programs budget to support the Outstanding Science Student Award which was started this year. The Academy awarded 393 medals to outstanding senior high school science students in 262 schools.
3. The Board discussed strategies for staffing of the managing editorship of publications. They referred their discussion to the Long Range Planning Committee for further study.
4. The Board approved a workshop application form for use by sections or committees who wish to run workshops under the sponsorship of the Academy. Some workshops have been conducted this year and it is hoped that more will occur in the future.

5. The Board approved the formation of the new Linguistics Section which had its first meeting April 26.
6. The Board approved the persons selected by the Recognition and Awards Committee for the I.A.S. Distinguished Iowa Scientist, Distinguished Service and Distinguished Fellow Awards. These awards were announced at the President's Banquet.

The third meeting was held on April 26, 1984. At this meeting the following actions were taken:

1. A 1984-85 operating budget of \$81,680 was approved.
2. Committee year-end reports were reviewed.
3. The Board authorized President Wachal to investigate the feasibility of establishing a Committee on Publications.
4. The Board approved a recommendation by the Conservation and Preserves Committee to include the chair of the Iowa Natural History Association as an ex-officio non-voting member.
5. The Board authorized the formation of a Public Information Committee at the recommendation of the *ad hoc* Committee on Public Information.
6. The Board discussed the commitment and representation to the National Association of Academies of Science (NAAS). It was approved that the Executive Director and the President-elect should represent I.A.S. at the NAAS meetings.
7. The Board established a committee, chaired by Duane Anderson, to form a new Iowa Science Foundation, which will be funded from a \$50,000 appropriation of the Iowa State Legislature.

In conclusion, you can see that this has been a busy year.

Executive Director James Macmillan presented the following financial statement as of 1 April 1984:

Assets as of 4/1/84

Checking	4,122.12	
Bonds	6,140.00	
Notes	4,285.76	
MM savings	26,170.92	
Life Memb.	681.35	
RWH Public.	1,994.08	
Books	2,437.50	
State Approp.	3,603.25	
Grants	132,085.00	
1983 crop	<u>23,000.00</u>	(16,000 received; 7,000 remaining)
TOTAL	205,519.98	

Liabilities as of 4/1/84

Grants (committed)	125,795
Equipment note	<u>6,757</u>
	132,552
Assets minus liabilities	<u>71,967.98</u>

Income as of 4/1/84

Publications-Reprints	7,616.19
Interest	2,573.14
Registration & dues	24,521.46
Gifts/Grants	24,355.00
Misc.	818.19
Farm Transfer	<u>-0-</u>
	59,884.78

Not shown is the major portion of the registration for the Annual Meeting.

Expenses as of 4/1/84

Contrib & Grans	729.50
Honoraria	16,173.74
Clerical	8,288.10
Office expenses	9,149.30
Equipment/Service	2,803.47
Printing	13,782.27
Misc/Refund	744.01
Travel	5,590.14
Accounting	549.79
	<u>57,810.32</u>

Net income excluding obligated funds \$2074.46

It is expected that income and expenses for April, May and June should allow us to come in under the 1983-84 budget and within our income.

Executive Director Macmillan reported that the Board of Directors had adopted a \$81,680 balanced budget for 1984-85 based on an income of \$79,606 and \$2,074 carry over.

Proposed Budget 1984-85**Income**

Grants	\$17,521
Interest	2,525
Publications	71,000
Meetings	24,960
Other Fees	4,500
Farm	23,000
Total Income	79,606
Carry over	2,074
Total Income	\$81,680

Expenses

Contributions, Gifts, Grants	\$ 3,250
Honoraria/Clerical	34,656
Liability retirement	2,074
Postage and Shipping	3,100
Supplies	5,600
Telephone	700
Equipment	2,000
Service	1,500
Printing	20,500
Travel	7,300
Misc. Expenses	1,000
Total Expenses	\$81,680

The above budget does not reflect the expected state appropriation as income. If the Iowa Academy of Science request is included in the budget bill, \$10,800 will be available for publications and student and teacher programs. Also, \$50,000 will be available for the start of the Iowa Science Foundation to be administered by the Academy.

A revised budget will be proposed in July to reflect the year-end funds and the State Appropriation.

