

1980

Annual Report of the Iowa Academy of Science 1979-80

Robert W. Hanson
University of Northern Iowa

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Annual Report of the Iowa Academy of Science 1979-80

ROBERT W. HANSON¹

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

PREFACE

The 100-year history of the Academy was completed by this author in the fall of 1974 and appeared in the March issue of the *Proceedings* in 1975 (the "centennial issue"). Since that year the Annual Report has been a running history of the Academy, highlighting the most significant activities of the society and providing for the future a reflection of Academy concerns on a year-to-year basis.

The committee reports and Board minutes that constitute the basis for this report are on file in the Academy office at the University of Northern Iowa. Older Academy records are catalogued in the Special Collections section of the Iowa State University Library in Ames.

THE 92ND SESSION

Simpson College in Indianola hosted the Academy's 92nd Session April 18 and 19, 1980. Planning began with the Executive Director's visit to the campus in September 1979 to determine what constraints, if any, the available facilities might impose on the program. The **Annual Meeting Committee** and some of the Section Chairs met at UNI on September 22 during the Fall Leadership Conference, blocked out the program and made a tentative selection of speakers for the general sessions.

In addition to the contributed paper sessions the program included the following:

Friday, April 18

- 8:15 - 10:00 a.m. JUNIOR ACADEMY PAPERS I
- 10:15 - 11:15 a.m. GENERAL SESSION I
President C.G. McCollum, presiding
Welcome: Robert McBride, President, Simpson College
Speaker: Robert Buckmaster, Chairman of the Board, Black Hawk Broadcasting Co. Waterloo, and Chairman, Iowa Natural Heritage Foundation.
"The Iowa Natural Heritage Foundation: Its Genesis and its Goals."
- 12:30 - 2:00 p.m. AWARDS LUNCHEON
President C.G. McCollum, presiding
This served luncheon honored groups and individual students who had performed in an exemplary manner in science activities throughout Iowa. Several individual awards were presented by Governor Robert Ray. Several teachers were honored as they received the Iowa Academy's Excellence in Teaching Award.
- 2:00 - 4:15 p.m. SYMPOSIUM: "Perspectives on Iowa's Declining Flora and Fauna"
Arranged by D.R. Farrar, I.S.U., Dean M. Roosa, I.C.C., and D.J. Roslien, Luther College.
(Sponsored by the Botany and Conservation Sections and the Conservation and Preserves Committee.)
- 2:00 - 4:15 p.m. SECTION MEETINGS
Engineering
Geology

¹Executive Director of IAS

Mathematics/M.A.A.
Science Teaching

- 4:30 - 5:30 p.m. GENERAL SESSION II
President C.G. McCollum, presiding
Speaker: Doug Snyder, Director of Gasohol Development, ADM Corn Sweeteners, Cedar Rapids
- 5:30 - 6:15 p.m. SOCIAL HOUR/RECEPTION
- 6:45 - 8:15 p.m. PRESIDENT'S BANQUET
President C.G. McCollum, presiding
Presentation of Iowa Academy Awards (Distinguished Fellow, Distinguished Iowa Scientist, Distinguished Service Award.)
Installation of new president and remarks by outgoing President McCollum.
Response by President-elect Huffman.

- 8:30 p.m. GENERAL SESSION III
President D.M. Huffman, presiding
Film Lecture: Kjell Sandved, Nature Photographer, National Museum of Natural History, Smithsonian Institution, Washington, DC: "Curious Creatures and Mini-monsters."
This remarkable film demonstrated with great beauty and often with humor the results of Mr. Sandved's activities as a giant Peeping Tom, intruding peacefully upon the lives of small creatures and catching them with his camera at their least inhibited moments. Many of Sandved's enlarged color photographs were also on display in the foyer of the Blank Performing Arts Center.

Saturday

- 8:00 - 11:15 a.m. SECTION MEETINGS
Anthropology
Botany
Cell Biology
Chemistry: Inorg., Analytical, Phys.
Chemistry: Organic and Biological
Conservation
Engineering
Geology
History & Philosophy of Science
Mathematics
Physics
Physiology
Psychology
Science Teaching
Zoology

8:00 - 12:30 and
1:30 - 3:30

SYMPOSIUM: "Stewardship of the Soil"
(Sponsored by the Social Implications Committee and the Geology Section)

- A. Technical Aspects of the Problem
8:00 - 10:00 a.m.
(See papers 15-20, Geology Section program.)
Arranged by Richard Baker, presiding.
- B. The Public Concern
Erwin Richter, Social Implications Committee, presiding
10:00 Margo Underwood, Mason City
10:20 Dr. William J. Schaefer, Jr., Executive Director, National Catholic Rural Life Conference
10:40 Representative from League of Women Voters of Metropolitan Des Moines

Geology	20	45	11.7
History & Phil. of Sci.	3	15	1.0
Mathematics (M.A.A.)	8	61	5.9
Physics	4	31	9.0
Physiology	5	16	8.3
Psychology	6	17	3.4
Science Teaching	12	76	28.8
Zoology	14	24	19.2

- C. The Solutions
11:30 GENERAL SESSION IV
President D.M. Huffman, presiding
Speaker: David Unger, Associate Administrator of the USDA Soil Conservation Service, "The Federal Solution to the Soil Erosion Problem"
Phyllis Kingsbury, presiding
1:30 Lawrence G. Vance, Director, Iowa Department of Soil Conservation: "Present Programs to Control Soil Erosion"
1:50 Senator Forrest Schwengels, Iowa Legislature: "The Proposed Legislative Solution"
2:10 Charles McLaughlin, Farmer, Britt, Iowa: "Solutions from the Farmer's Point of View"
2:30 Summary; Questions and Answers
Phyllis Kingsbury, Moderator
- 1:30 p.m. SECTION MEETINGS
Anthropology
Botany
Conservation
Geology (Soil Erosion Symposium)
Mathematics

