

# Proceedings of the Iowa Academy of Science

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1946

## Reports - Executive Committee; Secretary; Treasurer; Staff Reports; Committee Reports

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prairie land in Iowa. This is to be above the one hundred dollars (\$100.00) granted to the Conservation Committee last year.

The Membership Committee's report was accepted and the acceptance of this report included the privilege of adding more names if received at the time of this meeting and endorsed by the chairman of the membership committee and the Secretary of the Academy.

Dr. Gilman made a report for the Finance committee stating that they had authorized the Treasurer to dispose of the Midland Investment Corporation stock and bonds. The report was accepted.

The special committee appointed to study the endowment fund is to report at the business meeting of the Academy. The report of the High School Relations Committee was accepted.

The report of the Committee on Legislation was accepted with the reservation that the recommendations in the report be referred to the Resolutions Committee for presentation to the general meeting.

The report of the special committee on the Certification of Science Teachers was accepted, including the resolutions and recommendations in the report.

It was moved and accepted that Dr. R. L. King and his committee on grants of aid be continued and be empowered to act on applications for aid in research.

It was moved and accepted that the Iowa Academy of Science contribute a sum of one hundred dollars (\$100.00) to the A.A.A.S., building fund.

It was moved and accepted that the treasurer be instructed to see that the sum of seventy-five dollars (\$75.00) is available to the Junior Academy for the conduct of their activities.

A motion was made and accepted that suitable expenses for transportation of in-between committee meetings be allowed and be paid by the treasurer.

A motion was made and accepted that the editor's honorarium shall be one hundred dollars (\$100.00) per year.

The invitation was extended by the Iowa State Teachers College to the Academy to hold the 1947 meeting at Cedar Falls. This was accepted.

The meeting then adjourned.

CORNELIUS GOUWENS,  
*Secretary-Treasurer.*

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#### REPORT OF THE SECRETARY

We have a sense of relief and great satisfaction that the Academy can return to its well-established custom of holding an annual two-day convention.

Although the war has interfered with the regular meetings, the membership has held up to a remarkable extent. At present, I am carrying a total of 641 names, distributed as follows: honorary 1,

emeritus 4, life 20, fellows 281, associates 335. However, this does include about 50 names of members who have not responded recently, of these several because of absence in the service of the nation. Some of these names may be recovered. The membership total has fluctuated only slightly from 650 during the last four years. That the interest in the Academy has not been lessened can be seen by noting the income from dues received by me as treasurer. In three years, 1943-44 to 1945-46, I collected \$1995.75. Above this I have already collected \$285.00 of 1946-47 dues. It was a source of gratification that volume 51 of the Proceedings could be distributed before the time of this meeting. Members have a more evident reason for paying dues when the copy of the Proceedings is in their hands.

Several vacancies in the standing committees and section chairmen occurred during the year. These were filled by successors appointed by the president. Dr. Bruce Stiles was named chairman of the committee on Legislation to serve 1945-51. Charles Gilly was appointed chairman of the committee on Biological Survey to serve 1946-52. Warren N. Keck was appointed to the High School Relations committee. J. B. Culbertson was appointed chairman of the section of General and Physical Chemistry after W. L. Dunn resigned. E. N. Oberg was appointed chairman of the Mathematics section after J. H. Butchart resigned. Several standing committees will have to be reconstituted.

A committee was appointed for the purpose of making a study of the endowment fund. This consists of L. P. Sherman, chairman, G. W. Martin, H. S. Conard, H. E. Jaques, E. W. Lindstrom.

A committee was appointed to make a study of the use and distribution of our AAAS allotment of money for aid in research. This committee consists of R. L. King, chairman, J. B. Culbertson, M. T. Henderson, W. A. Anderson, C. S. Gwynne, C. Gouwens.

Dr. Gilman appointed a special program committee to study and decide on the place and type of meeting. By previous instruction of the Academy, the vice-president is in charge of the general program. The committee named to help Dr. Bodine consists of E. L. DeGowin for the Iowa Medical Association, F. G. Brooks, L. T. Earls and C. Gouwens.

Professor A. A. Aardal was asked to represent the Academy at the inauguration of the Reverend Mr. Becker as president of Wartburg College.

President Joseph C. Gilman represented the Academy at the Academy Conference held in connection with the meeting at St. Louis of the American Association for the Advancement of Science. Here is his report:

The Academy Conference met at 4:00 p. m. Wednesday, March 27, in the Jefferson Hotel. Dr. Tehon of the Illinois Academy reported on the handling of research grants by the Academies. He recommended that they be the responsibility of a grant's committee which would not only pass upon the qualifications of the grantee but would follow up the work and receive reports from

1946]

## REPORTS

23

the project at its conclusion. The type of problem to which grants were made and the methods of procedure were discussed.

Following the discussion of Dr. Tehon a general discussion of the use of the Academies were making of the Talent Search of the Science Clubs of America occurred. The question of rewarding the "also-rans" in that competition was commented upon by various representatives. The possibility of local scholarships was brought up. The Virginia Academy was rewarding state winners with bond awards. The University of Wisconsin has a paid secretary for the Junior Academy of that state who is a member of the University staff.