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

RESOLUTIONS**I. PRAIRIE PRESERVATION**

The Iowa Academy of Science hereby encourages the State Legislature, State Conservation agencies, County Conservation boards, non-profit organi-

zations, and others involved in land-use decisions to attempt to protect all prairie remnants through acquisition, easement, or preserve dedication; or by assisting private landowners with management assistance, so that this natural heritage will be preserved for all generations. Nearly 85 percent of Iowa was once covered with tall-grass prairie vegetation, but less than .03 percent of the approximate 30,000,000 acres still remains. These priceless remnants are valuable scientific, educational, and historical areas. In addition, they are reservoirs of largely unstudied genetic material and serve as key reference points for soil profiles.

II. LOESS HILLS

The Iowa Academy of Science hereby recognizes the special nature of the Loess Hills of western Iowa and encourages the State Legislature to provide funds to assist in a Loess-Hills protection program; other governmental agencies to give priority to assisting in such a program; and private citizens to consider easement or preserve-dedication programs to protect their lands. The Loess Hills of western Iowa represent a rare landform region of world-wide significance, a unique educational and scientific reservoir of information which is fast disappearing. Land-use pressures from agriculturally-related activities and human habitation are rapidly diminishing the native character of the region. The Loess Hills harbors significant populations of native plants and animals, some of which are extensions from the Great Plains.

III. MINES OF SPAIN

The Iowa Academy of Science hereby endorses the nomination of the Mines of Spain property near Dubuque, Iowa, for listing as a National Natural Landmark. (This endorsement recognizes the combined values of the property, including its geologic and geomorphic history; its natural value as a refuge for rare and endangered species; its scenic qualities as one of the last well-preserved segments of Mississippi River bluffland; and its unique cultural history through 10,000 years of aboriginal occupation, followed by ownership by five European nations.)

IOWA PUBLIC RECORDS LAW

The Iowa Academy of Science hereby encourages Iowa's elected officials to build greater flexibility into the *Iowa Public Records Law* to permit state agencies to keep specific site-locational information on zoological, botanical, ecological, geological, and archaeological sites confidential. [The purpose of this resolution is to prevent the unnecessary destruction and looting of sites, and to avoid infringement on the rights of private property owners. With respect to archeological sites, this will bring Iowa law in line with existing federal statutes (PL96-95 Sec. 9).]

V. IOWA WEED LAW

The Iowa Academy of Science hereby encourages Iowa's elected officials to rewrite the Iowa Weed Law; Chapter 317, Code of Iowa. This action is of necessity because under the existing law there is *no* provision to protect Federal and State threatened and endangered species. Over the past several years spraying and mowing of such rare species has been documented in Iowa. In addition, the term "weed" must be defined more precisely to prevent the cosmetic spraying and mowing of roadsides and waste places at taxpayer expense. Roadsides represent a major wildlife habitat in Iowa, and all means possible to prevent further deterioration of roadside wildlife habitat, consistent with safety and health of the roadway users, should be implemented.

VI. ABANDONED RAILROAD RIGHT-OF-WAYS

The Iowa Academy of Science hereby expresses its concern over the fate of abandoned railroad right-of-ways. With the abandonment of substantial track mileage in Iowa during recent years, much right-of-way land has been purchased by or reverted to private landowners. The desires of private landowners to consolidate divided parcels of land, improve their own access, and increase land productivity are recognized. The question of whether these lands have potentially greater value in public ownership or easement should be raised on a case-by-case basis. In many instances, these right-of-ways offer wildlife habitat and plant communities (e.g., prairie patches and windbreaks) that are scarce in Iowa. Appropriate educational, compromise, financial, and legislative steps should be taken to retain these values where appropriate in the Iowa landscape.

Wayne Anderson moved the endorsement of these six resolutions. The motion was seconded by Jack Horner. The motion passed with one dissenting vote.

President Duane Anderson asked if there was any further business. Hearing none, the meeting was adjourned at 2:08 p.m.

REVIEW OF ACADEMY ACTIVITIES in 1983-84

Committee Activity

During 1983-84, the affairs of the Academy were handled by twelve standing committees and two *ad hoc* committees. Including the Board of Directors, over 100 members were involved in the Academy's administration. The membership of the Board of Directors and the committees appears at the end of this report.

This was the first year for the committees to use a management by objectives approach. Each committee was asked to plan objectives to accomplish during the year and report on their progress toward those objectives at the end of the year. A summary of the year-end reports appeared in the June *I.A.S. Bulletin*, Volume 18 (1984).

