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Reports - The Board of Directors; The Secretary-Treasurer; Financial Statement; Staff Reports; Committee Reports

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2. Research on the Functioning of the Human Heart and Its Clinical Application

Dr. E. O. Thielen acted as chairman with Dr. W. J. Whalen, Dr. J. W. Eckstein, and Dr. J. L. Ehrenhaft as speakers. These men are all associated with the Medical Research Laboratories, University of Iowa Hospitals.

3. Present and Future Availability of Water

Dr. George M. Browning of Iowa State University at Ames was chairman of this session which had as principal speakers Dr. Luna B. Leopold of the U. S. Geological Survey and Mr. Gordon E. McCallum of the U. S. Public Health Service. Discussants were Mr. Leonard A. Carlson of the Rock Island District, Corps of Engineers, Professor Jeffrey O'Connell of the State University of Iowa, and Dr. John F. Timmons of Iowa State University.

These symposia terminated what many members termed one of the best meetings ever held by the Iowa Academy of Science.

CLARENCE H. LINDAHL, *Secretary*

Report of the Board of Directors

The Board of Directors of the Iowa Academy of Science was called to order at 3:20 p.m. on Thursday, April 21, in the Memorial Union at the State University of Iowa. All members were present except J. D. Woods, who was on official duty at Clinton with the Junior Academy Scholarship Award winners.

Reports of the Secretary-Treasurer, Auditing Committee, Editor, and Librarian were read and accepted by the board, as were the reports of the six standing committees.

The following actions were taken by the board:

(1) Mrs. Elizabeth T. Rogers of Cornell College was appointed associate editor of the annual proceedings.

(2) A trial Conservation section was approved. It was suggested that requests for other new sections should be forwarded to the board in writing, showing the need for and the support of these sections.

(3) The Science Teaching Committee and the Committee on Preparation and Certification of Teachers were requested to confer in order to consider the development of teacher certification requirements and to submit to the board a plan for continued study, including an estimated cost of such a study.

(4) The dates for the 1961 Academy meetings to be held at Simpson College were set for April 21 and 22, with details to be worked out later.

(5) It was agreed that the 1962 meetings would be held at Wartburg College in Waverly.

(6) An invitation was accepted to hold the 1963 meetings at Iowa State University in Ames.

(7) A recommendation was made to the Nominating Committee that the immediate past president serve on the board as member-at-large.

(8) The incoming president and Mrs. K. D. Carlander were authorized to explore possible sources of funds to be used for collecting and publishing historical data on the growth of science in Iowa.

(9) Appreciation was extended to Professor E. M. Vaughan of St. Ambrose College, who has prepared a guide for incoming section chairmen.

(10) The budget for 1960 was approved.

(11) Thanks were extended to Professor Don Lewis and all those who prepared and implemented the application for the National Science Foundation grant to be used to finance a program of Visiting Scientists in Iowa.

The board adjourned at 10:30 p.m. after setting Thursday, April 21, 1961, at 3:00 p.m. as its next regular meeting date.

CLARENCE H. LINDAHL, *Secretary*

Report of the Secretary-Treasurer

There were 1,510 members in the Academy on January 1, 1960, including 2 honorary fellows, 22 emeritus fellows, 11 life fellows, 493 fellows, and 982 associates and student associates.

President W. C. Oelke, Jr., appointed the following new committee personnel:

Conservation—K. D. Carlander, Chairman; R. G. Bullard.

Membership—C. F. Haner.

Science Talent Search—J. D. Woods, Chairman.

Auditing—J. A. Bath, J. L. Laffoon.

Nominating—E. W. Hertel, Chairman; J. B. Culbertson, J. C. Gilman.

Preparation and Certification of Teachers—W. H. Bragonier, Chairman; G. O. Gale, L. P. Johnson, O. C. Kreider.

Resolutions—C. A. Goetz, Chairman; R. A. Rogers, Sister Helene Ven Horst.

The Secretary attended the meetings of the Academy Conference and the AAAS Council in Chicago in December, 1959. Representatives of the state academies reported briefly on the activities of their academies. In addition, Dr. W. C. Oelke, Jr., President of the Iowa Academy, gave an address on the subject "Stimulating Attendance at Paper Sessions of the Academy." The Iowa Academy is in the top three or four academies of the nation in membership.

Arrangements with the Iowa Section of the American Chemical Society are being continued to give that group time during our annual meeting to present an "Iowa Science Teachers Award." This annual award is financed by Iowa industries and is presented to an outstanding high school science teacher.

Our 1959 financial statement appended to this report again shows a net gain in assets, and plans are underway for the Academy to give even greater financial support to projects aimed at promoting science in Iowa.

CLARENCE H. LINDAHL, *Secretary-Treasurer*

Financial Statement

December 31, 1959

Current Expense Account

Balance on hand January 1, 1959.....\$2,336.59

RECEIPTS

1957 dues at \$2.00 per year.....	\$ 8.00
1958 dues at \$2.00 per year.....	78.00
1959 dues at \$2.00 per year.....	2,092.00
1959 dues at \$1.00 per year.....	200.00
1960 dues at \$2.00 per year.....	22.00
Gift	2.00
Interest on U. S. Bonds.....	132.80
Sales of Proceedings.....	412.05
AAAS grants	390.00

Total receipts during 1959.....\$3,336.85

Total receipts\$5,673.44

EXPENDITURES

Stationery and printing.....	\$ 534.26
Postage	448.62
Freight	37.35
Jiffy bags	65.40
Secretary's miscellaneous expense	51.66
Secretary's clerical help	56.26