Respectfully submitted,  
CORNELIUS GOUWENS, *Secretary*.

REPORT OF THE TREASURER  
March 1, 1946

Cash on hand March 1, 1945.....		\$ 548.00
Receipts		
Dues* .....	\$ 642.00	
Sales of Proceedings .....	91.51	
Interest .....	44.40	
Redeposit of returned checks .....	2.00	
Iowa Conservation Commission for Academy Conservation Committee .....	100.00	
Sales of Midland Investment Corporation Stock and Midland Theatre Corporation bonds.....	263.25	
	<u>\$1143.16</u>	
Total .....		<u>\$1691.16</u>
Disbursements		
Printing .....	\$ 56.86	
Postage, Envelopes .....	33.53	
Editor's office expense .....	13.62	
To Savings account (Sale of bonds, stock) .....	263.25	
To Savings account (Fellows' fees) .....	28.00	
L. R. Wilson, Editor's stipend .....	50.00	
D. C. Stroud, stipend Secretary Jr. Acad. ....	25.00	
R. W. Getchel, Membership Comm. expense .....	1.41	
Klipto Loose Leaf Co., reprints of revised constitution .....	7.77	
Purchase of set of Proceedings .....	51.45	
Union Story Bank, box rent .....	1.80	
C. Gouwens, Stipend, Secretary-Treasurer .....	100.00	
Secretary's office expense .....	3.28	
C. H. Brown, Librarian, postage .....	1.51	
Bank charge, returned check .....	1.00	
Bank charge, exchange .....	1.61	
To Ada Hayden, Conservation Committee ex- penses .....	79.06	
	<u>\$ 719.15</u>	
Balance on hand March 1, 1946 .....		\$ 972.01

\*This includes \$218.00 of 1946-47 dues collected in advance in February.

ENDOWMENT FUND

March 1, 1946

Balance on hand, March 1, 1945 .....	\$ 324.11
Receipts	
Interest .....	\$ 3.24
Fellows membership transfer fees .....	28.00
From Sale of Midland Investment Corporation preferred stock with Midland Theatre Cor- poration bonds .....	263.25
	\$ 294.49
Balance on hand March 1, 1946	
On deposit Union Story Trust and Savings Bank, Ames, Iowa .....	\$ 618.60

HOLDINGS AND SECURITIES

Iowa Academy of Science, March 1, 1946

United States Treasury bond Series F. Face value \$1000.00 purchased December 1943. Due 1955, present value .....	\$ 749.00
United States Treasury bonds, Series D. Face value \$675.00, purchased July 1939. Due 1949, present value .....	587.25
United States Treasury bonds Series G. ....	1500.00
Savings Account (Endowment Fund) March 1, 1946. Union Story Trust and Savings Bank .....	618.60
Checking Account, March 1, 1946, Union Story Trust and Savings Bank .....	972.01
	\$4426.86

Respectfully submitted,

CORNELIUS GOUWENS,

*Secretary-Treasurer.*

Audited, March 7, 1946.

H. M. HARRIS

J. A. WILKINSON

M. F. FRITZ

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REPORT OF AUDITING COMMITTEE

The undersigned committee appointed to audit the books of the Iowa Academy of Science have this day received the books from the Secretary, have carefully checked the assets and liabilities, and report that the accounts are in proper form and correct.

Signed:

H. M. HARRIS, *Chairman.*

J. A. WILKINSON

M. F. FRITZ

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REPORT OF THE EDITOR

The Proceedings of the Iowa Academy of Science for 1945 are being published in Volume 52. The publication consists of addresses

and papers of original investigation by thirty-nine members.

Volume 52 is at present partially in galley proof. War-time printing difficulties and change of printers have prevented an earlier completion of the publication.

The editor wishes to express his appreciation to those who have helped solve the many difficult editorial and publication problems that have arisen during the present year.

Respectfully submitted,

L. R. WILSON, *Editor*

April 19, 1946.

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### THE REPORT OF THE IOWA STATE COLLEGE LIBRARY

February 28, 1946

Since the cessation of hostilities last August, the Iowa State College Library has been endeavoring to reestablish the exchange relationships which were interrupted by the war. We are again receiving current publications from the Scandinavian countries, the Netherlands, France, Belgium and other European countries. As we requested early in 1940, most of these institutions were able to hold war issues of their journals for us, and these earlier volumes are reaching us at intervals.

Through the International Exchange Service we are now able to send the *Proceedings* to practically all our exchanges except for those in Austria, China, Czechoslovakia, Germany, Italy, Japan and Poland.

As far as possible, we have forwarded to foreign institutions the recent volumes of the *Proceedings* which we have been holding since 1940. We have received many letters of appreciation from librarians acknowledging these shipments.

As in the past few years, the figures below do not represent the series actually received, but the publications due us on exchange.