The **Annual Meeting Committee** met on 22 September 1983 at the Memorial Union of the University of Iowa to begin planning for the 1984 Annual Meeting. The committee membership included the Executive Director, James Macmillan, as chair, the Section Chairs and representatives of The University of Iowa who could act as a local arrangements committee. The committee agreed on blocking the meeting with two general session speakers on Friday and one on Saturday. Names of possible speakers were suggested and a list was developed for the chair to contact. Symposia topics were suggested with contact persons responsible for organizing each symposium. Campus tours, video film festival, and other activities were considered with the organizational responsibilities assigned to the Local Arrangements Committee. A new format for the printed program was suggested. A person from the University of Iowa campus agreed to try to coordinate the University of Iowa College of Medicine Research Day with the I.A.S. Annual Meeting.

Most of the ideas suggested by the Annual Meeting Committee were reflected in the final program. A program summary appears earlier in this report.

Future meeting dates and locations have been established as follows:

- 1985: Central College, Pella, April 26-27
- 1986: Wartburg College, Waverly, April 25-26
- 1987: Grinnell College, Grinnell
- 1988: Iowa State University, Ames (tentative)

The **Committee on Committees**, chaired by President-elect Richard Wacha, experienced its first year of operation with much success. The committee met once in October to discuss possible candidates for committee assignments. The persons were contacted by mail and asked to serve. While the acceptance rate was high, a few committee positions and committee chairs needed to be filled through a second mailing.

The committee suggested that each committee chair might suggest persons who could be contacted to fill any committee positions which expire in 1985.

The **Conservation and Preserves Committee**, chaired by Wayne Anderson, met three times during the year while conducting much of their business by mail.

The committee, in cooperation with the Iowa Natural History Association arranged a symposium on the Loess Hills for the Annual Meeting. The two groups also organized a field trip on the Natural History of the Lake Calvin Basin. This field trip was also open to members of the Geological Society of Iowa and the Iowa Archaeologists.

The committee presented to the I.A.S. Board of Directors six resolutions for adoption. The resolutions were on 1) prairie preservation; 2) the Loess Hills of western Iowa; 3) the Mines of Spain property near Dubuque; 4) the Iowa Public Records Law; 5) the Iowa Weed Law; and 6) abandoned railroad right-of-ways. These resolutions are in the Minutes of the Annual Business meeting found earlier in this report.

The committee was to nominate candidates to the State Preserves Advisory Board at the I.A.S. Annual Meeting.

The committee recommended that the chair of the Iowa Natural History Association serve on the I.A.S. Conservation and Preserves Committee.

The ***ad hoc* Committee on Controversial Issues**, chaired by Don Huffman, met once in 1984-85 and conducted much business by mail.

The committee identified several areas in which it felt the Academy should have panels. The committee began procedures to reappoint the panel on creationism/evolution and to form a new panel on the "Unified Field Concept." The committee organized a luncheon meeting at the Annual Meeting for those persons interested in being on a panel on the "Unified Field Concept." The committee considered that controversial issues could be classified into two types: 1) pseudo-sciences and 2) ethical issues in science.

The *ad hoc* committee recommended to the Board that the Committee on Controversial Issues become a standing committee.

As Don Huffman was to be away from Iowa during 1984-85, in May the committee recommended to President Wacha that a new chair be appointed. Peter DeJong agreed to act as chair for 1984-85.

The **Education Committee**, chaired by Jack Gerlovich, met six times during 1984-85.

The committee advised the D.P.I., through Jack Gerlovich, on science education issues such as State Scholarship/Loan Cancellation Programs and the Teacher Retraining Programs. The committee has kept a library of all evaluation reports on science education. The committee organized a symposium for the Annual Meeting on teacher certification.

The committee selected Carolyn Brockway, Washington High School, Cedar Rapids and Karen Murphy, Nathan Weeks Junior High School, Des Moines, as the Iowa nominees for the Presidential Award for Excellence in Science Teaching. Karen Murphy was selected by the President as the Iowa winner.

The committee discussed the possibility of setting up an electronic bulletin board on science education to be used by Iowa's science teachers.

The committee selected Royal Becker, Davenport, and Diana Kunz, Boone, as representatives to the National Youth Science Camp. Dawn Ashbacher, Swisher, and Troy Anderson, Dayton, were selected as alternates.

The **Election Committee**, chaired by Past-president Harry Horner met once in 1984-85 to select a slate of officers for the spring election. The positions to be filled were President-elect and two Directors. The slate presented was as follows:

President-elect — 1984-85

John Downey, UNI

Gary E. Downs, ISU

Members of the Board of Directors — 1984-87

Marc C. Albertsen, Pioneer Hi-Bred, Intl.