Other:	No. of Papers	Attendance
Junior Academy	15	35
Gen. Session I (Buckmaster)		300
Gen. Session II (Snyder)		300
Gen. Session III (Sandved)		375
Gen. Session IV (Unger)		120
Joint Session, Chemistry and Chemical Education		54
Symposium: "Perspectives on Iowa's Declining Flora and Fauna"		165
Symposium: "Stewardship of the Soil"		48
Sandved "Photo Safari"		12
Annual Business Session		75
Awards Luncheon		228
Banquet		185

*"Relative Section Interest" based on percent of total members indicating a particular interest. Percents are not additive because of multiple interest selections by members.

JOINT SESSION: Chemistry and Chemical Education
W. Hutton, presiding
Speaker: Dr. Derek Davenport, Department of Chemistry, Purdue University: "From Genesis to the Book of Revelations: 200 years of Chemistry Texts Written in America(n)"

Table 2. Registered Attendance, 1980

Table 1 summarizes attendance, number of papers presented, and relative section interest in the Academy as a whole. Section support by way of attendance and numbers of papers presented does not coincide with relative section interest necessarily.

Table 1. Attendance Summary, 92nd Session, 1980

Section	No. of Papers	Attendance	Relative Section Interest (%)*
Anthropology	15	28	1.7
Botany	24	47	19.7
Cell Biology	8	16	5.1
Chemical Education	2*	(See below)	6.2
Chemistry C	6	21	13.0
Chemistry D	4	26	9.9
Conservation	23	45	16.9
Engineering	8	22	5.7

Category	Pre-registered Papers*		Walk-in		Total
	Papers*	Others	Fri.	Sat.	
Members:					
Regular	68	157	57	12	294
Student	23	12	4	2	41
Subtotal	91	169	61	14	335
Non-members:					
Regular	10	13	10	3	36
Student	32	13	14	5	64
Subtotal	42	26	24	8	100
Guests, etc.	-	-	27	6	33
Total	133	195	112	28	468

*Presenters of contributed papers only; some presented more than one paper.

Abstracts of contributed papers given in the section meetings appeared in the March 1980 issue of the *Proceedings* as a removable center section. This was a first in 1980 and provided early and widespread circulation of the abstracts. They provide a representative cross-section of research interests among Academy members.

The number of papers presented was down considerably in 1980, showing a 20% drop in the number of papers presented from the 176 of the previous year.

Table 2 summarizes registered attendance in 1980. Actual attendance was probably 15-20% above registration counts and about the same as last year.

The Awards Luncheon

In order to accommodate the large number of awards to secondary school students and teachers, a served luncheon was scheduled on Friday and attended by 228 persons. Governor Ray was present to make some of the awards and to personally congratulate the students and teachers who were honored.

The Academy's Excellence in Science Teaching Award was presented to the following teachers by **David McCalley** of UNI, coordinator of the program:

- Gaile L. Carlson**, Ogden Community High School
(physics)
- Marvin Septer**, Fairfield Junior High School
(junior high science)
- Mrs. Sharon Hackbarth**, Roosevelt Elementary, Iowa City
(elementary science)
- Carolyn Brockway**, Washington High School, Cedar Rapids
(earth science)
- Robert W. Nelson**, Cedar Falls High School
(chemistry)
- Curt Froyen**, Knoxville High School
(biology)

Two secondary school students who had presented papers in the Junior Academy sessions by invitation were selected to represent Iowa at the American Junior Academy of Science meeting to be held in Toronto in January 1981:

- Douglas Grier**, Marshalltown
"The effects of microwaves on the germination and growth of glycine max."
- Jennifer Haerer**, Muscatine
"The effects of fluoride treatment prior to acid etching on caries-like lesions of human dental enamel."

Two students selected by a special committee appointed by the Governor's office were named to attend the National Youth Science Camp sponsored by the State of West Virginia:

- Paul Heil**, Ames High School
- James R. Winckler**, North High School, Sioux City

Alternates:

- Charles Nove**, Marion High School
- Robert Allen Lee**, AVOHA Community High School, Avoca

Many other students were recognized at the luncheon, representing the following activities:

- The 1979 Iowa SST Program
- The 18th Iowa Science/Engineering/Humanities Symposium
- The UNI Science Symposium
- The American Cancer Society Scholarship
- The Drake Physics Prize
- The ISU Energy Research Participation Program
- The Iowa Science Talent Search (Westinghouse)
- The Eastern Iowa Science/Engineering Fair

- The Greater Quad Cities Area Science/Engineering Fair
- The Hawkeye Science Fair
- The Northeast Iowa Regional Science/Engineering Fair

The President's Banquet

The installation of the new president and the presentation of additional awards took place following the Friday evening banquet. A practice of some years ago was revived in 1980 as the out-going president (**Clifford McCollum**) delivered a short address expressing his views on what the Academy had accomplished during the past year. The gavel was then passed to incoming president **Don Huffman**, providing him on opportunity to speak briefly on his aspirations for the Academy during his term of office.

