

1955

## Reports: The Secretary-Treasurer; Financial Statement; Committee Reports

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## Report of the Secretary-Treasurer

The Academy had 1,326 members on March 1, 1955, including 12 emeritus fellows, 17 life fellows, 344 fellows and 955 associates.

The long and faithful service of F. G. Brooks as our Editor was ended by his sudden death on March 4, 1955. He had edited eight volumes of our Proceedings, and during his tenure the Proceedings showed a steady increase in quality, due in large part to his efforts.

President R. W. Getchell appointed David G. Mobberley to fill out the unexpired term of Dr. Brooks. A number of committee appointments were also made by Dr. Getchell. J. C. Kercheval was named Chairman of the High School Relations Committee and W. E. Diedrichsen was added to the committee. R. V. Drexler was added to the Science Talent Search Committee and A. W. Swensen to the Library Committee. J. C. Gilman was made Chairman of the Committee on Incorporation, with Cornelius Gouwens, P. S. Helmick, H. G. Hershey, and Jean L. Laffoon as members. Dr. Getchell appointed Martin L. Grant as Chairman of the Committee on the Stephens Manuscript, and F. G. Brooks, J. H. Ennis, E. A. Kozicky, and B. F. Stiles were named as additional members.

Volume 61 of the Proceedings was published on December 4, 1954. Copies were mailed to ten major libraries on that date. Thus there was only a seven-month period from the time of the meeting to the date of mailing of the volume. Credit for this short lapse belongs to Dr. Brooks and to the Verstegen Company. The volume contained 656 pages and 1,700 copies were printed.

Dr. Jessie A. Parish, a member of the Academy for 32 years, passed away on August 10, 1954. Her will provides that her husband will have lifetime use and control of her 240-acre farm near Reinbeck, after which the Academy will have the use of the property and ultimately will have full possession of it. This generous act by Dr. Parish will eventually make it possible for the Academy to carry on activities which are not now feasible due to our limited finances.

JEAN L. LAFFOON, *Secretary-Treasurer*

## Financial Statement

March 1, 1955

<b>RECEIPTS</b>		<b>Current Expense Account</b>	
Balance on hand March 1, 1954 .....			\$ 668.43
Dues .....	\$1,214.00		
Fellows' fees .....	44.00		
Life fellow's fees .....	20.00		
Interest on U. S. bonds .....	94.40		
Sales of Proceedings .....	60.12		
Redeposit of returned check .....	1.00		
Postage refunds .....	2.45		
Total .....	\$1,435.97		
Total receipts .....			\$2,104.40
<b>EXPENDITURES</b>			
Stationery and printing .....	\$ 628.37		
Postage .....	436.52		
Freight on Proceedings .....	120.05		
Secretary's miscellaneous expenses .....	69.26		
Editor's office expenses .....	34.47		
F. G. Brooks, honorarium .....	100.00		
Jean L. Laffoon, honorarium .....	100.00		
1954 Academy Address, honorarium .....	25.00		
D. C. Stroud, honorarium .....	25.00		
Iowa Junior Academy of Science .....	75.00		
Expenses, 1954 Academy Conference delegate .....	30.00		
Bank charges .....	26.32		
To savings account, fellow's fees .....	64.00		
Total expenditures .....	\$1,733.99		
Balance on hand March 1, 1955, on deposit, Union Story Trust and Savings Bank, Ames, Iowa .....			\$ 370.41
<b>RECEIPTS</b>		<b>Savings Account</b>	
Balance on hand March 1, 1954 .....			\$ 852.43
Interest on savings account .....	\$ 12.67		
Fellows' and Life fellow's fees .....	64.00		
Total .....	\$ 76.67		
Total receipts .....			\$ 929.10
<b>EXPENDITURES</b>			
Purchase of U. S. Savings Bond, Series K ..	\$ 500.00		
Balance on hand March 1, 1955, on deposit Union Story Trust and Savings Bank, Ames, Iowa .....			\$ 429.10
<b>Statement of Total Assets</b>			
U. S. Savings Bond, Series F Face value \$1,000, purchased December, 1943, due 1955. Present value .....	\$ 962.00		
U. S. Savings Bonds, Series G .....	3,500.00		
U. S. Savings Bond, Series K .....	500.00		
Savings account, March 1, 1955 .....	429.10		
Total endowment fund .....			\$5,391.10
Checking account (current expense account), March 1, 1955 .....	\$ 370.41		
Total assets, March 1, 1955 .....			\$5,761.51
Total assets, March 1, 1954 .....	\$5,949.86		
Loss in assets during fiscal year .....	\$ 188.35		