Paul A. Christiansen, Cornell

Jack A. Gerlovich, D.P.I.

Don C. Norton, ISU

The committee chair validated the election results.

The **Finance Committee**, chaired by Treasurer Frank Starr, met once to discuss how funds could be generated for the Academy's programs. Executive Director James Macmillan suggested that com-

panies be contacted to support the Outstanding Science Student Award. A letter was drafted and sent to several Iowa companies. Rolscreen Company contributed \$17,600 to support the program for two years.

The **Iowa Natural Heritage Steering Committee** met once in 1983 to discuss the alternatives for marketing the second printing of "Iowa's Natural Heritage." It was proposed that Graphic Corporation be approved as the sole party responsible for marketing the second printing. One of the terms of the 2nd printing agreement recommended by the I.A.S. members of the steering committee was that Graphic Corporation provide both the Academy and the Foundation with as many copies as they wish to purchase, at a price far below "wholesale", i.e., just a bit more than Graphics actual cost of manufacture. This will assure that the Academy always have an inventory of books that members can purchase at the announced member price of \$22.50 for the regular edition.

The inventory of books still owned outright by the Academy includes 80 regular editions and 6 limited editions. These are the last of those accepted by the I.A.S. in lieu of cash reimbursement for expenses incurred during the formative years of the project.

The **Long Range Planning Committee**, chaired by Harry Horner, met twice during 1983-84. The committee made several recommendations to the Board: 1) that the positions of Director of Meetings and Conferences, Director of Publications, and Director of Student Programs be created. These directorships would be responsible to the Executive Director; 2) that the Education Committee develop a career information brochure to be made available to Iowa high school students; 3) that an *ad hoc* Committee on Financial Development be organized to systematically contact persons to raise funds for the Academy; 4) that a directory on science expertise be developed; and 5) that an effort be made to encourage other scientific organizations to affiliate with I.A.S..

The **Membership Committee**, chaired by Marguerite Neumann, met twice during 1983-84 and conducted much business by mail.

The committee reviewed and revised the fellowship nomination procedure. They accepted and reviewed fellowship nominations for the year. The committee discussed the requirements for fellowship status.

The committee recommended that membership posters be again sent to schools and industries to solicit new members.

They considered how the Academy could act as an umbrella organization for other scientific organizations. No specific recommendation was obtained.

The committee made recommendations on changes in the membership categories which were approved by the Board and voted on by the membership.

The committee recommended that the 25 and 50 year members be recognized in the *I.A.S. Bulletin*.

The **Parish Farm Committee**, chaired by Karl Goellner, met once at the Parish Farm early in July 1983.

It was reported that the 1982-83 farm income was \$24,411.94. Jim Frevert of Hertz Farm Management reported the progress on moving to "custom operation" which should improve farm income after 1983. There would be some extra costs in 1983.

The committee reviewed the soil conservation efforts which seem to be adequate until other farmers in the area improve their situation. The committee requested that a ditch on the east side of the farm be cleared to improve rain run-off which has been spilling into the fields.

They recommended that a sign be erected to identify the replanted prairie.

The committee recommended that a field day be organized at the farm to celebrate the first 25 years of ownership.

The **ad hoc Committee on Public Information**, chaired by William Brown, met once to discuss strategies by which science and I.A.S. could be made more visible to the public.

The committee recommended that steps be taken to have more articles on science be printed in the state newspapers. It was recommended that an editor be found who could locate, write and submit science articles to the state newspapers. The committee discussed other media which might be used to promote a positive image of science within the state.

The committee recommended that a permanent committee be formed, an editor be found and that a journalism intern might act as editor.

The **Recognition and Awards Committee**, chaired by Darrel Hoff, met twice during 1983-84 and conducted much of their business by mail.

The committee selected the finalists for the Governor's Science Medal. The finalists were Thomas Barton, ISU, Science Teaching; John Bremner, ISU, Science Achievement; and John Kennedy, University of Iowa, Science Applications. The medals were presented by the Governor at his office 6 December 1983.

The committee helped revise the nomination forms for the Governor's Science medals.

The committee solicited and reviewed nominations for the I.A.S. awards. The finalists were Edgar Folk, University of Iowa, for Distinguished Service Award; Wilbert Russell, ISU, for Distinguished Iowa Scientist Award; and John Bremner, ISU, for the Distinguished Fellow Award.