Prior to the installation of the new president, President McCollum introduced **Verner Jensen**, Chairman of the **Recognition and Awards Committee**, to announce the several Academy awards. The new "Distinguished Service Award" was presented to **Leland L. Wilson**, University of Northern Iowa; **Otto Knauth** of the Des Moines Register and Tribune; **Karl E. Goellner**, Coe College; and **Henry L. Dean**, University of Iowa.

Two long-time members of the Academy were named "Distinguished Iowa Scientist," another new award category in 1981: **Paul Meglitsch**, Drake University, for his work in invertebrate zoology and parasitology; and **Joseph Danforth**, Grinnell College, for his work in organic thermal decomposition.

Two more Iowa scientists were named "Distinguished Fellow of the Academy:"

Sam Legvold, Iowa State University, for his pioneering achievements in the study of rare earth metals; and **Kenneth D. Carlander**, Iowa State University, for his extensive contributions in fish population dynamics and fresh water fishery biology.

These men join James A. Van Allen, William Aydelotte, Norman Borlaug, Henry Gilman, Jay Lush, W.C. Oelke, Frank Spedding, Stanley Wawzonek, Adrian Flatt, and R. Hunter Rouse, as recipients of the Academy's highest honor.

Future Meetings

The 1981 meeting of the Academy will be held on the Coe College campus in Cedar Rapids on April 24-25, instead of the Quad Cities area as indicated in the 1978-79 Annual Report. Other future meetings have also been scheduled as follows:

- 1982: Iowa Central Community College, Fort Dodge
- 1983: Luther College, Decorah

REVIEW OF ACADEMY ACTIVITY IN 1979-80

The Report of the **Board of Directors** given by Executive Director Hanson, President-elect Don Huffman, and President Clifford McCollum at the Annual Business Session on April 19, 1980, gives a brief outline of Academy activity during the year. Hanson gave the following report which was followed by comments from Huffman and McCollum:

The first meeting of the 1979-80 Board of Directors was held on June 13, 1979, in Cedar Falls. The prepared agenda was expanded to include the approval of a new section on History and Philosophy of Science, the temporary replacement of H. T. Horner, Jr., who is on leave in Germany this year, the replacement of Roger Landers on the Board by William Brown due to Landers' resignation, and increasing the reimbursement for automobile travel. (Later in the year John Downey, another new Board member, took a leave of absence but continued as a director by correspondence.)

The main topic on the June agenda was the budget for 1980-81. Meeting the Academy's projected expenses is becoming increasingly more serious and the Board views institutional support and support from business and industry as the best available potential source of Academy support. The Finance Committee is in the midst of developing a fund-raising campaign and Academy members will be recruited to help with that effort during the coming months. Support will be solicited for specific programs and projects rather than for over-all Academy support. The plan received the careful consideration and approval of the Board during the year.

Additional funds were earmarked for soil conservation projects on the farm and will carry over if not used this year. (These authorizations do, of course, reduce the usable income from the farm.)

Earlier, the Board had set up a Steering Committee to handle all the details of the proposed publication of the book "Iowa's Natural Heritage." The work of that committee has gone on under Cliff McCollum's chairmanship. He will report on that a little later.

The concept of a Fall Leadership Conference was approved by the Board in the spring of 1979. The Conference took place in September on a clear and balmy day with about 60 persons in attendance. Besides the esprit de corps that was apparent that day, much work was accomplished by about ten committees.

The Fall meeting of the Board took place in October and covered several actions:

- transmitted the teacher certification recommendations of the Academy's DPI committee to the Department of Public Instruction without comment.
- approved the membership of the Academy's president on the board of trustees of the Iowa Natural Heritage Foundation.
- approved a 2nd Fall Leadership Conference in 1980.
- accepted the cancellation of plans to meet with the Illinois State Academy of Science in 1981.
- approved changes in academy awards, creating the Distinguished Iowa Scientist award and the Distinguished Service Award to replace the "Award of Merit."
- endorsed the concern of the Conservation and Preserves Committee for the need of a biological survey in Iowa.
- accepted the report of the Social Implications Committee on new projects underway — the soil erosion symposium (scheduled for tomorrow), the development of a roster of Academy members willing to serve as resource persons to the news media, and a planned series of newspaper articles promoting the public understanding of science.

During the winter the Board referred a request for Board action to the Social Implications Committee, namely the concern about the proposed legislation dealing with the teaching of creationism and evolution. Don Huffman will report on the outcome of that referral in a few minutes.

The last meeting of the 1979-80 Board of Directors took place just two weeks ago. Just to show how dedicated these Board members are, they agreed to forego lunch until the agenda was covered. The hoped-for 1:30 adjournment was deferred until 2:40; it remains to be seen whether hunger promotes wisdom!

Among other things the Board:

- approved of the 1982 meeting site at Iowa Central Community College in Fort Dodge (we'll meet at Coe College next year) and recommended that we try to meet at the University of Iowa in Iowa City in 1983 or 1984.
- approved a committee to look into the feasibility of a committee that would promote S/T advising to the state legislature.
- deferred consideration of any Bylaws changes until the Board's fall meeting.
- heard a report from Pres. McCollum that he had developed a panel of resource persons to assist teachers and others with

- problems involving the teaching of creation and/or evolution.
- heard the report from the Academy's representative on the Iowa Geological Board (the Academy president) that Stan Grant had submitted his resignation as State Geologist.
- learned from the Treasurer that most of the Academy's assets are now in high interest-bearing accounts.
- heard that the Academy will have no funds for research grants in 1980-81 without outside support.
- approved the formation of a new "Agricultural Sciences" section on the basis of a petition signed by 40 Academy members.
- approved the following two resolutions from the Conservation and Preserves Committee after making some changes in the wording:
 1. The State of Iowa needs to establish a Natural History Survey within state government, whose primary mission is to inventory and study Iowa's floral and faunal resources.
 2. The State of Iowa should provide a broader base of support for the State Preserves System in recognition of the state's critical preservation needs.
- considered briefly a formal procedure for the involvement of Academy resource panels in dealing with controversial issues in the schools and voted to consider this in more detail at their June meeting.