Editor's office expenses (Volume 66).....	73.61
Editor's clerical help	75.00
C. H. Lindahl, Honorarium	100.00
T. Edwin Rogers, Honorarium	100.00
D. C. Stroud, Honorarium	50.00
1958 AAAS delegate expense (balance).....	32.41
1959 AAAS delegate expense	60.00
Support of 1959 Section programs.....	89.82
Reprints for senior (student) authors.....	140.00
AAAS research grants:	
Sisters Mary Briant, Mary John Catherine, and Mar-	
guerite Neuman, Clarke College.....	122.08
R. S. Witte, Cornell College	200.00
L. R. Caswell, Upper Iowa University	67.92
1959 Academy speaker, honorarium and expenses.....	60.00
Academy Conference, contribution	29.18
Iowa Junior Academy of Science.....	75.00
Bank charges	4.05
Transfer to Savings Account	1,000.00
Mileage:	
W. C. Oelke	17.40
C. H. Lindahl	23.64
George C. Huff	3.50
J. W. Kercheval	9.10
Don Lewis	9.80
T. E. Rogers	2.80
 Total expenditures	 \$3,538.85
 Balance on hand December 31, 1959, on deposit, Union	
Story Trust and Savings Bank, Ames, Iowa.....	\$2,134.59
Savings Account	
Balance on hand January 1, 1959.....	\$1,027.49
Transfer from checking account	1,000.00
Interest on savings account	51.03
 Balance on hand December 31, 1959, on deposit, Union	
Story Trust and Savings Bank, Ames, Iowa.....	\$2,078.52
Bonds	
U. S. Savings Bonds, Series G.....	\$2,000.00
U. S. Savings Bonds, Series K.....	3,000.00
 Total value of bonds held December 31, 1959.....	 \$5,000.00
Statement of Total Assets	
Current Expense Account (checking account).....	\$2,134.59
Reserve Fund	2,000.00
Endowment Fund	4,728.52
Herbert Osborn Revolving Publication Fund.....	350.00
 Total assets, December 31, 1959.....	 \$9,213.11
Total assets, January 1, 1959.....	8,364.08
 Gain in assets during fiscal year.....	 \$ 849.03

CLARENCE H. LINDAHL, *Secretary-Treasurer*

Report of the Auditing Committee

We have examined the Iowa Academy of Science financial records and the Financial Statement for December 31, 1959, and find the accounts in good order. We have personally viewed all assets.

JOHN A. BATH
JEAN L. LAFFOON

Report of the Editor

Copies of Volume 66 of the *Proceedings of the Iowa Academy of Science* were placed in the mail for distribution to libraries on December 18, 1959. A total of 1,920 copies was printed by the Wallace-Homestead Company of Des Moines. Their excellent workmanship and kind cooperation are gratefully acknowledged.

Volume 66 consists of 573 pages. This year a new service was inaugurated for the authors by the Academy. The printer supplied 200 unbound copies of the *Proceedings*, and from these the editor trimmed, assembled, and stapled 100 reprints of each paper. These were mailed free of charge to the authors. This program was carried out on an experimental basis. It was found to entail a considerable addition of effort on the part of the editor, and it is suggested that in the future authors should be asked to staple their own reprints.

The editor wishes to express appreciation to the secretary-treasurer, Dr. Clarence Lindahl, to Mr. S. E. Tennant, State Superintendent of Printing, to the section chairmen, and to the authors, for their contributions to the publication of Volume 66.

T. EDWIN ROGERS, *Editor*

Report of the Librarian

The Library of Iowa State University of Science and Technology is the official depository for the *Proceedings of the Iowa Academy of Science* and acts as its distribution agency, including sales and exchanges.

With pleasure, we report a continued and increased interest in the *Proceedings* of the Academy. There were 1,510 members as of January 1, 1960, although only 1,322 copies of Volume 66, 1959, were mailed at that time to the membership. This discrepancy is due to the fact that 165 members had not paid their dues by that date and that 23 members had indicated that they did not want copies.

There are many requests for the *Proceedings*. One hundred and twenty-two copies of Volume 66 were sent to libraries in the United States on exchange, and 241 copies were shipped overseas to libraries and institutions in 51 different countries. The value of the research journals this library receives on exchange cannot be measured by monetary standards. A number of the scientific journals from countries abroad are obtainable only through exchange and cannot be purchased. Several institutions were dropped from the mailing list on account of their failure to send comparable publications on exchange. However, 32 additional foreign libraries and institutions were added during the year, from which we received valuable publications.

There are 18 standing orders for subscriptions to the *Proceedings*, two of which are from Germany. Ten copies of Volume 66 have been sold on special order, six of which were sent to Switzerland. A number of back volumes were sold to libraries in this country to complete their sets.

The following statistics indicate the distribution of Volume 66, 1959:

Sent to members	1,322
Sent on exchange	363
Sent on subscription:	
Standing orders	18
Special orders	10
Gifts to libraries, government agencies and abstracting journals	30
	<hr/>
Total copies distributed	1,743
Remaining copies available for exchange or sale.....	177

Report of the Iowa Academy of Science Sales Fund

Balance on hand, December 31, 1958.....	\$1,153.05
Sale of <i>Proceedings</i> , including postage	412.05
	<hr/>
Balance on hand, December 31, 1959.....	\$1,565.10

ROBERT W. ORR, *Librarian*

Report of the Committee on Finance and Endowment

The 1959 financial statement shows an increase of \$849.03 in assets during the year, to a total of \$9,213.11. The increase was about \$60.00 greater than the one during fiscal year 1958. Clearly, the tendency to hoard money has not been abated. The Committee reaffirms its belief that ways should be found for bringing and keeping annual expenditures up to the level of anticipated receipts. Further gains in total assets are not justifiable, especially in view of the urgency to strengthen the teaching of science and mathematics at all levels and to arouse the interest of young persons in scientific careers.

A year ago, the Committee recommended that the Board of Directors take necessary steps to cooperate with the National Science Foundation to the fullest extent possible in developing programs aimed at improving science education in junior and senior high schools and providing opportunities for young persons of pre-college age to participate in scientific activities of various kinds. The Committee is gratified to learn that such steps were taken and that a program of visiting scientists to high schools and junior colleges of Iowa will soon be inaugurated—a program to be financed by the National Science Foundation and sponsored jointly by the Academy and the State University of Iowa. Perhaps an additional program concerned with individual student projects in various areas of science can be developed during the coming year, with one or more other educational institutions assuming “housekeeping” and supervisory responsibilities. If surplus funds are anticipated for fiscal year 1960, they might very suitably be used either to strengthen the visiting scientists program or to finance the development of some other project in line with State Academy programs now receiving financial support from the National Science Foundation.

Another possible way of expending surplus funds to advantage is to provide adequate financial support for the 1961 meeting of the Academy, to be held in Indianola. The experience of the Committee in charge of planning the 1960 meeting in Iowa City indicated that substantial amounts of money must be available for honoraria and travel expenses in order to insure a set of lectures and symposia having wide appeal. If the Board of Directors and the membership generally desire to make the annual meeting more than a routine affair, then funds for support of the meeting must be regularly provided.

The Committee wishes to commend the Secretary-Treasurer for his efficient management of the Academy's financial affairs and also

commend the Editor for successfully negotiating the arrangement whereby 100 reprints of papers published in the 1959 *Proceedings* were furnished without cost to the authors. Continuation of giving reprints free to authors is approved.

V. W. BOLIE
 IRVIN H. GERKS
 LELAND P. JOHNSON
 ROY A. NELSON
 FRANK C. PENNINGTON
 DON LEWIS, *Chairman*

Report of the Membership Committee

The committee elected 99 student associates and 105 associates during the past year, ending April 23, 1960.