The **Student Programs Committee**, chaired by Gary Downs, planned four regional meetings for dissemination of information concerning student research projects. The committee worked closely with Lynn Glass, Director of the Iowa Junior Academy of Science, in planning competitive science activities and a student program in conjunction with the Fall Conference of ISTS. The committee helped formalize the procedures for the Outstanding Science Student Award. The committee initiated plans to offer more services to elementary teachers for the teaching of science.

The committee invited twelve students to present their poster papers at the Annual Meeting 27 April 1984. Raymond T. Rosario, Davenport Central High School and Christy Stoffel, Bettendorf High School, were selected as the Iowa representatives to the American Junior Academy of Science program to be held in Los Angeles in 1985. Royal Becker, Davenport Central, and Erin Ward, Colfax High School were selected as alternates.

Lynn Glass, I.J.A.S. Director, accompanied the 1983 winners to the A.J.A.S. program in New York City.

Plans were begun for a "Science of Amusement Parks" day to be held at Adventureland in Des Moines for the fall of 1984. This day will be open to all 8th grade science students in Des Moines.

The committee revised the "Iowa Junior Academy of Science Handbook" and solicited student research proposals. Upon evaluation by the Student Programs Committee, 19 grants were awarded for a total of \$1,953.

The Student Programs Committee initiated the Outstanding Science Student Award to be presented to one male and one female senior science student at each Iowa high school. The design of the medal was based on the I.A.S. Centennial Medal and was engraved with the student's name and "1984". Three hundred ninety-three medals were awarded in 230 high schools.

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

Support for the student programs came from a contribution of \$5,000 from Pioneer Hi-Bred International, Inc.; \$17,600 for the Outstanding Science Student Award from Rolscreen Company, Pella; \$1,200 from the A.A.A.S. for the student research awards and \$250 from the Iowa Chapter of the American College of Surgeons.

The **Excellence in Science Teaching Award** program was coordinated by Gary Downs of ISU. The following persons received awards:

Biology

Sister Lois Wagner - Wahlert High School, Dubuque

Chemistry

David Vogel - Oskaloosa High School

Earth Science

Bruce Iverson - Spencer High School

Elementary Science

Jan Anderson - Cedar Heights Elementary, Cedar Falls

Junior High Science

Freida Griffin - McCombs Transitional School, Des Moines

Physics

Dan McGrail - Carlisle High School

Administration

Beginning on 1 July 1983, James Macmillan moved from Associate Executive Director to Executive Director. As was planned, the Associate Director position was not refilled. Robert Hanson assumed the position of Managing Editor and Administrative Consultant for the term 1 July 1983 to 31 May 1984. He was also appointed as Managing Editor for the period 1 June 1984 to 31 December 1984. With the resignation of David McCalley, UNI as long time coordinator of the Excellence in Science Teaching Awards program, Gary Downs, ISU, was appointed to fill the position. Roger and Marilyn Bachmann, co-editors of the *Proceedings* and Carl Bollwinkel, Editor of the *Iowa Science Teachers Journal* completed their first year as editors.

The Long Range Planning Committee and the Board of Directors discussed the future direction for the Academy's administration. During 1984-85 decisions will be made about changing the administrative structure to include an Associate Director of Conferences and Meetings, an Associate Director of Publications, and an Associate Director of Development.

Several changes in the Bylaws were made regarding the membership categories. These changes were passed by ballot vote during the spring election.

Grants

The Academy was asked by Roy Unruh, UNI, early in 1983 to act as the administrator of a grant submitted to the U.S. Department of Education. In light of the state-wide scope of the project, it was agreed that the Academy could act as the grant administrator. In December the Academy was informed that the \$132,000 grant (PRISMS) had been funded for 1 January 1984 to 31 December 1984.

As a result of a successful group of workshops on Computers in Chemistry conducted by Jack Gerlovich, Kenneth Hartman and Donald Murphy of the Iowa Science Teaching Section, Jack Gerlovich and James Macmillan submitted a \$64,000 proposal to the National Science Foundation to expand the program to states surrounding Iowa.

To help support the Annual Meeting on the University of Iowa campus, a generous grant of \$3,570 to cover speakers expenses and hospitality was provided by the University of Iowa Graduate College.

Publications

Following his retirement as Executive Director, Robert W. Hanson of UNI was asked to continue as Managing Editor of all Academy publications. Carl Bollwinkel of Price Laboratory School, Cedar Falls, took over as editor of the *Iowa Science Teachers Journal* when A. C. Haman resigned from that position. The Journal continues to be a joint publication of the Academy and UNI, with costs shared more-or-less equally.