Many matters were put aside for further study and when the new Board meets in June they will have a considerable legacy of Academy concerns to deal with, not the least of which will be the budget for 1980-1981.

At this time President-elect Huffman will tell you more about what the Academy has been doing in the area of controversial issues. Following that, Pres. McCollum will bring you up to date on the Heritage Project.

Huffman's Remarks:

One wonders sometimes how you get involved in situations, but time rolls around and things happen. Most of you are aware that for the past three years there has been a movement in the State of Iowa for legislation that would propose that creationism be given recognition along with evolution when teaching of man's origin in science classrooms of the state. A good number of individuals within the science community in Iowa were concerned about this proposed legislation. I know my involvement — and I think largely the involvement of the Academy — was initiated a little over a year ago when the '79 legislative session had a bill before the Senate proposing essentially equal time provision for teaching of evolution or teaching of creationism with evolution in science classrooms of the state. There have been people in the state who have been concerned with this issue for many years. One of them, Stanley Weinberg, appeared before the Board of Directors of the Iowa Academy of Science and asked whether the scientific community through IAS would not become involved with this issue, which he considered to be of real concern. I know that by that time the Iowa Department of Public Instruction was deeply concerned with this problem because it has many implications for their operation within the state. As a result of Mr. Weinberg's appearance before the Board of Directors, a letter was drafted which was sent in a very efficient manner to all of the legislators in the state (and to most of the administrative officials within the educational institutions of the state of Iowa) urging that the bill Senate File #458 be opposed by the scientific community. We realized at the time the sensitivity of the Academy entering this area of concern but we do feel that the scientific community has both a responsibility and an obligation to take a position on areas such as this.

It's a matter of record that the bill was sent back to the committee in '79. We expected that it would be submitted again; it was submitted in a somewhat revised fashion to the 1980 senate session. By this

time we felt that the Academy's activities should possibly be directed through our Social Implications Committee as well as through those of us who thought we were truly representing the Academy with the statements, in the way that one can represent any group of individuals when you obviously cannot speak for everyone in the organization. There was another letter prepared which was distributed again to legislators and to educational persons throughout the state, and as many of you know this bill was finally voted on and was defeated by two votes. I would say that one other interesting aspect of this has been the fact that Iowa has received a rather growing recognition as a model of state academies' cooperation in an effort to speak to this effort, about which scientists have some deep concerns. The DPI has been very much involved in this. They have sent documentation of the types of things I have mentioned to at least a dozen other states. There have been telephone contacts with academies of science ranging from New York to Florida and 7 or 8 other states. We are convinced that this is not going to be a one shot process. This bill or similar bills will be coming up time and again and it represents one of the types of controversial areas in which we feel we must be involved if we are to have stature as a scientific community within the state. You'll be hearing more of this and I look forward to being involved in this area. I believe we are taking a position which is not only responsible but is expected of a scientific community.

McCollum's Remarks Concerning the Iowa's Natural Heritage Project:

This project has had during the past year its ups and downs. During the year an editorial committee was formed, and an Executive Editor was named. This editor and editorial committee have outlined the content; authors have been identified and contacted and agreements reached as to whether they could author the parts they have been asked to. Conversations have been held with the ISU Press during the year concerning the publishing of the book. Contacts were made by a sub-committee of the Steering Committee with the Iowa Natural Heritage Foundation about the funding, thinking in terms of the possibility of publishing it elsewhere by some publishing agency. Negotiations with the Foundation led to a plan for co-publishing the book. This plan was discussed at length and approved by the Academy steering committee, then by the Academy Board and finally by the INHF Board. We thought at one time that the negotiations might be to the point where a formal agreement could be recognized at this meeting, but you heard Bob Buckmaster in the opening address refer to the developments that have yet to take place. Informal agreements have been reached but they are now being formalized. I guess I could say that as a result of this negotiation with the Foundation and the great likelihood of the formalizing of the agreement between the Academy and the Foundation that we are looking forward to a sustained series of ups and not so much up and down through the next year and years.

Committee Activity

An attempt was made to bring all Academy committees together for a **Fall Leadership Conference** on September 22, 1979. All committees met except Conservation and Preserves, Elections, Heritage Project Steering Committee, Membership, Research Grants, and Student Programs. In spite of a most unusually beautiful day most who attended found the idea to be constructive. The other committees met in the fall during October and November.

The work of the **Annual Meeting Committee** was described earlier under "The 92nd Session."

The **Election Committee**, chaired by past-president K.E. Goellner, developed the following slate of candidates for the election that took place by mail ballot in March 1980:

President-elect: **John D. Dodd**, I.S.U.

Stanley Grant, Iowa Geological Survey

Directors: **William L. Brown**, Pioneer HiBred International, Inc.
Benjamin F. Graham, Grinnell College
Gordon W. Searle, University of Iowa
Richard S. Wacha, Drake University

Going back to the beginning of the 1979-80 year, the Board met on October 20 and received reports from those committees that had transacted business by that date. The Section Chairs had met with the Annual Meeting Committee to block the 1980 program. The remarks by Past-president Goellner at the plenary session of the Fall Leadership Conference and a letter from the **Conservation and Preserves Committee** prompted some good ideas for a general session and a symposium, the topics being soil erosion and Iowa's vanishing flora and fauna. The former was sponsored by the **Social Implications Committee** and the Geology Section; the latter by the Conservation and Botany Sections and the Conservation and Preserves Committee.

