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Proceedings of the Fortieth Annual Meeting of the Iowa Academy of Science, Held at Cedar Rapids, April 30 and May 1, 1926: Minutes of the Meeting; Staff & Committee Reports

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PROCEEDINGS OF THE FORTIETH ANNUAL MEETING OF THE IOWA ACADEMY OF SCIENCE

Held at Cedar Rapids, April 30 and May 1, 1926

The fortieth annual meeting of the Iowa Academy of Science was held at Coe College, Cedar Rapids, Iowa, on April 30 and May 1, 1926. The first session was called to order by President Cratty in the Auditorium of Coe College Chapel at 10:30 A.M. Dean S. W. Stookey of Coe College welcomed the Academy to the College, and Dr. L. H. Pammel responded in behalf of the Academy. A letter from Dr. T. H. Macbride of Pasadena, California, was read to the Academy.¹ Next in order came the Treasurer's report by Dr. A. O. Thomas, the Secretary's report by Dr. P. S. Helmick, the Editor's report by Dr. Willis DeRyke, and the report of the A.A.A.S. Representative by Dr. D. W. Morehouse. Announcement was next made of the committees which had been appointed to function for this meeting.

Nominating: Melhus, G. W. Wilson, Kay, Almy, Nutting.

Resolutions: J. A. Baker, Bennett, Miss King, Miss Mullin.

Membership: Treasurer, Secretary, Wylie, J. E. Smith, Norris, Begeman.

Biological Survey: Stephens, Ross, Shimek, G. W. Wilson.

Participating: Pammel (1926), Conard (1927), Kelly (1928).

Executive Committee: Seashore, Thomas, Helmick, Levine, G. W. Martin, C. J. Lapp, Ira S. Condit, Stromsten, Dille, Coleman, Finkenbinder.

Conservation in Connection with Public Schools: Conard, Shimek, J. N. Martin, Ross, Goshorn, Tuttle.

Secretary's Report: French, Norris, Baldwin, Knight.

Forestry: MacDonald, Pammel, Shimek, Conklin.

Publication: G. W. Wilson, Begeman, Bakke, Conard.

Necrology: Almy, Pammel, Stephens, Lees.

Conservation: Shimek, Charles Reuben Keyes, Jacques, Stephens.

Auditing: Woodrow, Cable, Gilman, Kelly.

Research Careers in Science: Lapp, Kadesch, Weld, Martin, Sylvester.

The Presidential Address, "The Ministry of Science," was given by President Cratty, and followed by some selected section papers of general interest: "The Effect of Pressure on Chemical Reaction," by F. E. Brown, of Ames; "The Concept of Talent for Organized College Living," by C. E. Seashore, of Iowa City; and "Further Species Crosses in the Genus Cucurbita," by E. F. Castetter, of Ames.

At 2:00 P.M. the Academy reconvened in sections, and at 8:00 P.M. assembled to hear the public address by Dr. Joel Stebbins of Washburn Observatory of the University of Wisconsin on "The Twinkling Stars." Following the lecture the Academy members and their friends were

¹ Dr. Macbride requested that his letter should not be published in the Proceedings which are primarily devoted to records of research.

received by President and Mrs. H. M. Gage in the reception parlors of Vorhees Quadrangle.

On Saturday, May 1, the Academy met in nine sections, and at 10:45 A.M. met in general session, President Cratty in the chair.

Dr. D. W. Morehouse reported as the A.A.A.S. Representative that the A.A.A.S. had voted to meet in Des Moines in 1929, provided that a local fund of several thousand dollars be raised and turned over to the A.A.A.S. It was moved, seconded, and carried that the report be adopted, and that a committee be appointed to make a request to the proper authorities for this financial aid.

J. W. Woodrow reported for the Auditing Committee that the Treasurer's books were in order, and recommended that the disposal of the A.A.S. refund of 50 cents per member be controlled by the Executive Committee. The report was adopted on motion.

It was moved and carried that the Treasurer be instructed to invest \$500 in a permanent investment fund.

Next in order came several committee reports which were duly approved on motion, after being read by the following:

Biological Survey — L. S. Ross.

Conservation — B. Shimek.

Executive — P. S. Helmick.

Resolutions — F. M. McGaw.

Secretary's Report — R. A. French.

Membership — P. S. Helmick.

H. S. Conard presented the report of the Committee on Conservation in Connection with Public Schools. Moved and carried that the committee be continued and that an appropriation be made to carry on the work. Moved and carried that a telegram be sent to J. N. Darling of Des Moines expressing the appreciation of the Academy for his cartoons relating to conservation of wildflowers.

The report of the Committee on Forestry was read by G. B. MacDonald. Moved and carried that the report be adopted and transmitted to the special committee called for in the adopted report of the Conservation Committee.

F. F. Almy reported for the Necrology Committee the deaths of Philip Spong, W. S. Hendrixson, and C. L. Winter.

The report of the Committee on Publication was read by A. L. Bakke, and provided for the discontinuance of the publication of abstracts in the PROCEEDINGS. After considerable discussion a motion carried that for this year the matter of the publication of abstracts be referred to the Executive Committee with power, and that the matter be further referred to the Publication Committee for a report next year.

I. E. Melhus presented the report of the Nominating Committee, and the following were declared elected on motion:

President — C. E. Seashore.

Vice-President — L. D. Weld.

Secretary — P. S. Helmick.

Treasurer — A. O. Thomas.

Editor — Willis DeRyke.²

² On August 18, by special ballot of the executive committee, G. H. Coleman was elected Academy Editor to take the place of Dr. DeRyke, resigned.

Representative to A.A.A.S. — D. W. Morehouse.

The retiring Section Chairmen reported the election of incoming Section Chairmen as follows:

Bacteriology — J. J. Hinman, Jr., Iowa City.

Botany — G. W. Wilson, Fayette.

Chemistry — Jacob Cornog, Iowa City.

Geology — A. C. Tester, Iowa City.