The following persons were presented for election to membership, or for a change in status of membership, in the Iowa Academy of Science.

Transfer from fellow to emeritus fellow (7): Arthur Bakke, Cornelius Gouwens, Grover Hawk, Harry H. Knight, Max Levine, Emil Witschi, C. C. Wylie.

Transfer from associate to fellow (129): J. A. Adams, E. W. Anderson, Sister Mary Annette, H. George Apostle, L. K. Arnold, William Axmear, Theodore A. Bancroft, Chester R. Benjamin, H. D. Bergman, Theodore I. Bieber, Dale E. Birkenholz, Joseph M. Bish, Victor W. Bolie, Frank E. Bortle, Michael G. Boyer, J. Ernest Breeding, Jr., Douglas G. Brown, Irvin H. Brune, Kenneth D. Burnham, Willis E. Byrd, Richard D. Campbell, Jack L. Carter, Mrs. M. J. Channer, Dorothy W. Cheng, H. F. Chu, George R. Cooper, Tom S. Cooperrider, William Danforth, Robert A. Davidson, Joseph A. Davis, Dwight L. Deardorff, Walter E. Dekock, S. M. Dietz, Kermit L. Dirks, Howard R. Dixon, Fred H. Dorheim, Eugene W. Elliott, John J. Ellis, Jasper H. B. Garner, Irvin H. Gerks, Henry Giese, John D. Goodman, Roger D. Goos, John W. Hall, John M. Hamilton, C. F. Haner, Calvin Hanna, Stewart E. Hazlet, Robert H. Heidel, Alfred B. Heilbrun, Jr., Gertrude W. Hinsch, Irmy V. Holt, Albert Hybl, Robert S. Jacobsen, William J. James, John N. Jessup, Elton L. Johnson, Hugh H. Keasling, Paul W. Kehres, Lorene L. Kennedy, Byron C. Kluss, Robert J. Lambert, Kenneth F. Lampe, Carl E. Langenhop, John M. Lawrence, Paul Lewis Lentz, Louis Levy, Philip J. Leyendecker, Charles P. Littlejohn, Philip J. Lorenz, E. P. Lotz, E. J. McCreary, Richard C. McCrum, Mrs. Phyllis G. McMillan, Mrs. Ruth M. Mahon, Robert W. Meloy,

Steward D. Mettler, S. Porter Miller, Wayne L. Miller, Paul H. Monson, Edward C. Morris, Mrs. Roger M. Morrow, J. Fred Moyer, Richard C. Northup, Robert W. Orr, William C. Paddock, Edward C. Palmer, Jr., Eldon J. Parizek, Mrs. Mary C. Parker, Steven M. Pattee, George T. Peckham, Warren E. Picklum, Alexander I. Popov, T. Wayne Porter, Mahmoud A. Ragab, J. Fred Robertson, Glen A. Russell, Wallace A. Russell, Royal F. Ruth, Prem Nath Sahai, Eugene M. Sallee, Joseph C. Schaffner, Paul B. Selz, Malcolm L. Shirk, Mrs. Jean Jaques Shockley, J. Hervey Shutts, Helen F. Smith, Donald E. Smith, Ernest A. Snow, Jr., Kenneth W. Spence, Frank W. Starr, W. Hugh Stickler, Donald J. Stout, D. C. Stroud, Lois Hattery Tiffany, Iola Tillapaugh, Ted Van Bruggen, Carol J. Von Ohlen, Robert C. Vorhis, Waldo S. Walker, Henry S. Ward, Jr., Ruth Webster, Wesley W. Wendlandt, E. M. White, George T. Williams, G. M. Wissink, Robert E. Yager, George Zabka, Mrs. Zoula Pyle Zein-Eldin.

Election as follows (25): Grace Brush, Lucien R. Brush, Keith E. Burke, Paritosh K. De, Clarence H. Denser, Jr., Benjamin F. Graham, John J. Hanway, Paul Harms, Walter R. Ingram, Floyd M. Lewellen, Phillip A. Lewis, Coleman J. Major, Kanaka Mori, Robert W. Poulter, William T. Reid, Richard Rush, William H. Sandman, Neil E. Salisbury, A. D. Scott, Marcus A. J. Smith, Richard R. Stephenson, Walter L. Steinhilber, Douglas E. Wade, Robert J. Wagnon, John L. White.

The committee reports the passing of the following members (9): C. H. Brown, F. E. Brown, Nandor Porges, W. Merle Robinson, J. A. Schulz, Bruce Stiles, Lester Yoder, R. B. Wylie, Thomas W. Zbornik.

R. W. GETCHELL
 K. E. GOELLNER
 I. J. GWINN
 C. F. HANER
 O. C. KREIDER
 G. CHESTER LEU
 WILLARD J. POPPY
 W. A. TEPPERT
 MARY M. VINJE
 H. L. DEAN, *Chairman*

Report of the Committee on Science Talent Search

About April 10, 1959, notices of the Fourteenth Iowa Science Talent Search were sent out to all the science teachers in the state. During 1959, science teachers in 71 secondary schools secured 385 sets of entry blanks, and 50 completed entries reached Washington, D. C., before the deadline late in December. Two of the entrants from Iowa won national honorable mention.

On February 15 the entries were returned to Iowa. After individual examination of the papers, the Science Talent Search Committee met in Des Moines on April 2 and selected the fourteen honorees for 1960. The Fourteenth Iowa Honor Roll is as follows:

- 1st place—\$300—Philip Russell Wolff, 2742 Bellevue, Bettendorf, Iowa; sponsor, Donald A. Schaefer, Bettendorf High School.
 - *2nd place—\$200—Jane Marie Bader, 724 Clark Street, Iowa City, Iowa; sponsor, Arthur L. Campbell, Iowa City High School.
 - 2nd place—\$200—Joseph Hamilton Ball, 3527 Iola, Des Moines 12, Iowa; sponsor, Herman H. Kirkpatrick, Roosevelt High School.
 - 2nd place—\$200—Joan Lee Socknat, 4504 Morningside Avenue, Sioux City 6, Iowa; sponsor, S. M. Cecilia, Heelan High School.
 - *3rd place—\$100—Albert August Jagnow, 845 Stewart Street, Dubuque, Iowa; sponsor, Wilbur Dalzell, Dubuque Senior High.
 - 3rd place—\$100—James Philip Robbie, 9 Rowland Court, Iowa City, Iowa; sponsor, Arthur L. Campbell, Iowa City High School.
 - 3rd place—\$100—Harry Rex Leffler, 6010 NW 61st Place, Johnston, Iowa; sponsor, Don F. Krell, Johnston High School.
 - 3rd place—\$100—Douglas Owen Wallen, 1409 Alcoa, Bettendorf, Iowa; sponsor, Donald A. Schaefer, Bettendorf High School.
 - 3rd place—\$100—Robert John Weber, P.O. Box 63, Stout, Iowa; sponsor, Donald R. Johnson, Dike Community High School.
 - 4th place—\$ 25—Robert Arthur Alex, 1318 Elmore Avenue, Bettendorf, Iowa; sponsor, Donald A. Schaefer, Bettendorf High School.
 - 4th place—\$ 25—Jane Louise Gearman, 250 23rd Avenue North, Clinton, Iowa; sponsor, Martin E. Hages, Clinton High School.
 - 4th place—\$ 25—Robert Hyde Green, 1038 Holmes, Bettendorf, Iowa; sponsor, Donald A. Schaefer, Bettendorf High School.
 - 4th place—\$ 25—Douglas LeRoy Joslin, Box 77, Amber, Iowa; sponsor, John T. Healey, Anamosa Public School.
 - 4th place—\$ 25—Ronald Richard Speedy, Allison, Iowa; sponsor, K. E. Moeller, Allison-Bristow Community.
- *Honorable Mention in National Science Talent Search.

Each recipient was presented with a certificate of his award on April 22 in Macbride Auditorium of the State University of Iowa, Iowa City, before a joint meeting of the Iowa Academy of Science and the Iowa Junior Academy of Science. The cash scholarships will be paid when the recipients are enrolled in the college of their choice. All honorees have selected the school they hope to attend next year. At this writing, recommendations are being sent to these schools pointing out that these students are worthy of scholarships and other concessions made to students who show exceptional promise in science.

The honorees were entertained at the plant of the Clinton Corn Processing Company, a division of Standard Brands Incorporated, in Clinton, Iowa, on Thursday, April 21. Competent guides explained the many processes to the group. All expenses incurred in making the visit to the plant and attending the Academy meeting in Iowa City were paid by Clinton Corn Processing Company.

Announcements for the Fifteenth Iowa Science Talent Search were sent to over 1,000 science teachers in Iowa high schools on April 1, 1960. Clinton Corn Processing Company has agreed to support this activity again in 1960.

The committee advised the High School Relations Committee of names of students who had submitted papers that might be read before the various Academy sections.

The committee regrets the passing of Dr. F. E. Brown who was instrumental in establishing this program and who served as the very able chairman of the committee since it began in 1949.

The committee wishes to thank: Clinton Corn Processing Company for its financial support; Science Clubs of America for use of the examinations and other papers; the Iowa Academy of Science and the Junior Academy of Science for a place on their programs; the science teachers who gave time and energy to sponsor the contestants; and the news media that aided in spreading information about the program.

CHARLES F. ALLEGRE
R. V. DREXLER
GRANT O. GALE
T. V. MCKELVEY
JOSEPH I. ROUTH
JOE D. WOODS, *Chairman*

Report of the High School Relations Committee

As has been the custom for the past several years, the 1959-60 activities of the Iowa Junior Academy of Science began with a meeting of the Executive Council on the campus of the Iowa State Teachers College, Saturday, September 19. All members of the Council were present except the president, Thomas Hesselmann, of Xavier High School of Dyersville. Those present were: David Bush, Stacyville, vice president; Bruce G. Gronen, Waterloo, secretary; James P. Robbie, Iowa City, treasurer; Frank Starr, Cedar Falls, senior councilor; David L. Fagle, Marshalltown, junior councilor; Sister Mary Janela, BVM, Waterloo, senior director of essays; John R. Bolte, Iowa City, junior director of essays; Walter Gohman, Cedar Falls, director of publications; Ruth Mahon, Cedar Falls, director of exhibits; Lynda Anderson, Cedar Falls, editor-in-chief, *Iowa Science Newsletter*; K. C. Stewart, Cedar Falls, assistant editor-in-chief, *Iowa Science Newsletter*; Dean C. Stroud, Des Moines, executive secretary; J. W. Kercheval, chairman, high school relations committee.

1. The amount of funds reported available for work during the year was \$101.20 in the Senior Academy account and \$475.00 in the revolving fund.

2. It was voted to have Mr. Frank Starr and members of his club continue their work on the re-writing of the constitution. When ready, the revision will be presented in an issue of the *Newsletter* and at the annual convention.

3. Dr. Kercheval introduced a proposal for publication of selected science papers written by high school students of the State of Iowa. The printing costs of this publication plan might be financed by the Iowa Academy of Science or the National Science Foundation.

4. A mimeographed handbook for use of officers and councilors was suggested. This was to be prepared by the executive secretary.

5. A suggestion was made that more time be allowed for judging projects at the annual convention. The arrangement for the extra time would depend on the program of activities planned for the day of the convention.

6. A change in the procedure for judging the essays was presented and accepted. The essays are to be divided into two groups—Junior High, composed of grades 7, 8, and 9, and Senior High, com-

posed of grades 10, 11, and 12. The following division of points to be used in scoring essays was prepared and accepted:

- a) Scientific content—50 points
 - Originality
 - Orientation
 - Research
 - Statement of the problem
- b) Clarity—25 points
 - Graphs and charts
- c) English—25 points
 - Usage
 - Accuracy
 - Grammar

7. A change in the essay program was suggested. In the new plan contributors of essays would not be limited to members of the Iowa Junior Academy of Science. Further study of this suggestion was recommended.

8. The *Iowa Science Newsletter* is to be published as usual. The subscription rate of last year was continued, i.e., twenty-five cents for a single subscription and ten cents per subscription when ten or more copies are mailed to one address.

A new member of the Junior Academy for this year is the Ainsworth Consolidated School. The 1959-1960 membership of clubs is as follows:

Ainsworth.....	Chem-Phy-Bio-Gen Sci Club, Consolidated School
Albia.....	Alpha Theta Sigma Gamma, City High School
Allerton.....	Students of Science, A.C.L. Community School
Carroll.....	C. H. S. Science Club, City High School
Cedar Falls.....	Alpha Beta Kappa, City High School
Cedar Falls.....	Science Club, Malcolm Price Laboratory School
Clear Lake.....	P C ₂ Science Club, City High School
Des Moines...	General Science Club, Amos Hiatt Junior High School
Des Moines.....	Math-Science Club, Roosevelt High School
Des Moines.....	Science Club, East High School
Dyersville.....	Science Club, Xavier High School
Iowa City.....	Phi Beta Chi, City High School
Iowa City.....	Science Club, University High School
Leon.....	Syferds Scientists, Central Community School
Marshalltown.....	Science Club, Senior High School
Mason City.....	Science Club, High School
Newton.....	Science Club, City High School
Oskaloosa.....	Senior Science Club, City High School
Sioux City.....	Science Club, Heelan High School
Stacyville.....	Science Club, Visitation High School
Washington.....	High School Science Club, City High School
Waterloo.....	Science Club, Columbus High School
Waterloo.....	Science Club, East High School

We have continued our regular affiliation with Science Clubs of America. Much valuable information and help is rendered to science clubs by this organization.