#### Number of Institutions on Mailing List:

Domestic .....	129
Foreign .....	69
	198

#### Number of publications normally received from these institutions:

Domestic .....	374
Foreign .....	175
	549

#### Number of Publications Received on Direct Exchange:

Domestic .....	60 from 42 institutions
Foreign .....	26 from 22 institutions
	86 from 64 institutions

#### Number of Publications Normally Received in Exchange for Iowa

Academy of Science Proceedings Plus Publications of Iowa State College:

Domestic .....	314	from 58 institutions
Foreign .....	149	from 41 institutions
	<u>463</u>	<u>from 99 institutions</u>

Note: These publications are normally received for a combination of the Iowa Academy of Science Proceedings with any of the following: Iowa State College Journal of Science, Iowa Agricultural Experiment Station publications, Iowa Engineering Experiment Station Bulletin.

INSTITUTIONS RECEIVING THE PROCEEDINGS AS GIFTS:

6 U. S. Government Agencies
22 Iowa Libraries
2 Foreign Institutions (For absertracting)
<u>30</u>

REPORT ON IOWA ACADEMY OF SCIENCE SALES FUND:

Balance on hand March 1, 1945 .....	\$133.97
Sale of Volumes of Proceedings plus postage .....	91.51
	<u>          </u>
Total Receipts .....	\$225.48
Disbursements for Postage .....	\$ 1.51
Total Disbursements .....	<u>\$ 1.51</u>
Balance 2-27-46 .....	\$223.97

C. H. BROWN,  
*Librarian.*

REPORT OF THE COMMITTEE ON BIOLOGICAL SURVEY

As a part of its activity, the Committee on Biological Survey has decided to sponsor an organized program of research on the Flora of Iowa. This program will be organized on a cooperative basis, with all botanical workers and institutions within the state invited to participate.

Numerous county floristic lists and monographic treatments of botanical families and genera have appeared in print during the last fifty years. We propose to stimulate additional publications of this type in which all available herbarium resources of the state will be utilized. Many areas within the state are scarcely, if at all, represented by botanical collections; much additional collecting, therefore, must be done before our flora is known. It is imperative that collections from such botanically unexplored areas be made in the immediate future before native species still remaining in these areas are obliterated by agriculture. A part of our program will be an organized plan for prosecuting such necessary collecting work.

It is anticipated that an annotated check list of Iowa plants, accompanied by identification keys and notes on geographical distribution of species will be prepared in the near future. Such a check

list will serve the purpose of making presently available botanical information accessible to the public and it will also be useful as a guide to the work of collecting and study needed to complete a survey of the native plant resources of the state.

The ultimate goal of this phase of the Committee's program of activity will be the preparation of a definitive publication on the flora of Iowa.

H. E. JAQUES

T. C. STEPHENS

R. B. WYLIE

C. L. GILLY, *Chairman*.

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#### REPORT OF THE COMMITTEE ON FINANCE

The Finance Committee authorized the sale of the Midland Theater and Office Buildings, First Mortgage Fee and Leasehold Sinking Fund 3% Registered Bond, and preferred stock of the Midland Investment Corporation. The financial rating of these holdings made them somewhat unsuitable for endowment fund investment.

At the suggestion of this committee a committee of the Academy, G. W. Martin, H. S. Conard, H. E. Jaques, E. W. Lindstrom and L. P. Sherman, chairman, was appointed to make recommendations as to policy for the utilization or conservation of the Endowment Fund of the Academy and report to the Executive Committee.

Finally this committee has been informed of the financial condition of the Academy and congratulates the treasurer on the excellent condition of our treasury.

Respectfully submitted,

JOSEPH C. GILMAN,  
*Acting Chairman*.

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#### HIGH SCHOOL RELATIONS COMMITTEE

The work of this committee for the year 1945-6, has been conducted principally by correspondence. The one meeting of the committee was held on Friday evening, April 19, 1946.

On December 1, 1945, the officers of the Junior Academy and the chairman of this committee met at Iowa City. At this meeting Alvin E. Walz of the University High School at Iowa City was appointed Senior Councilor, and Myra G. Willis of Wilson High School was appointed Junior Councilor. The group decided to renew all prewar activities as rapidly as possible. The Senior Councilor, Mr. Walz, was put in charge of the two day program which has just been conducted here during the last two days. Three fine lectures, a competitive exhibit, the reading of the three highest ranking essays in an essay contest and an evening of recreation, refreshments and dancing were parts of the excellent program which he set up.



The Junior Councilor, Miss Willis, guided her club at Wilson High School in the publication of the News Letter. Two numbers December 1945, and March 1946, have been issued and distributed. A third number which will report this meeting will be published soon.

John C. W. Bliese, Science Supervisor of the Campus School at State Teachers College, Cedar Falls, Iowa, issued and circulated invitations to participate in an essay contest on scientific subjects. The essays were sent to F. E. Brown, Iowa State College, who arranged for having them graded. Dean C. Stroud of Des Moines, the permanent secretary of the Junior Academy has attended all meetings, correlated all activities and assisted each and every person working for the restoration of the activities of the Junior Academy. The value of his assistance cannot be overestimated. The student officers for the year were: President, Robert B. Dickey, Keokuk; Vice-President, Bernard Christensen, Cedar Rapids; Secretary, Beverly Anderson, Cedar Rapids; Treasurer, Ronald Jespersen, Des Moines.