The **Student Programs Committee** met on October 5 in Toledo to discuss a new format for making student awards at the annual meeting and came up with the idea of an awards luncheon on Friday. Ideas for the possible use of AAAS research grant funds, awarded on a merit basis, were discussed, with emphasis on ideas that included a "multiplier" effect.

Two of the four students selected in April 1979 attended the meeting of the American Junior Academy of Science in San Francisco in January 1980. They were

Tom Lynch, Davenport

Fred Adams, Fayette

(Tom Lynch was selected as an alternate for the AJAS in 1980 as well while still a junior in high school.)

The **Research Grants Committee** did not meet during 1979-80 because all of the available grant funds were awarded at their May 1979 meeting. No additional funds were found during the year to support either secondary or post-secondary research projects.

The budget adopted by the Board on June 13, 1979 for 1979-80 raised some questions from the **Finance Committee** and the **Farm Committee**. The main question was the mechanism by which authorized funds for capital improvements on the farm were to be carried over from one year to the next when not used up. The question was resolved by recognizing that all capital improvements to the farm are paid by Hertz Farm Management out of the Parish Farm account that they maintain. In any year when capital improvements are made the net amount available for transfer to the Academy is reduced by that amount. No funds for capital improvements to the farm are maintained in the Academy's checking or savings accounts. In 1978-79 \$2500 was authorized but not used; another \$3500 was authorized for the 1979-80 fiscal year. Out of this total of \$6000 about \$1200 was used in the spring of 1980, leaving \$4800 carry-over into 1980-81 along with another \$3500 authorized for that year. The Farm Committee has a long range plan for terracing and tiling at least one remaining area that still experiences serious erosion problems.

The **Steering Committee** for the "Iowa's Natural Heritage" project met with Lynn Elfner, Executive Officer of the Ohio Academy of Science, on March 21 to learn more about the Ohio experience in publishing a similar book. In spite of many differences in the possible funding and production of Iowa's publication, Ohio's experience has proved to be valuable. Editorial progress on the book was slow during 1979-80 because of unsettled negotiations with the Iowa Natural Heritage Foundation and Iowa State University Press. By year's end it appeared that many points were about to be resolved so that work could proceed. In the meantime, authors have been urged to continue with their writing and gathering of material for the book.

The **Conservation and Preserves Committee**, set up on a three-year trial basis in September 1978, met for the first time in June 1979. During the 1979-80 fiscal year the committee made recommendations

to the Governor's office for appointments to the State Preserves Advisory Board (as required by the Code of Iowa), sponsored a workshop on sampling of faunal populations at UNI in the fall of 1979, and cosponsored a symposium on "Perspectives on Iowa's Declining Flora and Fauna" along with the Botany and Conservation Sections at the 1980 Annual Meeting.

In late November the **Membership Committee** (actually George Knaphus, chairman) sent a letter and response card to 150 delinquent members to determine why they had neglected to pay their dues. Only 53 persons responded; 40 requested that they be dropped. By January 15, 85 of the rest remained unpaid and were dropped for nonpayment of dues. The remaining 25 paid the dues they owed. The results indicated that five out of six members who were delinquent well into the dues year had no intention of maintaining their membership and probably should have been dropped earlier. The experience of previous years is consistent with this conclusion. Just before the Annual Meeting a petition to the Board was received that a new Agricultural Sciences section be formed. The Board approved, since all Bylaws requirements were met.

Table 3 shows the trends in membership since 1976.

Table 3. *Membership Counts 1976-80*

Category	1976	1977	1978	1979	1980
Associate	663	714	-	-	-
Member	-	-	698	701	706
Student Assoc.	156	173	202	218	186
Fellow	488	465	435	421	395
Life Member	34	37	38	39	38
Emeritus	66	65	67	72	76
Distinguished Fellow	7	7	7	10	12
TOTAL	1407	1454	1440	1461	1414

The **Finance Committee** met on December 1 and again on March 15 to begin the selection of possible sponsors and to formalize a plan of contacting them. None of the plan had been executed by year's end but the plan was well under development.

In January the **Social Implications Committee** met with interested Board members, State Superintendent Robert Benton, and Stanley Weinberg to discuss Senate File 458, the so-called creation/evolution bill then about to be considered by the Senate. As a result of that meeting a letter was sent to all state senators and representatives over the signatures of President McCollum and President-elect Huffman advising against passage of the bill, even though the wording of the bill had been changed to make the bill appear innocuous. On February 28 several Academy members attended a meeting of the Council of Science Supervisors in Ames because the creation/evolution matter was on the agenda along with more general consideration of teaching controversial subject matter. Jack Gerlovich of DPI asked Don Huffman to make a statement about the Academy's activity in this area. His comments dealt with the idea that the Academy was going to set up panels of resource persons to go to the aid of teachers and administrators in providing a scientific point of view on controversial subjects.

Unknown to the Academy members present, a reporter from the *Des Moines Register* was at that meeting. On March 1 the Register carried a long article with the headline "Academy to Aid Beleaguered Iowa Teachers." The article tended to characterize the Academy as doing more with controversial issues than it was actually doing or prepared to do. The reaction of some of the legislators who favored Senate File 458

was predictable — one rose in the Senate to deliver a tirade against the Academy. A flurry of activity in the Senate during the week culminated the following Friday when the bill came to vote, failing to pass by only 2 votes. The bill did not come up again in the 1980 session.