Mathematics — J. V. McKelvey, Ames.

Physics — M. E. Graber, Sioux City.

Psychology — C. A. Ruckmick, Iowa City.

Zoology — L. S. Ross, Des Moines.

On motion meeting adjourned.

Subsequent to the meeting, President Seashore appointed the following committees:

Auditing: Gilman, Graber, Emerson.

Biological Survey, Advisory: Pammel (1927), Conard (1928), Kelly (1929).

Biological Survey, Legislative: Ross, Wylie, Jacques, French.

Conservation: Shimek, Charles Reuben Keyes, Stephens, Stoner.

Conservation in Public Schools: Conard, Cable, Spinney, Vance.

Conservation, Conference on: MacDonald, Shimek, Ross, Conard.

Executive: Seashore, Weld, Thomas, Helmick, Coleman, Hinman, Wilson, Cornog, Tester, McKelvey, Graber, Ruckmick, Ross.

Financial Aid for A.A.A.S.: Morehouse, Seashore, Thomas, Stewart, Pammel, Cable, Begeman, Norton, Stephens.

Forestry: MacDonald, Pammel, Shimek, Tuttle.

Membership: Thomas, Helmick, Evans, Condit, Knight, Norris.

Necrology: Almy, Pammel, Stephens, Lees.

Nominating: Morehouse, Runner, Almy, Evans.

Publication: Coleman, Helmick, Thomas, Bakke.

Resolutions: N. Knight, Pammel, Doty, B. H. Wilson, Read.

Secretary's Report: Norris, Baldwin, Hauber, Coss.

Publicity in high schools concerning research careers in science: Lapp, Kadesch, Weld, J. N. Martin, Sylvester.

P. S. HELMICK,
Secretary.

TREASURER'S REPORT

April 30, 1926

RECEIPTS

Cash on hand, May 4, 1925.....	\$ 43.37
Transfer fees, Members to Fellows.....	42.00
Income from entrance fees.....	59.03
Income from annual fees.....	193.10
From sale of Proceedings.....	2.23
Disposal of Liberty Bond (2nd).....	50.40
Interest on above bond.....	1.06
Refund from printer (Fletcher) overpayment.....	3.00

Allowance of A.A.A.S. for 187 members (Mar. 23).....	93.50
Transferred from Sav. Acct., April 26, 1926.....	150.00
	\$ 637.59

DISBURSEMENTS

To J. W. Fletcher, 1000 programs 39th Meeting, Cedar Falls.....	\$ 85.15
Supplies for Secretary.....	94.65
Postage and supplies for Treasurer.....	18.02
Postage and expenses, Editor.....	8.33
To W. W. Bennett, honorarium and expenses, address at 39th Meeting	46.26
Transferred to Savings Account.....	125.00
Refund to Miss Sherman (overpayment).....	1.00
To Geo. F. Leckly, printing 1000 programs, 40th Meeting.....	49.50
Cashing out-of-town checks.....	.81
Honorarium, Secretary.....	50.00
Honorarium, Editor.....	50.00
Honorarium, Miss Newman (distr. vol.).....	25.00
Honorarium, Treasurer.....	50.00
Balance in bank.....	83.97
	\$ 687.69
Total.....	\$ 687.69
Deduct Check No. 16 (in transit).....	50.00
	\$ 637.69
Balance.....	\$ 637.69

SUMMARY

ASSETS

Bal. in bank, April 29, 1926.....	\$ 83.97
Savings Acct. plus accrued interest to May 1, 1926.....	1068.83
Arrearages (estimated).....	50.00
	\$1202.80
Total.....	\$1202.80

LIABILITIES

Athens Press, envelopes, Treas.....	\$ 2.75
Stenographic help, Treasurer.....	2.50
Check in transit.....	50.00
	\$ 55.25
Total.....	\$ 55.25

Grand total balance.....\$1147.55

A. O. THOMAS,
Treasurer.

REPORT OF THE SECRETARY

Mr. Chairman and Fellow-Members of the Academy:

This is the fortieth annual meeting of the Academy. During all these years the Academy has materially contributed to the scientific life of the state.

One of the duties imposed upon us by this scientific trusteeship is the obligation to offer to our advanced students and scientific friends the encouragement, stimulus, and contacts which the Academy provides.

I believe that even our senior students who are interested in science and who reside in the state of Iowa should be given an invitation to unite with the Academy.

In order to bring the Academy to the attention of prospective members, programs, membership blanks, and letters of explanation have been sent to each university and college in Iowa to be distributed among the heads of the science departments. Replies have been received from at least two presidents of colleges which have no Academy members stating that the literature has been distributed as requested, and that several professors had become definitely interested in the Academy.

It is planned to continue this distribution of programs and blanks with the approval of the Academy. In fact, if the idea would not require too much machinery for its execution, I should like to see an Academy representative appointed at each college in the state. He would be of great service in giving his colleagues and students Academy information, he could distribute our programs and printed matter to advantage, and he would act as a sort of clearing-house for Academy membership proposals.

It may be well, at this time, to cite the sections of our constitution concerning classes of Academy membership: "Fellows shall be elected from those persons who are actively engaged in scientific work. Any person who is interested in the progress of science even though not directly contributing to original research may be elected an associate." Mention may be made here of our general policy of electing candidates for membership first to associate membership, and afterwards to fellowship.

Of course, in return for the annual dues of one dollar, members receive the PROCEEDINGS, a bound volume of more than 400 pages. Another privilege of no small benefit to Academy members is our working agreement with The American Association for the Advancement of Science whereby the usual five dollar American Association entrance fee is waived to our Academy members.

The number of members on our rolls is constantly changing, due in many cases to members removing from the state. At the present time our rolls show about 465 members — a net loss of about 11% during the year. Of course the compiling of an immense membership list is not the goal of the Academy, but I believe that we should not overlook the occasional duty of mentioning the privileges of Academy membership to our students and colleagues if the Academy is to continue rendering service commensurate with the continually increasing enrollment in our institutions of learning.