Cooperation with Science Clubs of American continues. Their reports list 285 clubs in Iowa which have been in communication with them. They have large resources and can prepare any published aids for science clubs. They do send out much free literature and other articles for the use of science clubs at low cost. The Junior Academy cannot compete with them in this field. We can call the attention of all clubs to their service. We receive a list of sponsors and their addresses whenever the sponsors write to Science Clubs of America. We can send the News Letter to all such sponsors for use in their clubs. We can organize meetings and invite all clubs in Iowa to attend the meetings. We hope to be able to make such cooperation profitable to the clubs and to the Junior Academy.

At the Grinnell Meeting April 19 and 20, 1946, six schools were represented and five had exhibits. About 125 high school students attended the meetings. This year the Junior Academy has started a new award. It is a certificate of merit awarded to each club which reports to the permanent secretary some commendable activity beyond the ordinary club activities. Such activities as conducting a science fair or exhibit, aid in conservation of rare plants and any other unusual services to science will be recognized in this way.

This committee wishes to nominate for Senior Councilor, Myra G. Willis, Cedar Rapids; for Junior Councilor, Harold R. Blanchard, Keokuk; for director for essay contest, John C. W. Bliese, Cedar Falls.

At the business meeting the following officers were elected for the year 1946-7: President, Richard Othmer, Keokuk; Vice-President, George Holmes Teachers College High School, Cedar Falls; Secretary, Mary Ann Rebec, Wilson High School, Cedar Rapids; Treasurer, Jerald Wolfson, Amos Hiatt High School, Des Moines.

F. E. BROWN  
ELERY R. BECKER  
WARREN N. KECK  
D. C. STROUD

## REPORT OF THE COMMITTEE ON LEGISLATION

During the year 1945, two bills of major importance in the field of science were drawn up and introduced in the 79th Congress. They were S. 1285 by Mr. Magnuson which was referred to the Committee on Commerce and S. 1297 by Mr. Kilgore which was referred to the Committee on Military Affairs. These were companion bills and were designed to promote the progress of science and the useful arts, to secure the national defense and to advance the national health and welfare.

Early in 1946 the Senate Commerce Committee with the subcommittee of the Senate Military Affairs Committee considered S. 1285 and S. 1297. As a result of these hearings, S. 1850 was substituted for the two bills and was reported out of the committee and as this is written (April 12, 1946) it is now on the calendar of the Senate, and has been assigned calendar No. 1153.

The bill recognizes that full development and application of the nation's scientific and technical resources is essential for national prosperity. It proposes to establish an independent agency of the Federal government to be known as the National Science Foundation, to be directed by an Administrator who shall be appointed by the President by and with the advice and consent of the Senate, and shall receive a salary of \$15,000.00 per year. The Administrator is empowered to appoint a Deputy Administrator who shall receive \$12,000.00.

There shall be within the Foundation a Division of Mathematical and Physical Science, a Division of Biological Science, a Division of Social Sciences, a Division of Health and Medical Science, a Division of National Defense, a Division of Engineering and Technology, a Division of Scientific Personnel and Education, a Division of Publications and Information, and such additional divisions, not to exceed three in number, as the Administrator may, from time to time, establish. Each division shall be headed by a Director, appointed by the Administrator, who shall receive a salary of \$12,000.00 per year. In addition, the Administrator shall appoint and fix the compensation of such additional personnel as he deems necessary to carry out provisions of the act. The number of employees is, however, limited to some extent by the provisions of the act. The Administrator is authorized to enter into contract with other government agencies or organizations for research and other activities.

Of the funds appropriated to the Foundation, not less than 25 per cent shall be apportioned among the States as follows: 2/5 shall be apportioned among the States in equal shares and the remainder shall be apportioned among the States in the proportion that their respective populations bear to the population of all states, and the amount so apportioned to each state shall be expended only for carrying on research and development activities in the facilities of tax-supported colleges and universities, including land-grant colleges within such states pursuant to contracts or other financial arrange-

ments made by the Administrator. In making such contracts the Administrator shall give each individual institution the widest possible latitude in its selection of research and development projects. The Administrator is also authorized to award scholarships to persons for scientific study or scientific work in any field of science. Persons shall be selected for such scholarships solely on the basis of aptitude within the limits of such quotas as may be established.

The Administrator shall maintain a Register of scientific and technical personnel, and in other ways provide a central clearing house for information concerning all scientific and technical personnel in the United States and its possessions, but no person shall be listed in such Register without his consent. The bill authorizes appropriations annually from the treasury of such sums as may be necessary to carry out the provisions of the act.

It is the opinion of the Legislative Committee that this bill is of utmost importance in promoting the interest of science and that it should receive the support of the Academy. It is not known to the Committee at this time whether or not this bill is receiving any opposition but the Committee wishes to point out that in most instances, legislators are anxious to carry out the desires of their constituents if these desires are made known to them.