Recommendations of the High School Relations Committee for the establishment of a visiting scientists program for Iowa high schools and junior colleges, and for publishing and distributing outstanding papers of scientific investigations carried out by Iowa high school students, have been implemented by action taken by the Board of Directors of the Senior Academy at their fall meeting. A grant from the National Science Foundation to the State University of Iowa has made possible the Visiting Scientists Program for 1960-1961 under the direction of Dr. T. R. Porter. The Committee on Science Talent Search, under the direction of Dr. J. D. Woods, selected six papers from those submitted to them in the science talent search program as suitable for presentation before sections of the Senior Academy. These papers will appear in the *Proceedings of the Iowa Academy of Science*. This action seemed to be the best solution to the problem for this year. It is hoped that some means can be found for selecting and publishing more of such worthy papers in the future.

Several members of the Executive Council met with members of the local arrangements committee in Iowa City to plan for the 1960 meeting. Another meeting of several council members was held in Cedar Falls on February 7 to continue plans and promotion for the 1960 convention.

The 1960 convention of the Iowa Junior Academy of Science was held on the campus of the State University of Iowa at Iowa City on Friday, April 22, and Saturday, April 23. There were 394 registrations from a large number of the clubs with visitors registered from Ruthven, Orange Township of Black Hawk County, North Scott Community School, and Webster City. The exhibits were set up in the science rooms of the Botany Building. These were in charge of the Director of Exhibits, Mrs. Ruth Mahon of Cedar Falls. The local committee arranged for tours of the campus of the University and trips to some of the nearby industries.

At the annual awards dinner on Friday evening the monogram recognition awards were presented to the following pupils:

Ron Gibson, City High, Marshalltown
 Mary Condon, Amos Hiatt Junior High, Des Moines
 Gene Crossett, City High, Waterloo
 David Hacker, Columbus High, Waterloo
 Frances Everman, ACL Community School, Allerton
 Joan Socknat, Heelan High, Sioux City
 Diana Collins, Heelan High, Sioux City

The exhibits shown by the clubs this year were of very high quality. Mrs. Ruth Mahon, director of exhibits, presented awards as follows:

SUPERIOR

City High School, Cedar Falls..... Biological
 Roosevelt High School, Des Moines..... Biological
 City High School, Iowa City..... Biological
 University High School, Marshalltown..... Biological
 Senior High School, Marshalltown..... Biological
 Heelan High School, Sioux City..... Biological
 Price Laboratory School, Cedar Falls..... Biological
 Roosevelt High School, Des Moines..... Physical
 City High School, Iowa City..... Physical
 Price Laboratory School, Cedar Falls..... Physical

EXCELLENT

ACL Community Schools, Allerton..... Biological
 Consolidated School, Ainsworth..... Biological
 East High School, Waterloo..... Biological
 City High School, Cedar Falls..... Physical
 Orange Township School, Black Hawk County..... Physical
 North Scott Community School..... Physical

HONORABLE MENTION

Amos Hiatt Junior High School, Des Moines..... Biological
 Consolidated School, Ainsworth..... Physical
 Central Community School, Leon..... Physical
 Senior High School, Marshalltown..... Physical
 East High School, Waterloo..... Physical

Sister Mary Janela, B.V.M., consented to serve a second year as Senior Director of Essays. She presented the award certificates as follows:

Senior High Division

SUPERIOR

Jane Bader, City High, Iowa City
 Bryce A. Ecklein, City High, Cedar Falls
 Joan Socknat, Heelan High, Sioux City
 Patricia Petty, East High, Waterloo
 Merrill H. Silvey, Price Laboratory School, Cedar Falls
 Janet Gereau, Heelan High, Sioux City
 Robert White, Heelan High, Sioux City
 Mary Ann Dirksen, East High, Waterloo

EXCELLENT

Edward L. Saulvester, Senior High, Marshalltown
 Diane Collins, Heelan High, Sioux City
 Janet J. White, Consolidated School, Ainsworth
 Donna Wood, Consolidated School, Ainsworth
 K. C. Stewart, Price Laboratory School, Cedar Falls
 Kenneth Shearon, Heelan High, Sioux City
 Eddie Versluis, East High, Waterloo

Jacqueline Fehr, East High, Waterloo
Chris Rembolt, Consolidated School, Ainsworth
JoAnn Coon, Community School, Ainsworth
Susan Crook, Community High, Newton
Harold Bigelow, East High, Waterloo
Ronald Gilson, Senior High, Marshalltown
Michael Maricle, East High, Waterloo

HONORABLE MENTION

Sandra Matthes, Consolidated School, Ainsworth
Carolyn Carson, Consolidated School, Ainsworth
Ronnie Simmering, Consolidated School, Ainsworth
Judy Burk, East High, Waterloo
William K. Roberts, Senior High, Marshalltown
David Lundberg, Senior High, Marshalltown
Mike Koehler, Consolidated School, Ainsworth
Cheryl Naylor, Senior High, Marshalltown
Mary Kay Mason, Senior High, Marshalltown

Junior High Division

SUPERIOR

Margaret Stephens, Consolidated School, Ainsworth

EXCELLENT

Sherry Roberts, Consolidated School, Ainsworth
George B. Trotter, Consolidated School, Ainsworth
Jane Hanisch, Price Laboratory School, Cedar Falls

HONORABLE MENTION

Janet Coon, Consolidated School, Ainsworth

At the business meeting of the delegates on Friday afternoon the following clubs were chosen to name student officers for the 1960-61 school year:

Stacyville—President, David Bush
Marshalltown—Vice President, Roberta Allison
Price Laboratory School, Cedar Falls—Secretary (to be named in September 1960)
Roosevelt High, Des Moines—Treasurer (to be named in September 1960)

Recommendations of the High School Relations Committee to the Iowa Academy of Science are as follows:

1. That the appointment of the following persons as adult sponsors be made:

Senior Councilor—David Fagle, Marshalltown
Junior Councilor—Vern Gunderson, Mason City
Senior Director of Essays—John R. Bolte, Iowa City
Junior Director of Essays—Frank E. Buxton, Cedar Falls

Director of Publications—Walter Gohman, Cedar Falls
 Director of Exhibits—Ruth Mahon, Cedar Falls
 Executive Secretary—Dean C. Stroud, Des Moines
 Associate Executive Secretary—Frank Starr, Waterloo

2. That the Iowa Academy of Science continue the policy of encouraging its members to visit the Junior Academy exhibits and to discuss the exhibits with the exhibitors.