JEAN L. LAFFOON, *Treasurer*

## Report of the Auditing Committee

We have examined the records of the Treasurer for the period of March 1, 1954 to March 1, 1955 and find the accounts in good order.

R. S. ALLEN

WALTER C. ROTHENBUHLER

## Report of the Executive Committee

The Executive Committee met at 2:40 p.m., April 15, 1955, in the Faculty Lounge, Administration Building, St. Ambrose College. President R. W. Getchell presided. Others present were: U. A. Hauber, J. L. Laffoon, D. G. Mobberley, M. L. Grant, G. O. Hendrickson, J. C. Gilman, J. C. Kercheval, P. S. Helmick, W. C. Oelke and F. E. Brown.

The reports of the Secretary-Treasurer, Auditing Committee, Librarian and the standing committees on Biological Survey, High School Relations, Conservation, Finance and Endowment, Membership, and Science Talent Search were accepted.

The report of the special committee on incorporation was accepted. A report of the Stephens manuscript committee was received and it was decided to continue this committee for one year.

The recommendations of the Committee on A.A.A.S. research grants were considered. A motion was passed to allot the 1954 grant of \$195 to E. W. King for use in a study of the wing structure and venation in the Coleoptera. A motion to allot \$150 of the 1955 grant to L. E. Everson for use in a study of the distribution of weeds in Iowa was carried. These grants are subject to A.A.A.S. approval.

Dr. Grant reported that arrangements are being made by another group for publication of certain work by R. E. Cleary on Iowa fish and that no further action by the Academy is needed.

A motion was adopted to meet at Iowa State Teachers College in Cedar Falls on April 26 and 27, 1957. It was noted that in 1954 it was decided that the Academy would meet at Grinnell College on April 20 and 21, 1956.

Possible modifications in the form of the published membership list were discussed. It was agreed that the Secretary could use his discretion in selecting the form to be used.

It was moved and adopted that the Necrology Committee be dispensed with and that its functions be assumed by the Membership Committee, beginning in 1956.

A motion was adopted recommending to the members that Article 10 of the by-laws be amended to read: "Art. 10. Fiscal

year—The fiscal year of the Academy shall coincide with the calendar year,” the change to take effect on January 1, 1956.

It was moved and carried that the new President should appoint a Committee to study the constitution, by-laws, and articles of incorporation, in order to submit any recommended changes before the 1956 meeting.

A proposal to allot additional funds to the Junior Academy for use in printing their newsletter was discussed. A motion to make as much as \$50 extra available to the Junior Academy for their newsletter was adopted.

The meeting was adjourned at 5:50 p.m.

JEAN L. LAFFOON, *Secretary*

## Report of the Librarian

### Distribution of the Proceedings of The Iowa Academy of Science to Exchange Institutions

March 1, 1954 to February 28, 1955

During the year March 1, 1954 to February 28, 1955, two volumes of the Proceedings of the Iowa Academy of Science were distributed to various institutions and libraries in exchange for their scientific publications. Volume 60, 1953 was not received in time to be included in the last report but was mailed out in March 1954 and a brief report of distribution on Exchange is included here. Distribution of Volume 61, 1954, was completed in January of the current year.

The number of copies of the Proceedings being made available to scientists in other countries through exchange with foreign libraries and institutions continues to grow. This interest in the Academy's publication accounted for an increase from 134 copies of Volume 59 sent abroad in 1953 to 178 copies of Volume 61 in 1955.

The following statistics indicate the details of the distribution for the last two volumes of the Proceedings of the Iowa Academy of Science.