BRUCE F. STILES, *Chairman.*

REPORT OF THE MEMBERSHIP COMMITTEE

The Membership Committee wishes to present the following names for membership in The Iowa Academy of Science:

*Emeritus Fellow*

C. McLean Fraser, Vancouver, Canada.

*Transfer from Associate to Fellow*

Edwin L. Miller, Appleton, Wisconsin.

*Fellows, 15*

Allen F. Agnew.....	Iowa City	G. Chester Leu.....	Pella
John C. Ayres.....	Ames	Guillermo Mendoza.....	Grinnell
Donald M. Coe.....	Ames	T. G. Scott.....	Ames
Edmund S. Crelin, Jr.....	Pella	Francis E. Throw.....	Mt. Vernon
Charles L. Gilly.....	Ames	J. R. Wallin.....	Ames
Arlo H. Hagge.....	Ames	Warren D. Wallinga.....	Pella
Carlyle Jacobsen.....	Iowa City	Aaron W. Welch.....	Ames
L. O. Krampitz.....	Ames		

*Associates re-instated, 2*

F. C. Stanley.....	Oskaloosa	Wm. A. Owens.....	Ames
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*Associates, 66*

Robert Dean Allbaugh.....	Ames	Tom Clawson.....	Cedar Falls
S. D. Bailey.....	Cedar Falls	Verona Devine.....	Iowa City
Norval Baker.....	Ames	W. F. Edgell.....	Iowa City
R. F. Bloom.....	Ames	John C. Eldredge.....	Ames
Stanley S. Brandt.....	Iowa City	Lester F. Faber.....	Des Moines
Robert E. Burns.....	Iowa City	V. W. Flickinger.....	Des Moines
Holmes Foster.....	Mt. Pleasant	Charles O. Neidt.....	Ames
S. W. Fox.....	Ames	Anna Margrethe Olsen.....	Ames

Phyllis D. Gardner.....	Iowa City	Marvin N. Olson.....	Ames
Waldemar Gjerde.....	Cedar Falls	Robert W. Orr.....	Ames
Allen W. Goodspeed.....	Ames	Thomas Parsons.....	Grinnell
Arthur M. Gowan.....	Ames	Charles C. Perkins, Jr.....	Grinnell
W. D. Gray.....	Ames	Joseph W. Rhodes.....	Cedar Falls
Harry E. Green.....	Charles City	H. W. Richey.....	Ames
Wayne C. Hall.....	Iowa City	Ralph M. Robinson.....	Ames
C. A. Hollingsworth.....	Iowa City	Walter C. Rothenbuhler.....	Ames
Jean L. Jaques.....	Mt. Pleasant	Robert D. Schick.....	Ames
Erling Jensen.....	Ames	Barbara Scott.....	Mt. Pleasant
Gertrude Kellogg.....	Elwood, Ill.	Paul B. Selz.....	Fairfield
Wilbur King.....	Mt. Pleasant	Ernestine Smith.....	Cedar Falls
Philip G. Koontz.....	Ames	Hilton A. Smith.....	Ames
W. F. LaGrange.....	Ames	Mary Nelle Taylor.....	Mt. Pleasant
Finn J. Larsen.....	Ames	Lois Hattery Tiffany.....	Ames
L. Jackson Laslett.....	Ames	Margaret Barton Timnick.....	Iowa City
Sam Legvold.....	Ames	Jake Verduin.....	Ames
Bernice Linn.....	Mt. Pleasant	Bernard Vinograde.....	Ames
C. B. Lowe.....	Ames	Floyd W. Von Ohlen.....	Fairfield
K. R. Marvin.....	Ames	Stanley Wawzonek.....	Iowa City
George Matlack.....	Iowa City	J. A. Weir.....	Ames
Clifford H. Meredith.....	Ames	Elmer L. Wilson.....	Ames
Charles Miller, Jr.....	Ames	Jack Woodrow.....	Mt. Pleasant
Solomon Mitchell.....	Grinnell	Joe D. Woods.....	Pella
J. F. Carlson.....	Ames	Thomas Zbornik.....	Charles City

Respectfully submitted,  
R. W. GETCHEL, *Chairman*.

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#### REPORT OF THE COMMITTEE ON NECROLOGY

The Committee on Necrology wishes to report that nine members of the Iowa Academy of Science have passed away during the past year. They are:

R. L. Bruner	Wm. H. Gemmill
L. H. Chamberlain	Thomas J. Maney
Charles D. Reed	Mrs Florence Nichols
C. W. Emmons	H. W. Norris
Miss Annie Fleming	

Memorials for these members are being prepared and will be published in the Proceedings of the Academy.

Respectfully submitted,  
E. R. SMITH, *Chairman*.

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#### REPORT OF THE RESOLUTIONS COMMITTEE

The Iowa Academy of Science, in session at Grinnell, Iowa, on April 20, 1946, hereby resolves:

1. That the utmost thanks be tendered the local committee, Grinnell

nell College, and the Grinnell residents generally for the magnificent hospitality and congenial treatment accorded to the visiting Academy members. It is indeed a pleasure to experience so fine a reception.

2. That the membership hereby expresses its appreciation to the officers of the Academy for the excellent services to the organization and to the people of Iowa rendered during the past year.