Respectfully submitted,

P. S. HELMICK,
Secretary.

REPORT OF THE EDITOR

Mr. President and Members of the Iowa Academy of Science:

I wish to express my appreciation to the members, the Section Chairmen, and the Officers of the Iowa Academy of Science for the aid they have so

kindly given and the coöperative spirit they have displayed during the past year.

I now fully realize the large amount of work that is necessary to produce one of our publications and am really surprised that our Secretary has previously been able to take care of his duties and handle the work of editing the volume. While there has been considerable work it has been a real pleasure to do it. In this position it is necessary that the Editor reach a decision in regard to every problem that presents itself. He must act in every case and cannot resort to evasion of the issue by tabling the question under discussion. I have freely called on members and especially the Section Chairmen and Officers for advice in regard to certain knotty problems that have appeared from time to time. Not once did I present a problem and ask for an opinion or advice but I received a frank answer in which that person gave me his best judgment. I recall that one reply gave the desired opinion as to the best procedure in dealing with a troublesome problem and added these words, "This may be treason but it is my best opinion."

I wish at this time to call attention to some of the chief difficulties with which your Editor is confronted. My aim in doing this is not that of criticism but to spread information that will be of value to our members and aid in expediting the publication of the "Proceedings."

Our membership is large and the number of members desiring to publish papers is so great that it has become quite a problem to crowd the material into the volume. This difficulty is increased by the fact that we have fallen into the habit of giving papers at the annual meeting, announcing our intention of publishing in the "Proceedings," and not completing and handing the paper to the Section Chairman until six months after the meeting. This method is a haphazard one and works a hardship on the Section Chairman and the Editor, and tends to prevent organization and uniformity in the book. It makes it practically impossible to figure type and allot space.

As you have perhaps noticed, we have slightly revised "Instructions to Authors" and I suggest that the members, when preparing papers, adhere as rigidly as possible to those instructions. Considerable delay and much trouble has been caused by incorrect arrangement of papers, failure of the author to mark figures, failure to indicate in the text the place he wishes the figure inserted and to furnish typed captions for the figures.

Other questions, and questions we would very much like to have answered, are these: Who may publish in the Proceedings of the Iowa Academy of Science? and, Whose papers shall be kept out if the question in regard to the lack of space arises? Perhaps I had better explain the situation. By question one, we mean to ask if it is proper and if it is the will of the members of the Academy that non-members be permitted to publish a piece of independent work in the "Proceedings." Would it not be well for persons publishing independently in our "Proceedings" to become members of the organization? We assume that it is proper for a student to publish a paper in conjunction with his Professor in Charge. By question two, we mean to ask if it is proper, and the will of the members of the Iowa Academy of Science that non-members use the space in the Proceedings of the Iowa Academy of Science for publication of a paper presented

at the annual meeting and a member of the Iowa Academy of Science be refused the privilege to publish in a particular issue on account of lack of space or because the paper is unrelated to affairs of the State of Iowa?

I have frankly called your attention to some of the principal questions and difficulties and wish now to make some suggestions which, I think, will greatly aid in overcoming them.

I suggest that the "Instructions to Authors" be carefully followed in the preparation of a paper, and that Section Chairmen turn back to the author, for correction, any paper that does not conform. I also wish to suggest that all papers to be published in the Proceedings of the Iowa Academy of Science be in form for publication and handed to the Section Chairman at the time of the annual meeting.

We have had the publication delayed an entire summer on account of the Section Chairman leaving his permanent residence for a vacation, or to teach in a distant school. It was impossible to get the material from him and the progress on the volume was at a standstill until October. To avoid this delay I would suggest that the Section Chairman send the material to the Editor before he leaves for the summer season.

I am quite sure if these suggestions were followed the book would be off the press before the holidays.

In view of these facts, I recommend the following:

I. That only under exceptional circumstances, non-members be permitted to independently publish papers in the Proceedings of the Iowa Academy of Science.

II. That all papers to be published in the "Proceedings" be in proper form for publishing and handed to the Section Chairman at the time of the annual meeting.

III. That the Section Chairman present the papers to be published to the Editor not later than June 20, following the meeting.

We have worked hard on the publication of the "Proceedings" and tried to make it a neat, uniform and presentable piece of work. We are hoping to get the book in your hands soon, and as tangible, visible evidence in regard to its early appearance I hold in my hand page proof for Volume XXXII of the Proceedings of the Iowa Academy of Science.

WILLIS DERVYKE

REPORT OF THE REPRESENTATIVE OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

To the Iowa Academy of Science:

As your Representative to the American Association for the Advancement of Science, I would say that I attended every meeting of the Executive Committee except one.

Immediately upon arriving in Kansas City I interviewed Dr. Livingston, Secretary of the Association, concerning the invitation which the Iowa Academy of Science had extended to the National Association to hold an annual meeting in Des Moines. I received gracious treatment and hopeful encouragement. The scientists of the state coöperated in urging the Association to give favorable consideration. I am happy to report that a letter from Mr. Livingston reads as follows:

“Of course we have plenty of time to prepare for the Des Moines meeting, but it would be very fine, and helpful when we do take up the matter, if a sort of preliminary survey might be made this year and placed in our hands. There are really three main requirements for such a meeting, as follows. (1) Finances, (2) Session rooms, (3) Hotel accommodations for lodgings. I think it safe, as I may have said, to consider that the Des Moines meeting will be about like the recent Kansas City meeting. It will cost about \$5,000 (for the Kansas City meeting was badly skimped in some details and it cost about \$4,500). About \$2,900 was raised locally and we raised \$587 by taxing the people who have railway certificates and those who lost their programs. (See *Science* for January 29, p. 103.) About \$1,000 had to be contributed by the Association, from dues paid in by members. The whole expense should ideally be borne by the local fund and I think we can soon get to that condition. The British Association, I understand, comes away from a meeting with a thousand pounds or so as ‘net profit,’ which is devoted to aiding research. On the other hand, we ‘lose’ from \$1,000 to \$2,500 on each meeting, thus far. Of course this ‘loss’ represents a legitimate expenditure of our funds, but I think the local groups can probably find ways to raise more rather than less than is needed, for we come to any city only once in a long time. We are recently getting much better publicity than formerly and I think the public of our cities are perhaps now ready really to support the meetings, so as to relieve the Association of this item of expense.