3. That a grant of \$75.00 be continued for the financial support of the work of the Junior Academy for 1960-1961.

D. D. MILLSPAUGH

W. J. POPPY

D. C. STROUD

FLOYD STURTEVANT

A. F. VOIGT

J. W. KERCHEVAL, *Chairman*

Report of the Committee on Conservation

The Iowa Academy of Science, representing many disciplines concerned with natural resources, has a special opportunity and responsibility to aid in formulating policies for conservation of the resources essential for the future. While wise development and utilization of the resources must be a major consideration, we always need to be sure that the less tangible values to be derived from natural areas, from undeveloped resources, are not lost forever. As an Academy of *Science*, we stress the research and educational values of such areas. The Committee on Conservation has attempted to review the major developments of the past year and to report on the present status in the conservation of Iowa's natural resources.

The Iowa Water Rights Law, which went into effect on May 16, 1957, confirmed the fact that all waters within the state, both surface and underground, belong to the people of the state and declared them subject to regulated use for beneficial purposes. This pioneering effort in the more humid area of our country is believed to be the first comprehensive water rights law to become effective in the 31 "Eastern States". Administrative responsibility of this law, a part of Chapter 455A of the Iowa Code, is assigned to the Iowa Natural Resources Council.

Scarcity of basic data has handicapped the administration of this law. Studies are being initiated to determine the effects on fish life and other recreational interests of regulated withdrawals of water from streams. Miscellaneous measurements of low flows in streams

have been made at about 450 locations in the state to supplement the flow information obtained at the 111 regular gaging stations.

Reports from the Iowa Geological Survey indicate that in 1959 ground-water levels and stream flow varied with precipitation, and although stream flows were erratic the ground-water levels trended upward to record high levels. During January and February all streams were flowing below normal, and some streams in the north were near record low. Flows increased during the next three months, but June was dry and most streams were below normal and remained so through September with the one exception of the Weldon River in the south central area in early August. The flows during the remainder of the year were well above normal. Many wells established new monthly highs. The water level in the key observation well near Marion established a record high in December at 9.75 feet above its level at the beginning of the year.

As of December 31, 1959, 548 applications for use of water for highway construction had been received; 293 for industrial use; 530 for irrigation use; 57 for municipal purposes; 33 for recreational uses; 138 for storage; and 3 for drainage wells. Legal notices are published and a public hearing held on each application prior to the filing of the required determination on whether or not a permit should be granted. Permits have been granted on most of the applications with such regulations and restrictions as are deemed necessary to protect the interests of the people of Iowa. All of the permits granted include requirements that records of amounts and rates of water use shall be submitted. Reports of water level measurements, cooperation in investigations of the effects of the permitted withdrawals on ground water levels, and other desirable information is also required of permittees when deemed important.

Other amendments to Chapter 455A enacted by the Legislature in 1957 require Council approval of activities on flood plains which might adversely affect flood flows. During the remainder of 1957 Council Orders approving eight such activities were issued; 73 Orders were issued in 1958; and 134 in 1959.

Iowa farmers show a steady progress in applying needed soil and water conservation practices to their land. At the end of 1959 over 70,000 farmers were cooperating with their soil conservation districts in planning and applying the needed conservation practices, a gain of over 3,000 during the year. In Iowa's 100 soil conservation districts, 4,590 new soil and water conservation farm plans were developed in 1959. A total of 46,907 district cooperators now have basic soil and water conservation farm plans on 8,105,544 acres. Some of the more important practices represented in the basic plans and applied to the land to July 1, 1959, include: contour farming

3,087,387 acres; pasture planting, 315,862 acres; tree planting, 9,075 acres; hedgerow planting as part of a wildlife practice, 300,322 acres; farm pond construction, 2,548; terraces, 37,201 miles; waterway development, 106,082 acres; strip cropping, 267,747 acres; and drainage, all types, 526,776 acres. Many farmers have applied improved practices on their own accord which are not listed in the official records.

The small watershed movement continued to grow and is becoming widely recognized as a practical method of meeting the erosion and flood problem. Construction has been completed on Simpson Creek Watershed in Fremont County Soil Conservation District. Construction continued in the Rocky Branch Watershed in Jefferson County Soil Conservation District, Crooked Creek Watershed in Guthrie, Audubon, and Cass County Soil Conservation districts. At least 10 more Iowa watersheds made application for assistance under the Watershed Protection and Flood Prevention Act, Public Law 566, during 1959, and work plans preparation began on 6 watersheds. Work plans were developed in cooperation with the local soil conservation districts and state and federal agencies for the following watersheds: Mill-Picayune, a watershed of 62,994 acres in Crawford, Harrison, and Shelby County Soil Conservation districts; Big Park Watershed in Crawford County Soil Conservation District which covers 7,674 acres; the Badger Creek Watershed, 34,346 acres in Madison, Dallas, and Warren Soil Conservation districts; and the Big Creek Watershed in Crawford County, where the work plan is completed and is now awaiting signature of sponsors. The Iowa State Legislature appropriated \$50,000 to augment the Watershed Planning Party of the Soil Conservation Service in order to speed up work plan preparation.

The Soil Conservation Service, in cooperation with other agencies of the Department of Agriculture and with state agencies, completed a Conservation Needs Inventory and forwarded it to Washington in December, 1959. The Inventory will aid considerably in assisting and guiding national, state, and local programs in accomplishing the over-all objective in the field of soil and water conservation through 1975. The Service continued its technical responsibility for ACP practices, and approximately 29,000 referrals were serviced during the year.

Soil surveys reports were prepared by the Service in cooperation with Iowa State University. A total of 1,020,904 acres of soil surveys were made by Service Soil Scientists on Iowa farms in 1959, making a total to date of 17,801,772 acres.