3. Whereas the Federal Government has in the files of its several departments aerial photographs of most of the surface of the United States and parts of a great many foreign countries, which photographs have, for military reasons, been unavailable to scientists and the public generally, that said photographs be made available to interested persons for scientific purposes as soon as, and to the extent that, the exigencies of national security will permit their release.

4. That the Secretary be empowered to notify the appropriate Federal officials that the Academy declares its support of the Magnuson-Kilgore Bill (Senate 1850), providing for the establishment of a National Science Foundation.

5. Whereas the use of atomic weapons of offense or defense might result in such destruction as to threaten the existence of civilization, the Iowa Academy of Science supports the following principles which have been suggested by the General Assembly of the United Nations:

(a) That the exchange of basic scientific information for peaceful ends should be extended between all nations;

(b) That atomic energy should be controlled to the extent necessary to insure its use only for peaceful purposes;

(c) That atomic weapons and all other major weapons adopted to mass destruction should be eliminated from national armaments; and

(d) That complying states should be protected against the hazards of violation and evasion by effective safe-guards, by way of inspection and other means.

TO IMPLEMENT THIS WE SUPPORT THE Mitchell-Kilgore-Morse-Fulbright resolution calling for international control of atomic energy within the United Nations along lines suggested by the Acheson Report.

M. L. GRANT, *Chairman.*

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#### REPORT OF THE COMMITTEE ON THE CERTIFICATION OF SCIENCE TEACHERS

Your committee has had one meeting at Cedar Falls and has made some limited investigation of studies concerning the preparation of high school science teachers. We wish to make this report of progress.

1. The Standard Secondary Certificate for teaching science in Iowa is as follows:

- A. The certificate is issued to the holder of a diploma granted by an Iowa college accredited by the Board of Educational Examiners, certifying to the completion of a four-year course including such specific and professional training for teaching two or more secondary school subjects as the Board shall prescribe.

B. Professional training	Semester Hours
1. Introduction to, history of, or principles of education .....	3
2. Psychology .....	6
3. Methods of teaching .....	3
4. Directed observation and supervised student teaching .....	3
	—
Total .....	15

C. Academic Preparation

1. Fifteen semester hours in one subject matter field, with at least ten semester hours in each of two additional fields.

The subject matter fields are English, language (each one to be taught), mathematics, social studies (special preparation in subject taught), science (5 semester hours in each science taught).

2. Two semester hours in American government.

You will note that one is certified to teach science in Iowa high schools if he has a total of fifteen semester hours of credit in all the sciences but he need have only five semester hours in any one science taught. Thus it is possible for one to teach physics or biology or chemistry when he has only five semester hours of credit in the subject taught. It is difficult to see how a teacher can satisfactorily teach physics, biology, or chemistry in high school with so little training as represented by five semester hours.

If we compare the situation for science with other fields, we find that special subject certificates are granted in the following fields: music, physical education, and art with the following requirements:

Music .....	24 semester hours
Physical Education .....	20 semester hours
Art .....	30 semester hours

Science requirements do not compare favorably with the requirements in these special fields.

In a preliminary report on the preparation of high school science teachers by a special committee representing the American Association of Physics Teachers, American Chemical Society, Mathematical Association of America, Union of Biological Societies, and the National Association for Research in Science Teaching, we find the following recommendation:

"The Committee recommends that a total of at least 60 semester hours credit be required in the science area with at least

18 hours credit in each subject for which the certificate is granted, except that 24 hours credit should be the minimum in biology, including courses in both botany and zoology."

Compare this with the Iowa requirement of 15 semester hours in science and 5 semester hours in each science taught.

Your committee realizes that Iowa has many small high schools and that teachers are often required to teach in two, three, or even four fields. It would not be practicable to place the requirements too high, but we feel that the requirements for science teaching should be raised.

#### RECOMMENDATIONS

1. The continuation of the Committee and that its number be increased to five by the addition of a representative from mathematics and one from the high school science teachers.
2. A more complete study to be made including the certification requirements for science teachers in other states and such other information as is related to the problem.
3. A resolution recommending minimum requirements for the certification of science teachers be prepared by the committee to be submitted to the Iowa Academy for adoption at their next meeting. This recommendation is to be presented to the Board of Educational Examiners of Iowa and that such steps as seem to be advisable be taken to see that the resolution receives consideration.

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#### REPORT OF THE COMMITTEE ON ENDOWMENT FUND

1. The Committee on Endowment Fund recommends that the Endowment Fund be continued as at present.
2. The Committee approves in principle of the use of ear-marked funds belonging to the Endowment Fund to finance the publication of scientific material by members of the Academy on a revolving fund basis.
3. The Committee urges the expansion of the publication program and calls particular attention to the need for popular treatment of the geology and minerals of the State.

L. P. SHERMAN, *Chairman.*

## REPORT OF THE COMMITTEE ON CONSERVATION

The first two obligations which the reorganized committee assumed in the 1943 report have been met. They were (1) the organization and presentation to the academy of information on each of the fields of conservation and (2) recommendations to the academy relative to conservation in these fields.