Before the I. A. S. Panel on Controversial Issues was discontinued as an *ad hoc* Academy group in the spring of 1983, reviews of several creationist books were written by this panel. The Academy had been asked to publish the reviews, but for various reasons the reviewers

decided to have them published elsewhere, with modest Academy assistance. The reviews received some media attention, primarily because of creationists' objection to their negative tone. The Academy was not the publisher, although the Academy's name was credited for support of the project.

The Board of Directors created the R. W. Hanson Special Publication Fund on Hanson's retirement as Executive Director. The first project to be considered for support from this fund was a biography of Louis H. Pammel, an early I. A. S. president and well-known botanist. The biography, written by Marjorie Pohl, will appear as a supplementary issue of the *Proceedings* in the fall of 1984.

The success of "Iowa's Natural Heritage" encouraged three Academy members to submit for Academy consideration a book entitled "Mushrooms and Fungi of the Midwestern United States". This ambitious project, authored by Lois Tiffany and George Knaphus of ISU and Don Huffman of Central College, was accepted by the Board of Directors as a special Academy publication, providing only the technical and review procedures for getting it published, with no financial commitment from the Academy. The book is out for review at the time of this writing and no definite date has been set for its publication.

The *Proceedings* appeared on schedule throughout the year, with the March issue being devoted to the symposium on the Driftless Area of northeast Iowa that was part of the 1983 Annual Meeting held at Luther College in Decorah. The Editors, Marilyn and Roger Bachmann of ISU, have kept the "pipeline" moving efficiently with the help of an able staff of volunteer reviewers.

National Involvement

Two Academy members served on the Board of Directors of the National Association of Academies of Science (NAAS) in 1983-84. Frank Starr served as Past-president and, thus, organized a symposium on "Turf Protection vs Excellence in Science Education" for the AAAS Annual Meeting in New York City. Robert Hanson served as the NAAS delegate to the AAAS Council. The publication of the book "Science and Creation: Theological, Geological, and Educational Perspectives", resulting from the symposium "Science and Belief" organized by Robert Hanson for the 1982 AAAS meeting, will be jointly published by AAAS and Macmillan Publishing Company. Although the publication date was expected to be in the fall of 1983, it has been delayed until late 1984.

James Macmillan acted as a delegate to the NAAS meeting held in conjunction with the AAAS meeting in New York. He also filled in for Robert Hanson at the NAAS Board meeting.

The I. A. S. Board of Directors reaffirmed their commitment to NAAS by designating the President-elect as the second delegate to NAAS.

Table 3. Membership 1980-84

Category	1980	1981	1982	1983	1984
Associate	0	1	1	1	3
Member	706	773	777	806	841
Student	186	162	146	142	160
Fellow	395	374	367	349	334
Life Member	38	39	38	37	41
Emeritus	76	84	83	89	91
Distinguished Fellow	12	14	17	14	18
TOTAL	1414	1437	1412	1445	1491

Membership

Table 3 shows the distribution of membership by category for the past five years. The increase of 46 members for 1984 over 1983 amounts to a 3.2% increase. This increase was largely due to an increase in both the member and student membership categories.

With the Bylaws changes of 1984 the Associate membership category will be dropped and Student Associate membership will be classified as Student Members.

Table 4 shows numbers of persons showing interest in the 15 sections of the Academy. Members are allowed to indicate interest in more than one section; therefore, the percents under "Relative Section Interest" are not additive.

Table 4. Membership by Sections. June 15, 1984

Section	1984	Relative Section Interest*%
Agricultural Sciences (U)	121	8.1
Anthropology (H)	43	2.9
Botany (G)	290	19.4
Chemical Education (S)	98	6.5
Conservation (J)	243	16.3
Engineering (M)	73	4.9
Geology (E)	174	11.6
Inorganic, Physical		
Analytical Chemistry (C)	194	13.0
Linguistics (R)	7	0.5
Organic and Biological Chemistry (D)	133	8.9
Physics (B)	141	9.5
Physiology (O)	123	8.2
Psychology (I)	41	2.7
Science Teaching or Science Education	454	30.4
Zoology (F)	262	17.6

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

FINANCIAL MATTERS

An operating budget of \$81,680 was adopted at the April Board Meeting held at the Annual Meeting. This budget did not include the UNI subsidy or the state appropriation which had not been approved at that time. In June the Academy was informed that \$10,800 had been included in the state appropriation to the Iowa Academy of Science to be used for publication and student and teacher programs. When the UNI subsidy and the state appropriation were included the budget was \$95,957. The budget included a grant from AAAS, Pioneer Hi-Bred International and the College of Surgeons as well as the UNI support for the ISTS Journal. During the year a grant of \$132,080 was received from the U.S. Department of Education for administration by the Academy. Similarly, a grant of \$17,600 was received from the Rolscreen Company to support the Outstanding Science Student Award to be used over the next three years. These grants appeared to increase the income of the Academy significantly; however, other than some administrative overhead, the money for these grants were committed to those projects.