A total of 780 woodland owners were provided help by the farm foresters of the Conservation Commission, but the foresters were

unable to keep up with requests for technical assistance. Over 19,730 acres of timber were placed under management, resulting in a gross return to the owners of over \$35,000 from products harvested. Over 1,500,000 trees were planted for forestry purposes. In addition, 2,500,000 trees and shrubs were planted primarily for wildlife food and cover and erosion control purposes. Forest and grassland fire prevention programs have been extended by the Conservation Commission so as to cover the entire state. In cooperation with rural fire companies and county school superintendents, fire prevention poster contests for school children were held in many counties. "Smokey Bear", the symbol for forest fire prevention, appeared before 545,000 Iowans, both young and old. To accommodate the increasing number of people who enjoy family-outdoor-living, without the modern conveniences of parks, large range plans for multiple-use of state forest lands are being developed. Multiple-use programs will be applied first to the Yellow River State Forest in Allamakee County.

An all-time high of 7,257,000 persons visited Iowa state parks in 1959. National figures showed approximately 9 percent increase in state park attendance across the nation, and present indications are that this rate of increase will remain fairly constant for at least the next five years. One of the most noticeable increases in state park use has been in the rapid rise in camping registrations. The number of camper days in 1959 was 135,000, compared to 96,000 in 1958. Camping in state parks brings families together in outdoor recreation in an atmosphere of complete relaxation away from the regimentation of daily living.

The 1959 session of legislature appropriated \$1,517,650 for capital improvements within the Lands and Waters Division. The capital improvement program for the two-year period includes numerous boat launching ramps, picnic area and campground developments, sanitary facilities, and land acquisition for state parks, as well as shoreline raprapping, dredging, and other major improvements on the natural lakes.

Since authorizing legislation was passed in 1955, 50 Iowa counties have established conservation boards and many counties are in the process of purchasing lands and developing parks and access areas within their respective boundaries. The Conservation Commission has appointed a coordinator of county conservation board activities to work with the counties in advising and in reviewing projects. It is felt that the county conservation boards will provide a great share of the day by day local recreational needs in the future, whereas the State Conservation Commission will continue to maintain areas of a state-wide significance through the state park system.

There were 10,977 new boat registrations in Iowa in 1959. The state's artificial lakes were at near normal levels last year, providing excellent opportunities for water recreation in southern Iowa, but many of the natural lakes in the northern part of the state were extremely low due to lack of adequate rainfall.

With increased water volumes, most of the state-owned artificial lakes and city reservoirs showed above normal fish reproduction and growth. Studies to improve the quality of angling by population manipulation continued in Williamson Pond, Lucas County. Growth of bluegills has shown great improvement since approximately 60 percent of the adult bluegill population was removed by fall draw-down and chemical treatment. Investigations of the effects of thermal and chemical stratification on depth distribution, growth, and physical condition of fishes was continued during the year. Preliminary results indicate periodic invasion of the oxygenless layers of water by the bottom feeding species of fish. Largemouth bass and crappie were rarely found below the thermocline. These investigations also revealed an abrupt halt in annual growth patterns during the initial period of severe stratification.

Nearly average rainfall failed to replace the much needed water in the larger natural lakes. The major lakes entered the 1959-60 winter with water levels that approach the lows of the drought experienced 25 years ago. Some of the smaller lakes with large watersheds made substantial gains in volume of water during the year.

The routine surveys of the fish populations in the natural lakes reflect the unsettled conditions brought about by drought and consequent reduction in available fish habitat. Bullheads and rough fish species were able to take advantage of the situation in many areas. In East Okoboji Lake, for example, it was necessary to remove over 500 pounds of bullheads per acre in order to provide a faster growth rate of the bullheads and improve conditions for other species. The entire fish population was eradicated from Storm Lake in an effort to get rid of the rough fish problem that has plagued this lake for many years.

Quantitative creel census data were collected from seven of the larger natural lakes with a combined surface area of 17,467 acres. The results indicate that the average acre of water had about 9 percent more fishing pressure and over 100 percent increase in success per hour of fishing. This increase in success is largely due to an increased catch of bullheads, which comprised 81 percent of the 2.5 million fish caught.

The study and investigation of new fish hatchery techniques were continued. Knowledge gained in the use of pituitary injections will have a decided effect on hatchery production of northern pike and

channel catfish eggs. Transportation of the fry of northern pike, walleye, and largemouth bass in plastic bags was initiated for the first time during the 1959 hatching season.

Most of the fish in the Sweet Marsh Management Area, Bremer County, died during the winter of 1958-59 because of low water levels. Growth of the remaining bullheads and of young largemouth bass and northern pike stocked in the spring was very rapid in the summer of 1959. Severe winterkills of fish also occurred throughout much of the upper portions of the watersheds of the Iowa and Cedar rivers. Stocking hastened recovery of game fish populations in the Cedar and Shellrock rivers, but fish populations remaining in the Iowa River from Belmond to Steamboat Rock were largely undesirable, and control and restocking are planned for 1960.

Water stages were favorable in most Iowa rivers in 1959, resulting in increased fishing effort and success. In the northeastern streams there was the first successful northern pike hatch since 1951. Rough fish, principally carp, quillback, and a variety of other suckers, continue to comprise as much as 90 percent of the total poundage of fish in many central Iowa streams. Smallmouth bass populations have almost vanished in central Iowa, and reproduction was low in the eastern streams.

The State Conservation Commission continued its cooperation in the five-state Upper Mississippi River Conservation Commission. Over 1,000 walleyes and saugers were tagged for study of their movements and harvest. The creel census was improved statistically to provide measures of fishing pressure and harvest as well as fishing success.

Studies at Clear Lake by the Iowa Cooperative Fishery Research Unit this year have involved measurements of the amount of organic matter produced by the plankton algae, of the utilization of this food by crustaceans, and of the fish populations. Slow-growing yellow bass were found to be low in blood protein, which increased after supplemental feeding. Age and growth studies of walleyes indicate that stocking of over 5,000 fry per acre has increased the number of walleyes in Clear Lake. In developing creel census methods for use on rivers, it was determined that a seven-mile stretch of the Des Moines River in Boone County provided between 10,000 and 13,000 man-hours of fishing per mile per year, and the annual harvest was estimated at 119 pounds per acre, or 3,300 pounds per mile of stream. Life histories of caddisflies and mayflies, which are so abundant as to create a nuisance when they emerge from the Mississippi River, are being investigated to determine effects of possible control efforts upon fish and other aquatic life.

Continued drought throughout the northern prairie regions of the

continent further reduced waterfowl habitat, necessitating shortening of the hunting season. Not more than one canvasback or redhead could be included in the bag since these species were particularly low in abundance. An age ratio of 0.5 young per adult mallard killed in the Mississippi Flyway indicated a heavy harvest of the breeding stock of this species. Wood duck populations in Iowa and within the Flyway have improved, and goose populations apparently remain in satisfactory condition. The Conservation Commission entered into a contract with the U.S. Fish and Wildlife Service for a statistical analysis of the 1959 kill of waterfowl in Iowa.