“As to hotel needs (for lodgings), the attendance may be about 2,000 or 2,500 at Des Moines.

“As to meeting places, the following are the room requirements needed at Kansas City:

15	rooms	seating	50
14	“	“	75
5	“	“	100
4	“	“	150
1	“	“	300
2	“	“	1,000-1,500

“When these matters are clearly settled (approximately) we can take the tentative feature out of the decision voted at Kansas City. The Executive Committee thought we might well recommend meeting places as tentative at first, till such matters could be looked into.

“We shall need a hall for the exhibition, perhaps about 7,500 square feet, and it should be handy to the meeting places. The exhibition is planned to pay its own costs generally.”

Pursuant to this communication I respectfully recommend that the Association accept the conditions of the National Association and take such measures as are necessary to fulfill the requirements.

Respectfully submitted,

D. W. MOREHOUSE

REPORT OF THE LEGISLATIVE BRANCH OF THE BIOLOGICAL
SURVEY COMMITTEE

A committee consisting of B. Shimek, Guy West Wilson, L. S. Ross, and T. C. Stevens, chairman, was appointed. Because of his distance from Des Moines, the chairman asked to be relieved of his duties. L. S. Ross was appointed to take the chairmanship but too late in the year to present the resolution formulated by the Academy to the budget director. The chairman appeared before the appropriation committee, and the proposed bill was presented to the senate by Sen. Goodwin of Polk; it was too late for favorable action.

L. S. Ross,
Chairman

REPORT OF THE COMMITTEE ON CONSERVATION

To the Iowa Academy of Science:

The accompanying Resolutions from the Iowa Conservation Association were considered by a joint meeting of the Committees on Biological Survey, Conservation, Conservation in Connection with Public Schools, and Forestry, and the following recommendations were unanimously adopted:

That the accompanying Resolutions be accepted and endorsed by the Iowa Academy of Science.

That a committee of four, consisting of the newly appointed chairmen of the four committees concurring in this report, be appointed to confer with similar committees representing other bodies for the purposes set forth in the Resolutions.

That this conference committee be given power to assist in carrying out the intent of these Resolutions so far as possible.

Respectfully submitted,

L. S. Ross,

Chairman of Committee on Biological Survey.

HENRY S. CONARD,

*Chairman of Committee on Conservation
in Connection with Public Schools.*

G. B. MACDONALD,

Chairman of Committee on Forestry.

B. SHIMEK,

Chairman of Committee on Conservation.

May 1, 1926.

RESOLUTIONS

WHEREAS, the objects sought by the Iowa Conservation Association, particularly those involving the conservation of our forest and water resources, can be fully attained only through the coöperation of the State and the private landowners; and,

WHEREAS, the greatest industry in our State, agriculture, is often adversely affected by the unwise treatment of these forest and water resources; therefore,

Be it resolved by the Iowa Conservation Association that a campaign of education shall be undertaken for the purpose of bringing to the attention

of the people of the State, particularly the landowners, the need of active effort towards the attainment of the following objects:

1.—The maintenance of forests on the steeper slopes of our rough lands, particularly along the streams.

2.—The extension and perpetuation of forests on lowlands subject to overflow.

3.—The planting of more and better trees on such areas both for purposes of general conservation and of economic profit.

4.—The planting of more trees for windbreaks and along highways, and the prevention of the destruction of those now planted.

5.—The preservation of our marsh and water areas.

Resolved, that this campaign be conducted with the ultimate aim of securing legislation which shall relieve areas required for such purposes from taxation other than that on the value of profitable products harvested therefrom, and which may furnish such other relief to the landowners as may be deemed equitable.

Resolved, that all other conservation and public service organizations of the State be invited to join in this effort, and that a committee of five be appointed to confer with representatives of such organizations for the purpose of arranging a harmonious plan of coöperation; and that this committee be given power to carry out the intent of these Resolutions so far as possible.

Resolved, that the State Board of Education, the State Board of Conservation, and other interested departments of our State government, as well as the other educational institutions of the State, be requested to participate actively in this campaign, in order that the educational and governmental facilities now in existence may be employed to perform their due share in this work.

Unanimously adopted at the annual meeting of the Iowa Conservation Association at Ames, Iowa, April 16, 1926.

Unanimously approved and accepted by the Board of Directors of the Iowa Division of the Izaak Walton League of America, at Des Moines, Iowa, April 23, 1926.

Presented for consideration to the Committee on Conservation and the Committee on Forestry, of the Iowa Academy of Science, April 30, 1926.

B. SHIMEK,

*Chairman of the Conference Committee,
Iowa Conservation Ass'n.*

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee was called to order by President Cratty at 9:30 A.M., Friday, April 30, with twelve members present.

The Secretary announced that he had received one invitation for the next annual meeting of the Academy: from Iowa City.

The Treasurer reported on the status of our affiliation with the American Association for the Advancement of Science. It was moved, seconded, and carried that a committee be appointed for the disposal of the 50 cent per member A.A.A.S. refund for scientific purposes.

It was moved and carried that the Editor's Report be referred to the Publication Committee.

It was moved and carried to send letters of greeting to the following members: Osborn, Andrews, Lees, J. N. Martin, Macbride.

On motion meeting was adjourned.

P. S. HELMICK,
Secretary.

REPORT OF THE COMMITTEE ON RESOLUTIONS

Resolved —

That the Iowa Academy of Science in general assembly at the fortieth session now meeting in the City of Cedar Rapids, do express and record appreciation of the cordial reception accorded by the Administration and Faculty of Coe College as hosts. The members and visitors of the Academy will carry with them happy memories of this occasion, and they leave their heartiest good wishes for this splendid college of eastern Iowa.