With the installation of the electronic accounting system in the summer of 1983 a closer picture of the Academies finances was possible this year. Table 5 shows the balance sheets of June 30, 1984. The \$138,897.46 in assets includes the encumbered \$99,447.00 of

Table 5. Balance Sheet. June 30, 1984

ASSETS	
Checking	3,202.92
Bonds	6,140.00
Notes	4,285.76
Money market savings account	23,651.76
PRISM Receivable	99,447.00
Book Inventory	2,170.00
Total Assets	138,897.46
LIABILITIES AND EQUITY	
Taxes payable	\$ 1,452.85
Long Term Liability	6,435.60
Encumbered Funds	
PRISMS	99,447.00
Life Member	688.27
RWH Publication	2,219.37
Workshops	204.46
Total Liabilities	\$110,447.55
Retained Earnings	\$ 37,531.25
Net Income (Loss)	(9,081.34)
Total Equity	\$ 28,449.91
Total Liability & Equity	\$138,897.46

the U.S. Department of Education grant (PRISMS). The net Academy equity is \$28,449.91. Table 5 does not list the Parish farm or the Academy's office equipment as assets. Table 5 also shows the Academy's liabilities of \$110,447.55 in the form of employment taxes payable, the IBM Displaywriter note and fund that are encumbered from last year.

Table 6, in the first column, shows the actual income of the Academy and columns two through six show the allocation of the income to the various academy activities. This table also shows the state aid of \$10,498 which reflects the 2.8% reversion requested by the Governor. The UNI subsidy to the *Iowa Science Teachers Journal* and to the 25% release time for the executive director are shown. The distribution of the administrative costs and supplies in the bottom row indicate the best estimate of their amounts. The total income including subsidy was \$144,046.44.

Table 7 shows the actual expenditures for the 1983-84 year in column one. Columns two to six show how the funds were expended across the functions of the academy and PRISMS project. The allocation of the State Aid was distributed between publications and programs. The total expenditures were \$150,015.68 resulting in a net loss of \$9,081.34. The loss was the result of increased costs for publications and the Annual Meeting.

Table 6. Income Allocation, 1983-84

Income	Allocation of Income						
	Amount	Publications	Programs	Meetings	Administration	Reserves	PRISM
Pub. Sales	\$ 6,616.05	6,616.05	-0-	-0-	-0-	-0-	-0-
Reprint Sales	1,092.44	1,092.44	-0-	-0-	-0-	-0-	-0-
Reimbursement	77.12	-0-	-0-	-0-	77.12	-0-	-0-
Interest/dividend	3,560.48	-0-	-0-	-0-	3,425.84	134.64	-0-
Reg. Fee	4,377.00	-0-	425.00	3,952.00	-0-	-0-	-0-
Dues	23,443.00	12,900.53	-0-	-0-	10,542.47	-0-	-0-
Other Fees	3,274.50	1,261.00	-0-	2,013.50	-0-	-0-	-0-
Workshops	344.46	-0-	344.46	-0-	-0-	-0-	-0-
Indiv. Cont.	290.00	-0-	35.00	-0-	-0-	255.00	-0-
Corporate Gift	22,670.00	-0-	22,670.00	-0-	-0-	-0-	-0-
Non-Fed Grant	1,400.00	-0-	1,400.00	-0-	-0-	-0-	-0-
Fed Grant	32,638.00	-0-	-0-	-0-	1,631.90	-0-	31,006.10
Misc.	895.39	-0-	-0-	-0-	895.39	-0-	-0-
Farm Trans.	23,000.00	-0-	-0-	4,312.17	18,687.83	-0-	-0-
Total	123,678.44	21,870.02	24,874.46	10,277.67	35,260.55	389.64	31,006.10
State Aid	10,498.00	4,374.00	6,124.00	-0-	-0-	-0-	-0-
UNI Subsidy	9,870.00	1,650.00	-0-	-0-	8,220.00	-0-	-0-
Total Income	144,046.44	27,894.02	30,998.46	10,277.67	43,480.55	389.64	31,006.10