Number of institutions on the gift and exchange mailing lists to which the Proceedings of the Iowa Academy of Science have been sent.

	v. 60, 1954	v. 61, 1955
Domestic	156	157
Foreign	163	178

Detailed analysis of the distribution of Volume 61 of the Proceedings of the Iowa Academy of Science.

(The distribution of Volume 60 was similar to that of Volume 61.)

Sent to members	1160
Sent on exchange	299
Sent on subscription	13

Copies sent as gifts to Iowa Libraries, Government agencies and Abstracting Journals					36
Total number of copies distributed					1508
Copies available on exchange					192
Institutions receiving Volume 61 of the Proceedings as gifts.					
U. S. Government agencies					3
Iowa Libraries					27
Other Libraries					4
Abstracting Journals					2
		1953/54		1954/55	
Balance on hand	March 1, 1953	\$560.75	March 1, 1954	\$617.50	
Sale of Proceedings (plus postage)	1953/54	60.94	1954/55	60.12	
<b>TOTAL FUNDS AVAILABLE</b>	1953/54	621.69	1954/55	677.62	
Disbursements for					
Postage	1953/54	4.19	1954/55	7.73	
Balance	March 1, 1954	\$617.50	March 1, 1955	\$669.89	

ROBERT W. ORR, *Librarian*

## Report of the Committee on Finance and Endowment

Your Committee on Finance and Endowment has examined the report of the Secretary-Treasurer and commends him on his competence. The recommendations of this committee for revision of the Constitution are under way and we trust that they will be accepted by the membership. With the increase in available funds the affairs of the Academy should be well taken care of. However, in order to tide us over the coming fiscal year we recommend that the Secretary-Treasurer be empowered to use sufficient money from the Endowment fund to carry out the business of the Academy in the interim until the new money be available; such money to be returned to the endowment fund at that time.

We further recommend that the Secretary-Treasurer transfer the money, (\$1000) now invested in the United States Savings Bond, series F, to a United States Saving Bond, series K, at the time the former bond reaches maturity.

Respectively submitted,

ROBERT S. CASEY

L. P. JOHNSON

ROY A. NELSON

JOSEPH C. GILMAN, *Chairman*

## Report of the Membership Committee

The membership committee, consisting of the undersigned, has carried on its usual activities this year with a view to increasing the Academy membership over that of last year. Each of the members of the committee has been active in his area, and the chairman is most grateful for the continued fine work and cooperation of his committee. In addition personal letters were sent out to key persons in about twenty institutions whose members have been active in academy affairs. The usual mimeographed letter to all Iowa Colleges and Junior Colleges was omitted this year as the chairman has not felt this method of solicitation of members produced results worth the effort.

The chairman, while being willing to continue as a member of the committee, asks to be relieved of the duties of the chairmanship for the next term of office.

The membership committee wishes to present the following names for election to the Iowa Academy of Science.

### Election as fellows:

18 persons indicated as fellows with 1955 as the year of election in the membership list.

### Transfer from associate to fellow:

Patrick G. Grimes, Ames; Stanley C. Grant, Cedar Rapids; Herbert E. Hendriks, Mount Vernon; Bernard D. LaMont, Ames; David G. Mobberley, Indianola; Frank R. Parchen, Jr., Ames; Joe D. Woods, Des Moines.

### Election as associates:

102 associates listed in the membership list with 1955 given as the year of election.

Respectively submitted,

H. L. DEAN	O. C. KREIDER
R. V. DREXLER	T. H. LIGGETT
R. W. GETCHELL	U. A. HAUBER
L. P. JOHNSON	W. C. OELKE, <i>Chairman</i>

## Report of the Biological Survey Committee

The Proceedings of the 1954 meeting of the Iowa Academy of Science contain a number of papers illustrative of the specific type of work the Biological Survey Committee is interested in encouraging. These were papers on Fungi (Martin), Oak Wilt (McNabb), Vascular Flora (Wangenknecht), Forest Ecology (Dimit and Russell), Violets (Russell), Soil Protozoa (Mote), Fish (Harrison and Speaker), Buffalo Fish (Moen), Bob-whites (Boehnke), Pheasants (Kozicky et al.), Grackles (Bliese) and Cottontails (Kline and Hendrickson). In addition, two general papers summarized our knowledge of two very important groups, the Vascular Plants (Thorne) and the Mammals (Miller).