F. M. MCGAW,
CATHARINE MULLIN,
Committee on Resolutions.

May 1, 1926.

Resolved —

The Iowa Academy of Science heartily endorses the proposal to secure and provide for the entertainment of the American Association for Advancement of Science at the national meeting in Des Moines, Iowa, in December, 1929; and furthermore that the Academy approves any effort necessary to legitimately secure this meeting.

F. M. MCGAW,
CATHARINE MULLIN,
Committee on Resolutions.

May 1, 1926.

REPORT OF FORESTRY COMMITTEE OF IOWA ACADEMY OF SCIENCE, MAY 1, 1926

I. *General Statement:*

It is hardly necessary to state that Iowa, although essentially agricultural, is vitally interested in the conservation of our forests. Realizing the fact that the country as a whole is using its forest resources four to five times as fast as they are being grown, it is not surprising that the people of this state as well as others, are beginning to look at our Forestry situation with somewhat more concern than has been true in the past.

The forest, unlike our mineral resources, is one which can be renewed if reasonable care and sane methods are employed. The country as a whole has disregarded forest destruction by man, fire, insects, disease, and other agencies for so long that the country at this time is in sad need of a progressive program for handling one of the nation's most vital resources.

The Forestry problems are such as to demand the best effort of the federal government, the states, the timber owners and the farmers. A

satisfactory program can not be worked out unless all of these agencies cooperate.

Even though Iowa will not be a large producer of lumber and other forest products, as compared with other states, the forest is of vital importance in connection with water conservation, prevention of erosion, protection of fish and game, windbreak protection and for recreational use. Each year finds more Iowa timber stripped from the hills and bluff lands. Many of these areas should not be cleared permanently but should be utilized for all time for Forestry purposes.

II. *The Relation of Forestry to Agriculture.*

Forestry in reality is a part of agriculture. Instead of annual crops the forest produces crops which mature after a period of thirty, forty, fifty or more years. Forestry in Iowa as well as in other states, supplements what we commonly understand as agriculture. In other words through forestry it is possible to secure a better and closer utilization of land areas than is possible under what is ordinarily understood as agriculture.

One of the most important forestry features, so far as Iowa is concerned is the possibility of utilizing lands which are largely waste areas and which can serve admirably for the production of crops of forest trees. At the present time Iowa has possibly close to three million acres which is either in timber or is indicated as waste area. The economic loss to the state in not utilizing these lands efficiently for the production of valuable forest crops amounts to a large sum. It is understood that within the boundaries of Iowa there are probably from a million to a million and a half acres of waste area which at the present time are not producing valuable crops which could and should be utilized for timber purposes.

Some of these waste areas are the following:

(a) Steep slopes which are subject to erosion.

It is hardly necessary to point out the bad effects which have resulted from ill advised cutting of forest trees on bluff lands and the steep slopes adjoining the water courses of the state. Many of such areas have been denuded entirely of forest growth only to produce poor pasture and eventually be gullied and eroded to such an extent as to render the areas unsuited for any use. The cutting of timber on steep slopes and bluff lands in Iowa has gone entirely too far. Already there is a reaction favoring the replanting of many of these denuded areas and the time is not far away when this will be done.

(b) Lands subject to annual or repeated overflow.

Throughout Iowa hundreds of thousands of acres of overflow land are to be found which do not have great value for the production of ordinary agriculture crops. These lands are usually rich and will produce excellent timber crops in a relatively few years. Many of these areas which are so situated as to cause a flooding out of ordinary agricultural crops, will produce some of our heaviest and most valuable stands of timber.

At the present time many of the overflowed areas are either producing only a crop of weed trees or have been cleared and are producing nothing. The loss to the state in maintaining areas of this kind in an unproductive condition is worthy of serious attention.

(c) Sandy or gravelly or hardpan soils unsuited for agricultural crops.

Although a very high percent of Iowa soil is suitable for agricultural purposes there are some areas which are too gravelly or sandy to produce consistently good agricultural crops. Many of these might better be used for producing valuable crops of timber rather than to be repeatedly used for agriculture crops when failure is almost certain. The hardpan soils, especially of southern Iowa, should be included in this class.

III. *Iowa as a User of Forest Products.*

The better use of the so-called forest areas in Iowa becomes quite significant when we stop to consider the tremendous amounts of forest products which are consumed annually by the people of the state. The mere fact that Iowa is essentially an agricultural state has made it necessary to depend very largely on the forest resources of other states for our economic development. On the other hand we are at the present time importing millions of dollars worth of forest products from other parts of the country which might just as well be grown on the waste lands of the state.

Iowa is one of the biggest users of forest products. The census figures show that the state uses between seven hundred and fifty million and a billion board feet of sawed lumber per year. A conservative estimate of the value of this material would be fifty million dollars. In addition to this the state is a big consumer of fuel wood, fence posts, poles, railroad ties, mine props, etc.

The following tabulation shows approximately the value of the forest products annually in the state of Iowa:

Sawed lumber, approximately 800,000,000 B. F.....	\$50,000,000
Fence posts, 25,000,000 posts annually.....	8,000,000
Fuel wood, 1½ million cords.....	9,000,000
Telephone and telegraph poles, railroad ties, mine props, and miscellaneous, estimated.....	10,000,000
Total.....	<hr/> \$77,000,000

If Iowa made efficient use of her forest acres and waste lands a considerable amount of the above material could be produced within the state of Iowa.

IV. *The Protective Value of the Forest.*

It is relatively easy to measure the value of the forest in the physical products which it produces. It is somewhat more difficult to measure the value of these forests in protecting soil against erosion, in protecting crops and buildings against the force of the wind, in beautifying the farmsteads or the furnishing of recreational areas for the people of the state.