Table 7. Expense Allocations, 1983-84

Expense	Allocation of Expenses						
	Amount	Publications	Programs	Meetings	Administration	Prism	
Cont. Grant	\$ 1,303.51	-0-	1,153.51	-0-	150.00	-0-	
Honoraria	42,622.00	5,213.34	140.00	1,500.00	19,181.71	17,786.99	
Clerical	11,169.72	-0-	-0-	-0-	10,431.59	738.13	
Taxes	323.80	-0-	-0-	-0-	302.68	21.12	
Contractual Services	567.32	-0-	-0-	401.62	-0-	165.70	
Post. & Ship.	4,385.71	1,008.38	788.21	644.20	1,380.07	636.85	
Copier Supplies	189.08	-0-	-0-	-0-	189.08	-0-	
Wordproc. Supplies	526.07	-0-	-0-	-0-	526.07	-0-	
Other Supplies	17,567.46	5.50	14,988.91	538.65	1,292.00	742.40	
Telephone	662.35	-0-	-0-	-0-	657.92	4.43	
Equipment	8,639.83	-0-	-0-	-0-	1,464.73	7,175.10	
Service	1,681.79	-0-	-0-	-0-	1,681.79	-0-	
Printing	24,698.16	16,842.84	1,495.73	3,971.41	2,350.56	37.62	
Misc. Expense	438.01	-0-	-0-	-0-	438.01	-0-	
Refunds	306.00	-0-	-0-	-0-	306.00	-0-	
Banquet/Meals	872.77	-0-	-0-	872.77	-0-	-0-	
Travel	13,144.31	-0-	2,251.36	2,349.02	4,161.41	4,382.50	
Accounting Charge	549.79	-0-	-0-	-0-	549.79	-0-	
Total Expense	\$129,647.68	21,870.02	20,817.72	10,277.67	44,991.41	31,690.86	
State Aid	10,498.00	4,374.00	6,124.00	-0-	-0-	-0-	
UNI Subsidy	9,870.00	1,650.00	-0-	-0-	8,220.00	-0-	
Total Expense	\$150,015.68	27,894.02	26,941.72	10,277.67	53,211.41	31,690.86	
Total Income	\$144,046.44		(From Table 6)				
Net Income							
(Loss)	(\$9,081.34)						

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Editor, IOWA SCIENCE TEACHERS JOURNAL

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Director, Iowa Junior Academy of Science

Lynn W. Glass, Iowa State University

PAPER PRESENTATIONS, ANNUAL MEETING 1983

Invited Junior Academy Papers

- Royal M. Becker, Central High School, Davenport — The Effect of Molten NaCl-AlCl₃ on Coal
- Joy E. Dohrmann, Central High School, Davenport — Cold as Ice
- Teresa Falck, Oelwein Community High School — The Effects of Dietary Phosphatidylcholine Manipulation on Memory
- Ethel Fromm, Ames High School — Reconstruction of a Phase Diagram for Calcium-silicides
- Eric F. Grelson, Kuemper High School, Carroll — Motion Picture Special Effect Miniatures
- Robert Kruse, Hoover High School, Des Moines — Kerosene Heaters and Nitrogen Oxides
- Darin O'Brien, Stuart-Menlo High School — Photometric analysis of Beta Persei
- Raymond T. Rosario, Central High School, Davenport — Synthesis and Metabolism of Phospholipids in Human Y79 Retinoblastoma Cells
- Christy Stoffel, Bettendorf, High School — Allelopathic Responses of Buckhorn Plantain
- Peter J. Stryjewski, Central High School, Davenport — TPP: a Disk Protection — Data Encryption Scheme
- Erin Ward, Colfax High School — Magnetotactic Bacteria

Contributed Papers

(All abstracts of contributed papers received on time appeared in the March 1983 PROCEEDINGS as an insert).

Errata: Wild Turkey Populations

In the recent article on wild turkey populations (Suchy et al. 1983) the second part of equation 3 for threshold mortality on page 99 was misprinted. The equation should have read:

$$M = M_n \text{ if } M_h < C \text{ or}$$

$$M = M_n + [(1-M_n)/(1-C)] \cdot (M_h - C)$$

$$\text{if } M_h > C.$$

REFERENCES

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