Early in February the **Recognition and Awards Committee** met in Cedar Rapids to select those to be recognized at the Annual Meeting. New physical awards were devised for the new Distinguished Iowa Scientist Award and the Distinguished Service Award.

The **Publications Committee** met during the Fall Leadership Conference in September and suggested some Bylaw revisions to clarify the jurisdiction of the committee and to define "publications." When these were discussed in October, the Board deferred action on them till their April meeting. In April, Executive Director Hanson had, at Board request, rewritten several Bylaws to take care of several administrative ambiguities, including some that related to the Publications Committee. Again the Board deferred action on any Bylaws changes. During the early spring a controversy had arisen concerning a proposed Iowa Science Teachers newsletter (sponsored by that section). The matter was first referred to the Publications Committee but then acted upon by the Board at their April meeting before the Publications Committee took up the matter. A motion was passed at that Board meeting limiting all newsletter activity within the Academy to the I. A. S. BULLETIN. The Publications Committee met at the Annual Meeting on April 19, 1980, but minutes or a report of that meeting have not been circulated as of this writing.

The **Iowa Science Teachers Section (ISTS)** and the **Chemical Education Section** held fall meetings in 1979, as usual. The ISTS Fall Conference at Marshalltown in November attracted about 350 teachers from all levels. The Chemical Education Section met at Iowa State University on September 28 with about 45 in attendance. The section for the second time planned to participate in the April meeting of the Academy and co-sponsored with the other two chemistry sections a session on laboratory experiments in chemistry.

Financial Matters

The budget for 1979-80 was adopted by the Board in June 1979 and revised somewhat in October. The revised approved expenditure budget came to \$68,439, including \$6000 authorized for capital improvements on the farm. These expenditures were to be financed from regular Academy income, farm income, and the \$4500 state appropriation. Actual expenditures in 1979-80 totaled \$61,049, not including the cost of soil conservation work paid for by Hertz Farm Management before transfers were made.

Table 4 displays the sources and disposition of Academy operating income on a cash basis (rather than accrual). The allocation of some income to the "disposition" columns is dictated by the source in many cases; in other cases the allocation is somewhat arbitrary. The percentage of the total in the "Administration" column allocated to each of the other columns is based on fairly good estimates of administrative time in the central office devoted to the various activities of the Academy.

Table 5 shows the changes in Academy assets during the year.

Table 4. Sources and Disposition of Operating Funds, 1979-80

Source	Resources		Disposition			
	Amount	Publications	Programs; Projects	Meetings, etc.	Administration	Reserves
Farm income	\$26,000.00	-	-	-	\$22,867.45	\$ 3,132.55
Interest & Dividends	2,351.16	-	2,351.16	-	-	-
Dues	16,836.28	1,403.26	1,545.79	1,393.76	12,493.47	-
Junior Academy	866.38	-	866.38	-	-	-
Page Charges	1,540.00	1,540.00	-	-	-	-
Annual Meeting	4,824.50	-	-	4,824.50	-	-
Gifts and Grants	120.00	-	120.00	-	-	-
Sales, incl. reprints	5,589.96	5,589.96	-	-	-	-
Services	506.67	-	-	-	506.67	-
Miscellaneous	366.80	-	-	-	366.80	-
State aid*	4,500.00	4,500.00	-	-	-	-
UNI Subsidy*	680.00	680.00	-	-	-	-
TOTAL	\$64,181.75	\$13,713.22	\$ 4,883.33	\$ 6,218.26	\$36,234.39	\$ 3,132.55
Allocation of Administrative expense	36,234.39	9,058.60	5,435.16	12,682.04	9,058.60	-
Percent	100%	(25.0%)	(15.0%)	(35.0%)	(25.0%)	-
TOTAL	\$64,181.75	\$22,771.82	\$10,318.49	\$18,900.30	\$ 9,058.60	\$ 3,132.55
Percent	100%	35.5%	16.1%	29.4%	14.1%	4.9%

*Do not appear in Academy accounts.

Table 5. Balance Sheet

Assets	June 30, 1980	June 30, 1979
Checking	\$ 1,113.80	\$ 462.63
Passbook Savings	7,850.00	500.00
Accumul. Fund	89.00	-
Certificate of Deposit	10,000.00	25,000.00
Automobile	3,903.00	-
Bonds, incl. acct. int.	6,140.00	-
	\$29,095.18*	\$25,962.63*
Net Worth		
Retained earnings	25,962.63	31,341.51
Net income (loss)	3,132.55	(5,378.88)
	\$29,095.18	\$25,962.63

*Not including farm or office equipment. For IRS purposes, the farm is valued at \$60,000, its appraised value in 1960 when it was given to the Academy.

MINUTES OF THE ANNUAL BUSINESS SESSION

April 18, 1980

The meeting was called to order at 11:30 a.m. by President Clifford McCollum in Blank Performing Arts Center, Simpson College, Indianola, with about 75 persons present.

Executive Director Hanson read his report of the Board of Directors which was then supplemented by remarks by President-elect Huffman and President McCollum. (The text of these remarks is contained elsewhere within this Annual Report.)