It is equally difficult to measure the value of the forest in dollars, in conserving the water supply, in retarding rapid run-off of precipitation which causes erosion, in preventing the lowering of the water table in the soil and to a certain extent in modifying climate and the regulating of humidity of the atmosphere.

Although these values can not be calculated accurately in dollars they are values which are none the less real. Iowa which does not have extended forest areas, should give more attention to these more or less evasive values

than perhaps some other states which have been more abundantly endowed with forest lands but less abundantly with good agricultural soil.

We frequently see attempts being made to control the flooding of our streams. Too often the problem is attacked from an engineer's standpoint, when efficient control can only be measured by recognizing the source of the trouble and by reforestation denuded water sheds.

It is hardly necessary to mention the added value to the farmstead which is provided with an efficient block of trees about the farm buildings for protective purposes. In addition to the increase in attractiveness of a farmstead of this kind there is also an increase in value in hard dollars. The value of the forest in producing wild fruits suitable for birds should be recognized as a means of protecting our orchards against the depredations of the birds. Forest tracts will serve as a breeding place for insect destroying birds.

During the past few years the people of Iowa have been demanding that some attention be given to recreational areas, in the state. Through the Iowa State Board of Conservation many state park areas have been provided. Most, if not all, of these have timber tracts which should be permanently protected and in some cases extended so as to serve as recreational areas for all time for Iowa people.

V. *Financial Returns from Forestry in Iowa.*

Many timber land owners in Iowa at the present time are inclined to be discouraged because the state has not worked out a satisfactory method of marketing the wood land products from Iowa farms. The fact that Iowa's woodlands are scattered to such an extent has made the efficient marketing of forest products somewhat difficult. This, however, is a matter which will be worked out and the timber crops which are later produced in Iowa should not only be readily marketed but at a price which would make the forest a good investment on land of low valuation.

It will only be possible here to give a general idea as to financial possibilities in the production of a forest crop. As an illustration only the following data relative to the production of the quick growing cottonwood tree is given. This information based upon extensive studies made by the forestry section of the State Experiment Station.

This study of about fifty cottonwood plantations over Iowa has shown that under reasonable care thirty thousand board feet of lumber may be produced per acre in addition to a considerable number of cords of wood. On this basis considering that the cottonwood timber is grown on waste land the following will indicate the approximate returns per acre.

Returns at the end of a 35-year period, \$100 per acre.

Costs per acre, including harvesting, compounding interest on initial expenses, taxes, and interest on soil value, approximately \$400.00 and net returns, approximately, \$600.00.

The above statement is based on the assumption that the lumber cut from the cottonwood will be serviceable in building barns and other buildings on the farm. The conservative figure of thirty dollars per thousand board feet is used in this calculation.

In Iowa there is little excuse for not growing every fence post that is needed in the state. Experiments of the forestry section at the college

show that with several species of trees approximately one hundred fence posts can be grown per acre per year on waste land.

VI. *Increasing the Durability of Woods.*

Timber needs may be affected in two ways, first by the production of more timber, and second by the closer conservation through increasing the durability of woods in different uses.

Iowa farmers are particularly concerned in getting a greater period of service from their fence posts. This is being done by creosoting fence post woods, such as willow, cottonwood, soft maple, etc. Briefly, these woods which last for only three or four years untreated will be serviceable in fence lines for twenty to thirty years if given a creosote treatment at a moderate cost.

The use of creosote or other preservatives opens up the possibility of using a number of fast growing woods such as cottonwood and willow for fence post purposes. The great saving in doing this is apparent. The Experiment Station and Extension Service of the college are showing the farmers of the state the effectiveness in creosote treatment and are demonstrating how this work can easily be done on the farm.

VII. *What is Needed in Forestry in Iowa.*

(a) First of all, Iowa should recognize that she has real forestry problems to solve. The fact that Iowa is the center of one of the largest and most productive agricultural regions in the world, has caused the disregard of forest interests in the state which are of tremendous importance. A definite policy or forestry program for the state of Iowa should be worked out.

(b) Provision should be made within a reasonable time for assisting private land owners and others in reforestation work. In order to make headway in a program of this kind some provision should be made for furnishing forest tree stock to planters at the least possible cost.

This reforestation work would include the following:

1. The reforestation of privately owned lands which are not suitable for the production of agricultural crops.

2. Assisting municipalities in the planting and establishment of municipal forests.

3. Reforestation work on state owned waste lands including state park areas.

4. Reforestation work around some of the lakes of Iowa which are admirably suited for recreational purposes except for the lack of timber.

(c) Changing our present forest tax exemption law, in such a way as to better stimulate private enterprise in the production of forest crops. We should take the form of a small tax on the land itself and a final tax on the timber when cut.

(d) Stimulating, especially among the farmers of the state, more interest in windbreak and shelterbelt planting, protecting areas from erosion, treating timbers with preservatives, etc.

(e) Making a study of marketing problems with reference to forest products produced in the state.

(f) Providing for more co-operation with the federal government in forestry matters relating to Iowa.

L. H. PAMMEL,
B. SHIMEK,
G. B. MACDONALD.

THE REPORT OF THE COMMITTEE ON PUBLICATION

Your committee on Publication wish to make four recommendations which we herewith submit for your approval:

1. That only under exceptional circumstances non-members be permitted to independently publish papers in the Proceedings of the Iowa Academy of Science.
2. That all papers to be published in the "Proceedings" be in proper form for publishing and be handed to the Section Chairman at the time of the annual meeting.
3. That the Section Chairman present the papers to be published to the Editor not later than June 20 following the meeting.
4. That the publication of the abstracts of papers be discontinued.

LOUIS BEGEMAN,
H. S. CONARD,
A. L. BAKKE.

REPORT OF THE COMMITTEE ON MEMBERSHIP

Upon the recommendation of the Membership Committee, the following persons were elected to membership:

Transfers from Associate to Fellow:

Clark, O. R., Cedar Falls; Coffin, L. W., 1027 2nd Ave., Cedar Rapids; Griswold, D. M., Iowa City; Lugn, A. L., Iowa City; Levine, Max, Ames.