In 1943 the committee made a study of conservation activities in the state and presented a report as nearly complete in each of the seven different fields of conservation as time and space would permit. This 60-page report was published in the Proceeding of the Academy for 1944 under the title:

PRESENT STATUS AND OUTLOOK OF CONSERVATION IN  
IOWA

State Parks and Preserves  
Birds and Mammals  
Fisheries  
Antiquities  
Water Supply  
Forests  
Soil and Water Conservation

In 1944 the committee made a study of possible contributions which the Academy could make to the conservation needs of the state. For the most part these recommendations to the Academy, relative to assistance in each field of conservation, were divided into (1) those made to the Academy for action and (2) those recommended for individual members of different interest groups. They were published as the report of the committee in the proceedings of the academy for 1945.

In 1945 the committee has been giving its attention to studying and planning ways and means of meeting its third and most difficult obligation: assisting the Academy in the formulation of a general conservation policy and program. At the beginning the committee anticipated that this was not a task that could be accomplished in a single year. Each member has been exploring the possibilities of different programs and policies in his own field. At present time the results of these efforts are in the form of definite accomplishments, suggestions, and leads which will be presented to the Academy by the committee from time to time as they develop. In this report the activities in the several fields of conservation will be outlined and briefly described.

Last year the committee tentatively agreed on a plan of procedure which seems to have much promise. A project from one field of conservation was selected for concerted effort by the committee in the task of assisting the Academy in formulating a policy and program. Conservation of prairie was selected because it seemed



to the committee to be the most urgent conservation problem in Iowa. The project outline was included in the committee report in the 1945 Proceedings.

The committee has agreed that it seemed feasible to start such a project and carry it as far as possible till questions of policy arise and then submit them to the Academy, through the executive committee or direct, for action. By this procedure new policies will be presented for action only as they seem advisable and necessary in connection with definite programs. After program and policy have been developed in this way for one or more fields of conservation, it will be easier to formulate general policies covering all of the fields.

#### REPORT OF CONSERVATION ACTIVITIES BY FIELDS

##### STATE PARKS AND PRESERVES.

###### 1. State Parks

The study of state parks is being continued by Professor H. S. Doty. The aim of the program is to create more interest in the conservation of our parks as natural areas and general appreciation and use of these areas for the study of nature.

###### 2. Conservation of Iowa Prairie

Progress in the development of this project, which was approved by the Executive Committee of the Academy only a year ago, has been even greater than was anticipated. Under the leadership of Dr. Ada Hayden, several procedures have been followed as a basis for the accomplishment of the chief objective: To secure under state protection areas of virgin prairie representative of the plant, animal and soils associations of the state. A report on the Prairie Project has been prepared. It includes a statement of the recommendations for preservation of prairie with a supplement describing and illustrating the principal tracts which have been inspected.

On the recommendation of the Prairie Project subcommittee, the Iowa Conservation Commission has purchased the Walton prairie, a 199-acre tract in section 33 of Howard county. This constitutes Iowa's first prairie preserve.

At the Grinnell meeting in April 1946 the Executive Committee of the Academy, approved, as a part of this report, the recommendation of the Conservation Committee that the conservation of prairie be promoted by advocating three methods of purchase: (1) By the Conservation Commission of as many recommended tracts as is possible under its 25-year plan; (2) From special appropriations of the legislature, with the approval of the Conservation Commission; (3) With a special fund sponsored and administered by the Academy. Acquisitions of this sort would include direct gifts of prairie. This committee would welcome inquiries relative to such gifts.

Because of the fact that the expenses of the Prairie Project in the inspection of prairie tracts for purchase in 1945-6 were paid with

funds allocated by the Conservation Commission, the sum of \$100 allocated from the funds of the Academy for this purpose by the Executive Committee in 1945 were reserved. At the Grinnell meeting the Executive Committee approved the use of the \$100 of unused funds to start the special Academy fund for the purchase of prairie and allocated an additional \$100 to increase the amount in the fund to \$200. Contributions to this fund by conservation-minded individuals and groups may be made to the Secretary-Treasurer of the Academy.

#### BIRDS AND MAMMALS

As a collaborator on the Prairie Project, Dr. Hendrickson has been assisting in the preparation of a guide for the selection of prairie to be preserved, in the surveys and in making the recommendations. The aim of his activities on the project have been to ascertain that the areas of prairie selected for preparation be representative of the animal associations of the state.

A wildlife management plan for prairie areas has also been developed. It has been necessary to adapt this plan to the climatic and edaphic factors of the particular prairie tract considered, to the botanical composition of the vegetation determined by these factors as well as to the degree of disturbance and to the successional history of the prairie vegetation.

During the past year further study has been made of the possibilities of improving the status of wildlife conservation in Iowa through the activities of local conservation clubs. Many of these local clubs have been able to coordinate their activities and expand their usefulness by becoming local chapters of or otherwise affiliating with state and national organizations such as the State and National Wildlife Federation, the Coordinated Conservation Council and the Isaac Walton League. Dr. Hendrickson and his associates in the committee desire to be of assistance to conservation clubs in the state in developing worthwhile conservation programs. They also offer their services to the Academy and its individual members in helping them determine ways and means of assisting local conservation chapters and clubs in developing effective wildlife conservation programs.