Frank Starr presented the Treasurer's report orally, indicating that as of March 31, 1980, the Academy's assets included:

checking account	\$ 1,561.76
passbook savings	850.00
certificates of deposit	10,000.00
daily cash accumulation fund	13,693.00
1st mortgage bonds	6,140.00
	\$32,244.76

He pointed out that the total did not include the assets that could be listed as equipment nor the farm. He said that about \$24,000 could be considered liquid assets, but that expenses during successive years is gradually eroding our savings, necessitating that the Finance Committee develop a fund-raising program from business and industry.

George Knaphus presented the report of the Membership Committee, pointing out that the committee had during the year attempted to

find out what is happening with people who are not paying their dues, by sending out a questionnaire to members in arrears. Many were found to have moved out of the state or changed interest. Some felt they couldn't afford the dues of all desirable memberships. Others indicated mere forgetfulness or procrastination and paid up. He went on to say that ways were being explored to expand the membership in some areas such as agricultural sciences and that he had personally solicited memberships by mailing out 300 letters just to ISU agriculture-related faculty. Another member of the committee had solicited memberships among 2-year college faculty in a similar manner.

Knaphus reported that the following persons had been promoted to Fellow:

Brian Glenister, Iowa City
 Michael Hein, Gainesville, Florida
 Holmes Semken, Iowa City
 Robert Simpson, Cedar Falls
 Varen Tilton, Ames
 Paul Whitson, Cedar Falls
 Nixon Wilson, Cedar Falls

Three deaths were reported during the year. Knaphus asked the audience to honor them by a moment of silence:

James E. Drake, Centerville
 Theodore Jahn, UCLA
 Cyrus Lantz, Cedar Falls (a member of the Academy for 57 years.)

Gene Goellner presented the report of the Election Committee indicating that votes were well distributed, indicating considerable support for all candidates. The winners were announced as

Directors: William Brown, Pioneer HiBred International, Inc.
 Benjamin Graham, Grinnell College

President-elect: Stanley Grant, recently Director of the Iowa Geological Survey, now about to take up residence in Colorado.

Those elected were asked to rise and be recognized.

Before adjournment at 12:15 p.m., President McCollum acknowledged with thanks the term of Gene Goellner on the Board of Directors as president-elect, president, and past-president.

Submitted by R. W. Hanson, Executive Director

ACADEMY LEADERSHIP 1979-80

Officers

President — Clifford McCollum, University of Northern Iowa
 President-elect — Donald M. Huffman, Central College
 Past-president — K. E. Goellner, Coe College
 Treasurer — Frank Starr, Waterloo Community Schools
 Editor (PROCEEDINGS) — Nels Lersten, Iowa State University
 Executive Director — Robert W. Hanson, University of Northern Iowa

Directors

Stanley C. Grant, Iowa Geological Survey, 1980
 William L. Brown, Pioneer HiBred International, Inc., 1980
 Sister Marguerite Neumann, Clarke College, 1981
 Harry T. Horner, Jr., Iowa State University, 1981*
 Joe D. Woods, Drake University, 1982
 John Downey, University of Northern Iowa, 1982
 *(Lois Tiffany, ISU, replaced H. T. Horner while he was on leave in 1979-80.)

Section Chairs

Anthropology/Archaeology (co-chairmen) — Duane C. Anderson, University of Iowa; Joseph A. Tiffany, University of Iowa
 Botany — Donald R. Farrar, Iowa State University
 Cell Biology — Rajendra S. Rana, University of Wisconsin, Madison
 Chemical Education (co-chairmen) — Wilbert Hutton, Iowa State University
 Tom McCarley, Iowa Western Community College
 Chemistry, Inorg. — Joe D. Woods, Drake University
 Chemistry, Org. and Biol. — James G. Macmillan, University of Northern Iowa
 Conservation — David J. Roslien, Luther College
 Engineering — Jerry Schnoor, University of Iowa
 Geology — Richard G. Baker, University of Iowa
 History & Philosophy of Science — William E. Carroll, Cornell College
 Mathematics — Frank Kosier, University of Iowa
 Physics — Donald Roiseland, Wartburg College
 Physiology — T. E. Rogers, Cornell College
 Psychology — Jack B. Yates, University of Northern Iowa
 Science Teaching — Ross L. Iverson, Marshalltown
 Zoology — Richard S. Wacha, Drake University

Editorial Review Board (PROCEEDINGS)

Nels R. Lersten, Editor, Iowa State University
 Robert W. Hanson, Managing Editor, University of Northern Iowa
 Arnold G. van der Valk, Iowa State University
 James Mayhew, Iowa Conservation Commission
 Richard G. Baker, University of Iowa
 Bruce Friedrich, University of Iowa
 William D. Klipec, Drake University
 Nixon Wilson, University of Northern Iowa

Editor, IOWA SCIENCE TEACHERS JOURNAL

A. C. Haman, University of Northern Iowa

Director, Iowa Junior Academy of Science

Joe Moore, AEA #1, Elkader

Standing Committees

Annual Meeting Committee

Marilyn Bachmann, Iowa State University
 Clifford Meints, Simpson College
 H. T. Horner, Jr., Iowa State University
 Edwin Vaughan, Bettendorf
 Warren Classon, Davenport Community Schools
 Floyd R. Sanford, Coe College
 Board Liaison: Executive Director (R. W. Hanson)

Election Committee

Leland Johnson, Drake University
 Lois Tiffany, Iowa State University
 Stanley Wawzonek, University of Iowa
 T. E. Rogers, Cornell College
 Karl E. Goellner (chairman), Coe College
 Rev. Carl S. Rice, St. Ambrose College
 Board Liaison: Karl E. Goellner