Fellows:

Becker, E. R., Ames; Klott, Rev. Joseph, Columbia College, Dubuque; Knight, H. H. Ames; Loehwing, Walter F., Iowa City; Park, O. W., Ames; Potter, Geo. E., Iowa City; Quan, G. N., Cedar Rapids; Tyndall, E. P. T., Iowa City; Wagoner, Lovisa, Ames.

Associates:

Albright, C. Leonard, 1722 J Ave., Cedar Rapids; Applegate, M. S., 1029 20th St., Des Moines; Bailey, Nancy, Iowa City; Beck, Carl A., Hall of Physics, Iowa City; Bishop, W. W., 935 26th St., Des Moines; Boley, Beula, Stockport; Brunk, W. Summer, 3420 Cottage Grove, Des Moines; Burk, Myrel, Cedar Falls; Byerly, Theodore C., U. of Mich., Ann Arbor; Carpenter, Phyllis I., Grundy Center; Cook, Howard, 1809 Park Ave., Cedar Rapids; Coepr, Norman C., 1221 24th St., Des Moines; Donahoe, Thomas C., St. Ambrose College, Davenport; Douglass, L. C., Grinnell, Iowa; DuMont, Phil, 2700 49th St., Des Moines; Dudycha, Geo., 1443 Mt. Vernon Ave., Cedar Rapids; Dunn, Stuart J., Morrill Hall, State College, Ames; Edgar, Rachael, Dept. Chemistry, Ames; Ehringer, E. H., 730 Grand Ave., Keokuk; Emmons, Chester, Oskaloosa; Engle, Olive L., 1618 30th st., Des

Moines; Fernow, Elizabeth, Marion; Gallup, George H., 211 L. A., Iowa City; Gilbert, Winifred, 1310 West 22nd St., Cedar Falls; Graham, Wm. A. P., Dept. Geol., Iowa City; Guise, Carl, Fairfield; Haterius, Hans, 217 E. Davenport St., Iowa City; Henderson, John H., Jr., Indianola; Hendrickson, Geo. O., Dept. Zoology, Ames; Hethershaw, Lillian, S. W. 21st St., Des Moines; Hunt, L. F., Cedar Rapids; Iversen, Ida E., 530 East St., Grinnell; Johnson, Leonard, 821 Peterson St., Ft. Collins, Colorado; Jones, David T., 818 E. 5th St., Vinton; Kleopfer, Herman J., Iowa Falls; Kirkman, Hadley, 910 2nd Ave., Rock Island, Ill.; Larson, Delia L., Iowa City, Iowa; Latta, Randall, Morning Sun; Low, Harry E., 528 E. Davenport St., Iowa City; McClung, Fay, Drake Univ., Des Moines; Mehlin, Theodore G., 1142 37th St., Des Moines; Newell, Walter S., Coe College, Cedar Rapids; Norlie, O. M., Decorah, Iowa; Page, Larry F., 2500 Kingman, Des Moines; Parks, Thomas B., Dept. Chemistry, Ames; Pickett, Captain Jerome, Coe College, Cedar Rapids; Poulter, Thos. C., Mt. Pleasant; Putnam, Edward K., Davenport; Robbie, Alex. C., Coe College, Cedar Rapids; Rogers, R. A., Junior College, Kansas City, Mo.; Sarvin, Paul B., Grinnell; Saylor, J. F., Buena Vista College, Storm Lake; Shepherd, Gerald, Belmond; Sherwood, Eva, Monticello; Shuttleworth, F. K., Dept. Psychology, Iowa City; Spiker, W. D., New Hampton; Stolba, Stanley, 627 20th Ave., West, Cedar Rapids; Tester, Allen C., Old Science Hall, Iowa City; Trysor, Homer J., 20 North Dodge St., Iowa City; Wardle, Addie Grace, Indianola; Wellmore, Beth, State University, Iowa City; Whitham, Daisy, Fairfield; Whitney, J. D., Dept. Physics, Iowa City; Wilson, Ward H., 2112 Drake Park Ave., Des Moines; Yohe, R. V., 728 31st St., Des Moines.

Respectfully submitted,

A. O. THOMAS.

LIST OF MEMBERS IN ATTENDANCE

Aardal, A. A., Ames; Abbott, Roy L., Cedar Falls; Albright, C. Leonard, Cedar Rapids; Almy, Frank F., Grinnell; Anderson, J. E., Cedar Rapids; Apfel, Earl T., Iowa City; Arnold, Carolyn, Grinnell; Bailey, A. C., Ames; Baker, Merle R., Ames; Bakke, A. L., Ames; Baldrige, Willis M., Mt. Pleasant; Baldwin, F. M., Ames; Bartlett, Raymond, Mt. Pleasant; Bartow, Edward C., Iowa City; Bates, C. O., Cedar Rapids; Bechtel, Welker, Dubuque; Begeman, L., Cedar Falls; Bell, Willis J., Mt. Pleasant; Benedict, A. A., Ames; Bennett, George, Iowa City; Birosel, D. M., Iowa City; Bishop, W. W., Des Moines; Blagg, Betty, Grinnell; Blom, E. C., Des Moines; Bond, Perry A., Iowa City; Brown, F. E., Ames; Buchanan, R. E., Ames; Burk, Myrel, Cedar Falls; Butler, L. W., Ames; Cable, Emmett J., Cedar Falls; Calhoun, S. Fred, Mt. Pleasant; Campbell, Art W., Iowa City; Castetter, E. F., Ames; Charles, John W., Cedar Falls; Chittenden, E. W., Iowa City; Chittum, John W., Mt. Pleasant; Clark, O. R., Cedar Falls; Cluhak, M. A., Cedar Rapids; Coleman, G. H., Iowa City; Coles, Harold W., Ames; Colpitts, Julia T., Ames; Conard, Henry S., Grinnell; Condit, Ira S., Cedar Falls; Correll, Lynne M., Ames; Cox, Mateal, Ames; Cratty, R. I., Ames; Crozier, W. D., Iowa City; Daniells, Marian E., Ames; Daugherty, R. D., Cedar Falls; Davis, Geo. E., Ames; Deihl, D. **George, Grinnell**; Delevan, Fred, Iowa City; DeRyke, Willis, Iowa City;