The aim of developing and carrying out the best possible program for statewide conservation of birds and mammals can not be attained till the conservation of the other natural resources of the state has been accomplished. However, gains made in the conservation of other resources are reflected in improvement in living conditions of birds and mammals and make possible further advances in their conservation. Research projects on the response to living conditions of many species of birds and mammals in Iowa are providing much information on which management practices for particular regions and conditions can be based.

#### FISHERIES

Since practices which conserve native vegetation, improve the water supply and conserve soil and water are in general beneficial to fish fauna, any assistance rendered by the members of the Academy to the general conservation program of the state has at least a secondary beneficial effect on the fisheries of the state. Local conservation clubs are being sponsored because their activities include the conservation of fish as well as of birds and mammals.

In developing a fisheries program which can be approved and sponsored by the Academy, it is necessary to continue basic fundamental research on habitat and life history studies of the several fish species, the effectiveness of artificial stocking, spawning age and size of the common game and non-game fishes, the relationship of aquatic plants to the development of fish species, the effect of coarse fish removal on game fish, the effect of parasites and diseases on the production of fish, and the ratio of angler catch to fish populations. As answers to these fundamental questions are obtained, Mr. Speaker and others interested in this field of conservation are formulating a program of fisheries improvement which it is hoped can be approved and sponsored by the Academy. Cooperation of the members of the Academy in improvement in the enforcement of the present fish laws is requested. These laws are being recodified as rapidly as basic questions on the techniques of management are answered by research.

#### ANTIQUITIES

Because of the emphasis which is being placed on the prairie preservation project by the conservation committee it seems advisable at this time to sponsor only a very moderate Indian mound conservation project. A request has therefore been made to the Conservation Commission through Dr. Keyes, that the purchase of the Red Rock mound group be one of the State Centennial Projects.

This mound group is made up of 5 conical mounds, each 55 by 55 by 3 feet on a bluff above the Red Rock Ledges of the Des Moines river, 8 miles north of Knoxville in Marion County. The site includes about 20 acres of little or no value as agricultural land. It is of historic interest because an important treaty with the Sauk and Fox Indians was made there in 1843 and because on the site is the quarry from which came the stone furnished by the state of Iowa for the Washington monument.

#### WATER SUPPLY

Although there are large quantities of basic data on the water supply of the state, much of it is unpublished and most of the published data is too technical to be of much use to laymen. Several members of the Academy have the technical background to be of assistance in advising with Dr. Hershey on a program for the conservation of our water supply.

As time permits, a popular presentation of the facts concerning water supply is being prepared by Dr. Hershey as a basis for the program on water supply of the state which is being formulated for presentation to the Academy. This program will include a list of practices which should be corrected in order that the most efficient use may be made of our water supply. It will probably also include recommended changes in our laws to assure economical use and protection of our water supply.

#### FORESTS

Organized educational work and actual field assistance in shelterbelt planting and woodlot management have been made available to the farmers of the state the past year to the extent possible by the employment of two full-time Extension Foresters. With the cooperation of the Academy, it is hoped that this work can be expanded and its effectiveness increased.

All phases of a complete forestry conservation program are being developed by Professor MacDonald for presentation to the Academy. It is based on the recommendations contained in the 1945 report. Emphasis is being placed on a comprehensive farm forestry program which will provide for the removal from intensive cultivation of many areas not suited to such agricultural practices, and a reforestation program based on a comprehensive land classification program. The program will probably include recommendations of reductions which should be made in the appraisal value of forest lands which will make possible the conservation of an extensive acreage of forests.

#### SOIL AND WATER CONSERVATION

Progress has been made in several phases of the tentative program in this field of conservation, which was presented in the 1945 report of the committee. It is difficult to determine the extent of participation of the Academy and its members in this field of conservation but an attempt will be made from time to time to determine the degree of interest and the extent of participation and cooperation. Work is being continued by Mr. Mendell and Mr. Aikman on the development of a comprehensive program on soil and water conservation for the approval and support of the Academy.

In the soil conservation districts educational work is being carried on in the public schools. These activities are under the direction of an educational specialist working from the state office. The district office in each of more than 60 counties can provide information and opportunity to cooperate in this educational work in the districts. Educational material on soil and water conservation is being prepared in connection with this educational work as well as by personnel of the state and regional offices.

A committee, appointed by the Science and Agriculture Deans of Iowa State College has been working during the past year on the

preparation of material on conservation for the schools to be published in a new series of bulletins. One bulletin is nearing completion and others have been started. This committee has plans almost completed for the first Conservation Short Course of one week to be held in July, 1946. Members of the Academy are invited to join school administrators, teachers, 4-H club specialists in youth activities and others in studying aims, materials and methods in conservation education in this short course. Four members of the Conservation Committee are members of this special committee on conservation education which deals with education problems in all fields of conservation.

Respectfully submitted,

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J. M. AIKMAN, *Chairman.*