Farm Committee

George Davis, Reinbeck
 Robert H. Hibbs, Marshalltown
 Paul Christiansen (chairman), Cornell College
 Harold Swanson, Drake University
 Russ Wiley, University of Northern Iowa
 Lois H. Tiffany, Iowa State University
 Board Liaison: Lois H. Tiffany

Finance Committee

John McCurdy, Marshalltown Community College
 Edwin Vaughan, Bettendorf
 Harold Swanson, Drake University
 David Hampton, Wartburg College
 Frank Starr, IAS Treasurer (chairman), Waterloo Community Schools
 Charles J. Ellis, Iowa State University
 Fred W. Lott, University of Northern Iowa
 Board Liaison: Frank Starr, Treasurer

Membership Committee

John B. Bowles, Central College
 William L. Brown, Pioneer HiBred International, Inc.
 George Knaphus (chairman), Iowa State University
 Gordon W. Searle, University of Iowa
 David L. Fagle, Marshalltown Community Schools
 Bernard L. Clausen, University of Northern Iowa
 Board Liaison: William L. Brown

Publications Committee

Harrell Strimple, University of Iowa
 Bruce Menzel, Iowa State University
 Margaret Watson, Simpson College
 Richard S. Wacha (chairman), Drake University
 Donald Roiseland, Wartburg College
 Kenneth J. DeNault, University of Northern Iowa
 A.C. Haman (ex-officio), University of Northern Iowa
 Nels Lersten (ex-officio), Iowa State University
 Board Liaison: Nels Lersten

Recognition and Awards Committee

Clayton Armstrong, Roland
 John D. Dodd, Iowa State University
 Burton Loupee, Cedar Rapids
 D.D. Millsbaugh, Iowa Wesleyan College
 Verner Jensen (chairman), University of Northern Iowa
 Robert E. Yager, University of Iowa
 David McCalley (ex-officio) University of Northern Iowa
 Board Liaison: Sister Marguerite Neumann

Social Implications Committee

Cameron Christensen, Iowa Central Community College
 Edward T. Cawley, Loras College
 Mary Alice Ericson, Coe College
 Phillip J. Reitan, Luther College
 Phyllis Kingsbury (chairman), Drake University
 Erwin Richter, University of Northern Iowa
 Board Liaison: Stanley C. Grant

Student Programs Committee

Paul Joslin, Drake University
 Jack A. Gerlovich, Des Moines
 Gary E. Downs (chairman), Ames
 Roy D. Unruh, University of Northern Iowa
 Joseph Beach, Cedar Rapids
 Don E. Murphy, West Des Moines
 Joe R. Moore (ex-officio), Luana
 Board Liaison: Joe Woods

Special Committees 1979-80*Research Grants Committee*

Wayne Merkle (chairman), Des Moines
 Frank Starr, Waterloo Community Schools
 Donald Biggs, Iowa State University
 Roger J. Hanson, University of Northern Iowa

Conservation and Preserves Committee

Duane C. Anderson, University of Iowa
 James Christiansen, Drake University
 James H. Peck, University of Wisconsin, LaCrosse
 Jean Ellen Prior, Iowa Geological Survey
 Sylvan T. Runkel, Des Moines
 Daryl Smith (chairman), University of Northern Iowa

Iowa's Natural Heritage Steering Committee

Stanley C. Grant, Iowa Geological Survey
 Clifford McCollum (chairman), University of Northern Iowa
 Paul Meglitsch, Drake University
 T.E. Rogers, Cornell College
 Richard S. Wacha, Drake University
 Robert W. Hanson, University of Northern Iowa

PAPER PRESENTATIONS, ANNUAL MEETING 1980**Invited Junior Academy Papers**

Curtis Younkin, Central High School, Davenport: Petroleum from plants
 Michelle Wilson, West Delaware High School, Manchester: Characteristics of hepatic regenerative stimulator substance
 Sandra Williams, Marshalltown High School: The metastasizing rate of R3327/131 rat prostatic adenocarcinoma in the copenhagen rat
 Michael O'Brien, Stuart-Menlo Community Schools, Stuart: Astrometric determinations
 Michael Shanahan, Dubuque: The mass production of superior *Picea sp.* with IAA *in vitro*
 Tom Lynch, Central High School, Davenport: Infinitus
 Doug Grier, Marshalltown High School: The effects of microwaves on the germination and growth of glycine max
 Steve Brelje, Kennedy High School, Cedar Rapids: The effect of varying the concentration of alcohol in a gasohol mixture on the production of CO during combustion
 Albert Leung, Iowa City High School: The determination of the extractibility of alumina from the Kanawha (W. Va.) fly ash by the lime-soda sinter process
 Cynthia Watts, Stuart-Menlo Community Schools, Stuart: Cognitive development
 Jennifer Haerer, Muscatine High School: The effects of fluoride treatment prior to acid etching on caries-like lesions of human dental enamel
 Steve Carroll, Clarksville High School: Gaussian decomposition of the spectra of stellar hydroxyl masers
 Sue Schatz, Crestwood High School, Cresco: The use of sodium hydroxide to increase the production of methane from animal waste
 Julie Crouch, Thomas Roberts High School, Decorah: The effect of adenine in preserving neutrophils
 Brad Bocker, Moline High School, Moline, IL: Insulin effects upon blood glucose in alloxan induced diabetic rat

Contributed Papers

(All abstracts of contributed papers, except those not received in time, appeared in the March 1980 issue of the *PROCEEDINGS*, with the name and address of author.)