All of these are relatively short papers, for which the Proceedings are admirably adopted, but a larger problem is the difficulty of getting longer contributions published. Several of this type are on hand now, with no mechanism in sight for getting them distributed.

For general use, less detailed and more popular works on such subjects as the above are greatly needed for the use of non-specialists, for application in the schools, etc.

One way to stimulate popular interest might be, for example, to have the Academy publish each year in the volume of Proceedings all the records that could be secured from the previous year about some one group of plants and animals, a different group each year. The colleges and high schools, using biology departments or courses as centers for organization of the information, could, in one year, make reptile observations, in another, collect mosses, and so on, perhaps picking out such groups (other than birds, insects, and fish) that have been studied least. It might be very stimulating to the students in participating classes to realize that their observations were to help in the publication.

Another great concern of the Committee is the increasing desirability of securing natural areas, to be kept more-or-less completely undisturbed as examples of what the biota of the state was in its primeval condition. This particularly applies to prairie and bog areas. The fear is that we will wake up some day and find it is too late. Within the last two years, for example, the Big Fen in Emmet Co., an excellent prairie in Crawford Co., and a third of the Thorn Prairie in Dickinson Co. have been destroyed.

HENRY S. CONARD

PAUL MEGLITSCH

H. E. JAQUES

ROBERT F. THORNE

MARTIN L. GRANT, *Chairman*

### **\*Report of the Committee on Incorporation**

The Committee on Incorporation has worked out a set of articles of incorporation for the Academy with the help of Mr. C. D. Nolan, Attorney-at-law of Iowa City. They conform in so far as we could accomplish it with the constitution of the Academy and we recommend their adoption.

CORNELIUS GOUWENS

H. G. HERSHEY

P. S. HELMICK

JEAN L. LAFFOON

J. C. GILMAN, *Chairman*

\*A certificate of incorporation of the Academy was issued on May 27, 1955 by the Iowa Secretary of State. The text of the Articles of Incorporation will be published in vol. 63 of the Proceedings, along with the revised Constitution and the By-laws.



## Report of the High School Relations Committee

The 1954 convention of the Iowa Junior Academy of Science was held on the campus of Iowa State College in Ames on April 29 and 30. In making plans for the exhibits of the convention it was thought the "Exhibition Hall" of the college would be adequate but all the available space in that building was soon taken and exhibits overflowed into portions of two other buildings. Junior Academy members feel that insufficient attention has been given to their needs for proper exhibit facilities and hope that by closer cooperation with the Senior Academy and its local chairmen this lack may be overcome.

Awards were made by the judges as follows:

### SUPERIOR

S.O.S. Wilson High, Cedar Rapids.....	Physical
East High Chemists, Sioux City.....	Physical
Science Club, City High, Iowa City.....	Physical
Atoms and Eves, East High, Waterloo.....	Physical
Science Club, Campus School, Cedar Falls.....	Biological and Physical
Biology Club, Roosevelt High, Cedar Rapids.....	Biological

### EXCELLENT

Alpha Beta Kappa, City High, Cedar Falls.....	Biological and Physical
S.O.S., Wilson High, Cedar Rapids.....	Biological
Science Club, City High, Charles City.....	Biological and Physical
East High Chemists, Sioux City.....	Biological
General Science Club, Amos Hiatt, Des Moines.....	Physical
Science Club, Senior High, Oskaloosa.....	Physical

The essay project was conducted by the Senior Director of Essays, Sister Mary Edwina, B.V.M. of St. Joseph's Academy of Dubuque, assisted by the Junior Director of Essays, Walter Gohman of Campus School, Cedar Falls. Awards were made upon the decisions of the judges as follows:

### SUPERIOR

Sandra Deiterich, Biology Club, Roosevelt High, Cedar Rapids	Research on Reflexes
Paul Firriett, Charles City Sc. Club, Charles City	A Dissertation on an Extra-Nuclear Meson Field and Its Relation to the Structure of Polar Compounds
Gerald Guralnik, Alpha Beta Kappa, City High, Cedar Falls	Perpetual Developer

### EXCELLENT

Mary Ann Schenker, S.O.S., St. Joseph's Academy, Dubuque	Bubbling Happiness
Janice David, Tri Science Club, New Hampton.....	Foot Testing
Patsy Fitzgerald, Tri Science Club, New Hampton.....	Gamma Globulin
Sandra Snyder, Tri Science Club, New Hampton	High Blood Pressure

The Executive Committee of the Junior Academy met at Cedar Falls on the Campus of Iowa State Teachers College on September 11, 1954. The meeting was in charge of President Tracy Sweet of Charles City. Other members present were Ronald Jensen, Vice President; Mary Ann Schenker, Secretary; Richard Van Dyke, Director of Publications; W. H. Diedrichsen, Senior Coun-

cilor; R. H. Dillon, Junior Director of Essays; Dr. J. W. Kercheval, Chairman of the High School Relations Committee; and Dean C. Stroud, Executive Secretary. Walter Gohman, Senior Director of Essays, was ably represented by Mr. James Winkleman of Campus School.

An important item of business was the discussion of the promotion of the Junior Academy in order to obtain more club members. The Committee was of the opinion that coverage of all high schools in the state by the Iowa Science News Letter, the Junior Academy's official publication, might result in an increased membership. It was suggested that the councilors make contacts in their respective communities to obtain financial aid from interested firms. So far two such contacts have resulted in promised help for additional issues of News Letter for 1955.

A short time before the convening of the committee we learned of the rather sudden passing of the Junior Councilor, Mr. Harold Bryant of Oelwein. Mr. Oliver Eason of City High School of Cedar Falls was recommended to take Mr Bryant's place. He has accepted and we are glad to have Mr. Eason as Junior Councilor.

A motion was made and passed that a Director of Exhibits be named to care for that part of the state convention. Mr. James Winkleman of Campus School of Cedar Falls is now ably filling that office. The entire roster of the executive committee of the Junior Academy is now filled and those in charge of the various duties are actively completing plans for the 1955 convention.

Again, the Junior Academy is indebted to Mr. Richard Van Dyke and his club members of the Charles City club for the publication of the Iowa Science News Letter for another year. We hope Mr. Van Dyke and his club can continue their good work for the Academy. Also, we very much appreciate the assistance that Dr. F. E. Brown and his committee provide in helping to finance the September issue of Iowa Science News Letter. The number of subscriptions to our publication is not nearly as many as the membership of pupils in the 23 clubs. More needs to be done by club sponsors in obtaining subscriptions from individual members of their clubs.

We have continued our affiliation with Science Clubs of America during the past year. We appreciate the service that the SCA and their publications provide for our clubs.

At this date of writing, March 31, 1955, there are twenty-three clubs enrolled as members of the Junior Academy. Four of these clubs are new members this year. We have to report that five clubs on the membership list last year have not sent in a membership for 1954-55. The present roster is as follows:

Cedar Falls.....	Alpha Beta Kappa, City High
Cedar Falls.....	T.C.H.S. Science Club, Campus School
Cedar Rapids.....	Biology Club, Roosevelt High
Cedar Rapids.....	S.O.S. Club, Wilson High
Charles City	
.....	Charles City Junior-Senior Science Club, City High
Clear Lake.....	Senior Science Club, Senior High
Clinton.....	Chemistry Club, Senior High
*Davenport.....	Molecules, Inc., Davenport Public Museum
Denison.....	Ye Atomic Powers, High School
Des Moines.....	General Science Club, Amos Hiatt
Des Moines.....	Science Club, East High
Dubuque.....	S.O.S. Club, St. Joseph's Academy
*Dyersville.....	Science Club, Xavier High
*Farmington.....	Farmington Science Club, High School
Keokuk.....	Phy-Chem Club, Senior High
New Hampton.....	Tri-Sci Club, High School
Oskaloosa.....	O.H.S. Club, Senior High
Sioux City.....	East High Chemists, East High
Somers.....	T.O.P.S.I. Club, High School
Waterloo.....	Atoms and Eves, East High
Waterloo	
.....	O.L.V.A. Scientists, Our Lady of Victory Academy
*Riceville.....	Riceville Science Club, High School
Tipton.....	Tipton Science Club, High School