Although the 1959 spring breeding population of pheasants was very high, production was below normal and caused a decline in the fall population. Adverse spring weather conditions delayed nesting activity, and acreages of row crops which removed favorable nesting cover were increased. Hunting conditions were extremely difficult during the 1959 season. Only 15 percent of the record corn acreage had been harvested and opening weekend hunters were greeted by midwinter weather. The average hunter required 4.4 hours to bag a bird, compared with 3.1 in 1958 and 3.7 in 1957. Sex ratio counts indicated a below average harvest because of heavy cover conditions during the season.

Bobwhite quail inhabit suitable permanent brushy cover throughout Iowa. Excessive rainfall depressed the 1959 midsummer hatch in south-central Iowa, and fall hunting success was 1.8 man-hours per quail compared to southeastern Iowa which reported 1.2 hours per quail. In Allamakee County, ruffed grouse are as plentiful as in good Wisconsin range. There are resident populations in four other northeastern Iowa counties, but numbers have declined since 1954. The only 1959 record of prairie chickens in Iowa was a report made to the officer in Mills County that a small flock was seen in the vicinity of Willow Slough Public Shooting Area.

A moderate decline in cottontail rabbit numbers was apparent in 1959, but the roadside index of 6.2 rabbits per 10 miles was still about twice that of 1953 and 1954. The hunting season was extended three weeks, to February 21. Of 63 adult female cottontails examined, none bred earlier than February 23. The jackrabbit population showed no change and marketing of jackrabbits in northwest Iowa continued.

Squirrel hunting was poorer than normal in 1959 because much of late September and October were windy and rainy. Furthermore, squirrel populations were down, particularly in eastern Iowa, as the result of most shortages in 1958 and a relatively severe 1958-59 winter. Fewer early litters resulted.

According to the Conservation Officers' February Deer Census of

1959, the Iowa deer herd numbered 11,705, about 10 percent above 1958. All counties except Grundy reported resident deer populations, with population estimates for the several counties ranging from 1,400 to 0. Largest concentrations of deer are to be found in the northeastern counties and along the Missouri River. The total deer kill for the 1958 open deer seasons was 2,891, with bowhunters accounting for 162 deer (one per 363 hours) and shotgun hunters for 2,729 (one per 30 hours).

The only extension in known range of Iowa mammals reported this year was that of two short-tailed weasels taken by Harold H. Burgess at Union Slough National Wildlife Refuge, Kossuth County, about 50 miles east of Spirit Lake, the only other location in Iowa from which this species has been reported. The Mississippi otter population appears to be stable, ranging from Clinton County to Minnesota. Woodchuck reports are still lacking for Sioux, O'Brien, and Osceola counties. Conservation Officer Jack Meggers reported a black-tailed deer killed in Lyon County, the second record for the county and the fourth for Iowa. One wildcat was killed and another sighted at the same time in Clayton County in December, 1959. A number of large wolves, 45 to 80 pounds in weight, have been reported from eastern and southern Iowa the past two years, but there is as yet no evidence that any were the red wolf whose range is known to extend to central Illinois and extreme northeast Missouri. All wolves examined the past two years have proved to be coyote-dog hybrids.

Studies by the Iowa Cooperative Wildlife Research Unit indicate that pheasant populations in the Winnebago and Union-Adair County areas continued at high levels, with 1959-60 winter populations of 235 and 240 birds per square mile, respectively. A special survey failed to reveal blood parasites in Iowa pheasants, with the exception of one case of microfilaria. A similar survey has been initiated on the quail in southwest Iowa. Wood duck roosting flight areas along the Mississippi were mapped, and flight patterns at sunrise and sunset periods were established. Studies on populations of game species and waterfowl along the proposed Saylorville impoundment area on the Des Moines River are in progress. The breeding and fawning seasons of deer in the state have been delineated, and the Iowa deer were found to be highly productive. A majority of the doe fawns breed their first fall.

The new fish and wildlife curriculum at Iowa State University of Science and Technology has enrolled 45 young men interested in training in these phases of conservation work. The undergraduate curriculum puts emphasis upon basic background in the sciences and in communication skills.

The Iowa Conservation Camp at Springbrook State Park sponsored by the State Conservation Commission, the State Department of Public Instruction, and Iowa State Teachers College, held 3 three-week sessions in 1959 to provide primary and secondary school teachers with information and techniques in conservation education. The Soil Conservation Service and many other agencies cooperate in providing instruction in this school, and scholarships are provided many of the students by Soil Conservation Districts and local sportsmen's clubs.

A Conservation Source Book for use in schools has almost been completed by the editorial committee of the Iowa Conservation Council.

Drs. George O. Hendrickson and George B. Hartman were cited by the Iowa Division of the Izaak Walton League of America, Inc., for their "Outstanding Service to Conservation".

J. M. AIKMAN
 R. D. BULLARD
 M. A. ELLERHOFF
 H. G. HERSHEY
 F. H. MENDELL
 E. P. POLDER
 E. B. SPEAKER
 K. D. CARLANDER, *Chairman*

Report of the Resolutions Committee

1. Be it resolved that the Iowa Academy of Science express its thanks to Professor Don Lewis, Chairman, and his *ad hoc* committee consisting of Professors E. W. Hertel, H. L. Dean, C. H. Lindahl, and W. C. Oelke, who have been responsible for the planning and implementing of the very unusual program which we are enjoying at this meeting.
2. Be it resolved that the Iowa Academy of Science express its appreciation and gratitude to Professor S. D. Tuttle, chairman of the local arrangements committee, to the committee as a whole, and to the State University of Iowa for the superb accommodations and hospitality provided for this meeting.
3. Be it resolved that the Iowa Academy of Science express its thanks and appreciation for all the excellent talks and papers presented during the meeting and to the outgoing officers and discussion leaders.

4. Be it resolved that the Iowa Academy of Science express its thanks to Dr. George T. Peckham, Jr., and the Clinton Corn Processing Company, Division of Standard Brands, Inc., for the continued support of the high school scholarship award program, and to Professor J. D. Woods of Drake University and his committee for carrying on the Iowa Science Talent Search in the place of the late Dr. F. E. Brown.

5. Be it resolved that the Iowa Academy of Science express its appreciation to the Iowa Section of the American Chemical Society and to the industry of Iowa for its support of the Iowa Science Teachers Award.

ROBERT A. ROGERS

SISTER M. HELENE VEN HORST

CHARLES A. GOETZ, *Chairman*