Dille, Glenn S., Cedar Rapids; Dix, Florence, Iowa City; Donohoe, T. C., Davenport; Douglas, L. C., Grinnell; Ellett, A., Iowa City; Erdman, Lewis H., Ames; Evans, Harry P., Ames; Finkenbinder, E. O., Cedar Falls; Fisher, Dorothy, ———; Fitzpatrick, F. L., Cedar Rapids; Fleming, Annie W., Ames; French, R. A., Dubuque; Getchell, R. W., Cedar Falls; Gilbert, Winifred, Cedar Falls; Gloeckler, Bernhard B., Mount Pleasant; Gouwens, C., Ames; Graber, M. E., Sioux City; Green, Edmund Q., Iowa City; Gwinn, Ira, Iowa City; Harrison, Dorothy, Mount Pleasant; Hauber, U. A., Davenport; Hayes, Anson, Ames; Heathershaw, Lillian, Des Moines; Heitkamp, G. W., Davenport; Helmick, P. S., Des Moines; Hendricks, Robert W., Mount Vernon; Hersey, S. F., Cedar Falls; Hinman, Jack J., Jr., Iowa City; Holbrook, Royal H., Cedar Rapids; Holl, D. L., Ames; Humfield, Harry, Ames; Iversen, Ida E., Grinnell; Jaques, H. E., Mount Pleasant; Jones, David T., Iowa City; Kay, G. F., Iowa City; Kearney, Dora E., Cedar Falls; Kelly, Harry M., Mount Vernon; Kinney, C. N., Des Moines; Knight, Edith F., Grinnell; Knight, Nicholas, Mount Vernon; Lantz, C. W., Cedar Falls; Lapp, C. J., Iowa City; Linder, Ernest E., Iowa City; Lindstrom, E. W., Ames; Linton, Clarissa Clark, Iowa City; Linton, C. S., Iowa City; Loehwing, W. F., Iowa City; Lutes, Neil, Dubuque; Lutes, O. S., Iowa City; MacDonald, G. B., Ames; Malin, Gladys A., Dubuque; Martin, G. W., Iowa City; Maxwell, H. L., Ames; McClung, Fae, Des Moines; McGaw, Frederick M., Mount Vernon; Mehlin, Theo. G., Des Moines; Melhus, I. G., Ames; Meyer, Alfred W., Cedar Rapids; Miller, K. J., Iowa City; Moots, Elmer E., Mount Vernon; Morehouse, D. W., Des Moines; Morrow, Roger, Iowa City; Mullin, Catherine, Iowa City; Nelson, M. J., Cedar Falls; Norris, H. W., Grinnell; Oelker, W. C., Grinnell; Paine, Fred S., Iowa City; Pammel, L. H., Ames; Parish, Jessie, Cedar Falls; Perley, Anne, Grinnell; Peterson, Ben H., Iowa City; Philips, D. P., Cedar Falls; Plagge, H. J., Ames; Poulter, Thos. C., Mount Pleasant; Raiford, L. Chas., Iowa City; Rath, H. Earl, Cedar Falls; Read, O. B., Cedar Falls; Reeves, R. G., Ames; Reilly, John F., Iowa City; Reitz, H. L., Iowa City; Reusser, Fred, Storm Lake; Rider, A. J., Des Moines; Rigdon, Vera E., Cedar Falls; Rinehart, G. R., Mount Pleasant; Rockwood, E. W., Iowa City; Rogers, R. A., Iowa City; Ross, C. C., Ames; Ross, L. S., Des Moines; Rowe, Paul, Glenwood; Ryan, C. F., Mount Pleasant; Salisbury, Winfield W., Iowa City; Sarwin, Paul B., Grinnell; Scheck, M. G., Des Moines; Scheidemann, Norma V., Iowa City; Scott, Winfield, Cedar Falls; Searight, Walter V., Iowa City; Seashore, C. E., Iowa City; Sherman, Leo P., Grinnell; Sherwood, Eva, Monticello; Shimek, B., Iowa City; Shumaker, J. B., Ames; Shuttleworth, Frank K., Iowa City; Sister Mary Vincentius, Dubuque; Sister M. Resignata, B.V.M., Dubuque; Smith, E. R., Ames; Smith, Helen F., Ames; Smith, John E., Ames; Smith, Scott W. Jr., Cedar Rapids; Solomon, Everett I., Cedar Rapids; Spinney, L. B., Ames; Stebbins, Joel, Madison, Wisconsin; Stewart, G. W., Iowa City; Stoner, Dayton, Iowa City; Stookey, S. W., Cedar Rapids; Stoops, J. D., Grinnell; Stromsten, Frank A., Iowa City; Sutliff, C. B., Iowa City; Thomas, A. O., Iowa City; Travis, Roland C., Iowa City; Truesdale, E. C., Grinnell; Tyndall, E. P. T., Iowa City; Vance, Thomas F., Ames; Wagoner, Louisa C., Ames; Walker, Rudger H., Ames; Watkins, J. H.,

Ames; Weaver, Frank D., Iowa City; Weld, LeRoy D., Cedar Rapids; Wellman, Beth, Iowa City; Werkman, C. H., Ames; Wester, C. W., Cedar Falls; Whitney, John D., Iowa City; Willson, L. H., Ames; Wilson, Ben H., Mount Pleasant; Winters, Grace, Iowa City; Wissink, G. M., Ames; Woodrow, Jay W., Ames; Woods, Gladys M., Mount Pleasant; Woods, Roscoe, Iowa City; Wylie, C. C., Iowa City; Yeager, Don G., Grinnell; Zentmire, Zelma, Iowa City.