\*New Members 1954-55

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

1. That the appointment of the following persons as adult advisors be made for the Junior Academy for 1955-56.  
 Senior Councilor, Mr. Oliver Eason, City High, Cedar Falls  
 Junior Councilor, Mr. Richard Beitzel, East High, Waterloo  
 Senior Director of Essays, Ralph H. Dillon, Senior High, Oskaloosa  
 Junior Director of Essays (to be appointed)  
 Director of Publications, Mr. Walter Gohman, Campus School, Cedar Falls  
 Director of Exhibits, Mr. James Winkleman, Campus School, Cedar Falls  
 Executive Secretary, Mr. Dean C. Stroud, Amos Hiatt Junior High, Des Moines
2. That the Iowa Academy of Science through planning by its officers and committees work out a program for the annual Academy meeting whereby there may be more personal contact and discussion between its members and members of the Junior Academy. In this regard it is further recommended that arrangements be made for the Junior Academy to display its exhibits in a location easily accessible to the members of the Senior Academy. The Senior Academy has a very vital responsibility in stimulating science interest in these potential future scientists. These are ways it may be furthered.
3. That the Senior Academy make provision for exhibit space for all reservations received by the Director of Exhibits at a reasonable time, as specified by him, previous to the Academy convention.

4. That a grant of seventy-five dollars be continued for the financial support of the work of the Junior Academy for 1955-56.
5. That an additional grant be made to help finance the publication and mailing of the News Letter to the junior and senior high schools in the state.

Respectively submitted,

W. E. DIEDRICHSEN	DEAN C. STROUD
GRANT O. GALE	A. F. VOIGT
LELAND P. JOHNSON	J. W. KERCHEVAL, <i>Chairman</i>

## Report of the Committee on Science Talent Search

The nine honorees of 1954 are all enrolled in college. We believe that a large fraction of them received aid from the schools in which they enrolled, in addition to the \$1400 in cash awarded by Clinton Foods, Inc.

A notice of the Ninth Iowa Science Talent Search was sent to science teachers in the high schools of Iowa before school closed in the spring. A reminder was mailed to each school soon after school opened in the fall. Representatives of 73 schools requested 362 sets of entrance blanks, and 61 completed examinations were returned to Science Clubs of America. On February 15 these were sent to the Committee on Science Talent Search. After individual examination of these papers by separate members of the committee had enabled the best one-third of the papers to be selected, the committee assembled in Ames on March 26 to make final selections and to determine the rank of each. Because of considerable difficulty in deciding some rankings, ten honorees were chosen and ranked as follows.

1. Ronald William Wardle, 1108 Murray Drive, Ames, Iowa.  
Ames Senior High School.
2. Mark William Jarvis, Route 1, Des Moines 11, Iowa.  
Johnston Consolidated School.
2. Rosemary Catherine Maiers, 1762 Madison St., Dubuque, Iowa.  
St. Joseph Academy.
2. Dave Jon Spyr, 700 E. Court, Charles City, Iowa.  
Charles City High School.
3. Philip Alois Birk, U.S.V.A. Hospital, Knoxville, Iowa.  
Knoxville High School.
3. Carol Ann Chambers, 390 S. Grandview Ave., Dubuque, Iowa.  
St. Joseph Academy.
3. Lee F. Frank, 2816 Sunset Circle, Sioux City, Iowa.  
Central High School.
3. Gary L. Ferguson, 1419 Cook St., Sioux City, Iowa.  
Central High School.
3. James Calvin Hershberger, Route 2, LeMars, Iowa.  
LeMars High School.
3. Thomas Fred Kraemer, 1172 Hotz Ave., Iowa City, Iowa.  
Iowa City High School.

We have been assured that \$1500 will be available for Clinton Foods Science Scholarships: \$300 for one first place; \$200 for each of three second places; and \$100 for each of six third places.

This group was entertained at the plant of Clinton Foods Inc. on April 14, brought to Davenport that evening and were guests of Clinton Foods Inc. while attending the meetings of the Iowa

Academy of Science and the Iowa Junior Academy of Science on April 15 and 16 to receive their certificates.

All of the honorees have chosen the colleges they wish to attend and letters have been written asking these colleges send to the appropriate honorees all blanks needed to apply for such aid as is given to students who show unusual promise of being outstanding in science.

Clinton Foods Inc. has appropriated \$2000 for the year 1956, and the first notices of the Tenth Iowa Science Talent Search are being mailed out April 14-16.

It is impossible to list all of the persons and organizations whose aid is indispensable, but among those who have rendered the most service are: Clinton Foods Inc. which furnishes the cash scholarships and pays the expenses, and their Research Director, George T. Peckham, who administers the fund and makes the Awards; Science Clubs of America which administers the examinations, collects the papers and transmits them to us; The Iowa Academy of Science and the Iowa Junior Academy of Science for their sponsorship and a very desirable place on their program; Information Service of Iowa State College for sending out our announcements; and the newspapers and radio and television stations which have been so generous with their time. We are very grateful for all these and other favors we have received.

E. R. BECKER

J. V. McKELVEY

R. V. DREXLER

J. I. ROUTH

G. O. GALE

F. E. BROWN, *Chairman*

### Report of the Committee on Conservation

Growth in agriculture, industry, and recreation demands more attention to Iowa's water resources. The Geological Survey of the U. S. Department of the Interior, in its Annual Summary of the Water Year, Water Resources Review Magazine for 1954, shows streamflow excessive in northwest counties, deficient in the southeast, and about normal between those two corners of Iowa. Yet, June floods in large rivers were destructive particularly in the southeast region. Increasing progress continues in ways and means to control excess rainfall where it falls, or near there. Maintenance of this control and its further development is the business of all of us. The control program requires more scientific exploration, more coordinated thought and planning, and more cooperative accomplishment. Water must be under control where it falls, where surplus leaves the state, and at all points between.

A leading agency operating in all of the counties, the Soil Conservation Service acknowledges the increasing cooperation of allied agricultural agencies, several state-wide conservation organizations, many sportsmen's groups, equipment dealers and other business

men, teachers, youth groups, civic groups, and thousands of interested farmers and other citizens. The gains of 1954 in numbers of cooperating farmers and their acres of about 12 percent brought the totals to around one-fourth of all the state involved in cooperative soil and water conservation activities. The number of farm ponds grew nearly 50 percent to 7,352 last year. Desirable practices of contour farming, terracing, pasture improvement and woody plantings, increased as much as 20 percent in the past year.

The attendance of visitors at the State Parks continued to increase in the past year. Several state-wide conservation organizations of citizens continued to advocate a need for additional maintenance funds. A county park plan to be financed by counties has been promoted by many citizens to provide more local recreation and to relieve pressures in the State Parks system.

Some progress was made in the erosion control program at nine artificial lakes last year. Sodding of eroding bare spots, riprapping shorelines, grassing of established waterways, and weir building were done so far as limited funds permitted on state-owned land bordering the lakes. Some terracing, pasture improvement, and construction of ponds at heads of gullies on adjacent farmlands to check siltation of the lakes was accomplished through farmer and Soil Conservation Service cooperation. More education is needed to speed such improvements.

Six Federal and State cooperative woodland projects, chiefly in eastern counties and each under advisory administration of a district forester, were active. A total of 812 woodland owners were assisted, and 442 wooded tracts with 38,441 acres were improved by the owners. Cooperating woodland operators netted a gross sum of over \$100,000. Also, 312 forest product operators were advised.

The Iowa Cooperative Forest Research Unit continued with projects in woodland management in bottomlands, survey of tree species to plant in southeastern counties, rates of decay in forests and woodlots, and an economic study on an 80-acre wooded tract. To protect white pines at seven State Parks and Forests, a Federal reservation and 12 private plantations, blister rust control was practiced in 1954. In oak wilt control chemical treatments apparently have not given complete control of the disease for extended periods of time. Silvicultural treatments of severing root grafts between trees and removal of diseased trees were continued. Experimentally, sap and fungus feeding beetles have transmitted oak wilt disease organisms over long distances. Examinations of organisms on several hundred birds in areas of the disease have not shown them to be carriers of the wilt producing agent.

The State Conservation Commission's cooperative nursery provided shrubs and trees at nominal costs to landowners for erosion control and wildlife plantings. Approximately 1,000,000 woody

plants of 30 species, of which multiflora rose and red pine were most numerous, were dispensed.

A report on experiments with burning in the management of State-owned prairie tracts is in an article following this report.

In central, southern and western streams the populations of the channel catfish, the principal species of economic importance, seemed to be rather static and at the normal carrying capacity for each stream. Reproduction of the species for the past year was good and about normal, except for the Big Sioux River where reproduction was unusually high. The channel catfish populations appeared high in all eastern rivers. There the populations were dominated by 6 to 9-inch fish, although good numbers of larger fish were present. Walleye and northern pike populations in most streams were higher than usual, whereas, the smallmouth bass populations seemed to be falling, at least in the north-central part of the state. In 1954-55, the first year-round open season for trout was experienced by anglers in northeastern counties. Most reports indicated average success with larger trout taken during the winter months. Commercial fishermen took approximately 2,250,000 pounds of commercial species of fish from the Mississippi River in 1954.

The vastly increased fishing pressure of recent years has not reduced standing crops of fish in any of the lakes, as shown in population surveys, creel censuses and bottom food fauna tests. Recent relaxing of regulations permitted a larger harvest of fishes that formerly died of old age. The average angler caught about one fish an hour in the natural lakes last year, which is approximately the same as the hourly catch in neighboring states that have important lake sport fisheries.

The State-owned artificial lakes and the southern city reservoirs continued to provide good fishing, especially for pan fishes. A creel census of seven artificial lakes during 1954 indicated that a fisherman took home an average of five fish a trip. The addition of electro-fishing to the survey methods used on the artificial lakes during the past summer has confirmed the suspicion that the populations of largemouth bass are higher than indicated by other methods of sampling, and are much higher than they appear to the average fisherman. Electrical methods have also provided better samples of other species in these lakes. In general, the fish populations have shown no decided changes, with crappies, bluegills and largemouth bass comprising the principal kinds. Bullheads, and to a lesser extent channel catfish, were important in some lakes. Two new lakes, Green Valley in Union County and Rock Creek in Jasper County are to be opened to fishing this year. Sampling inventories indicated that both of these lakes have developed excellent fish populations.

Most of the more than 1,000,000 pounds of inland rough fish

removal was centered in northwest shallow, natural lakes. The 32 permanent, or semi-permanent, weir-type traps captured about one-half the take. As a result of trap obstructions those females that failed to be taken in the traps either resorbed their eggs or random-spawned in deep open water, where survival conditions for fry of the species were less favorable than in shallow water normally sought. Intensive small mesh netting was employed to remove excessive perch, gizzard shad, and rough fish populations to the end that growth rates, desirable reproduction and fishing of more desired fishes have been improved in certain areas.

The season on the wood duck was closed in Iowa last fall, because of a decline in numbers in some parts of the Mississippi Flyway. The most important single conclusion from the study of kill samples of wood ducks in Iowa since 1948 was the clear-cut indication that roughly three times as many wood ducks were reported in the sample when the waterfowl season in Iowa opened on October 12th, or earlier, as the number when the season opened October 20, or later. While in recent years the wood duck comprised only from two to seven percent of the total harvest of waterfowl in the state, they were important to the counties bordering the Mississippi River where they frequently made up from 25 to 50 percent of the total kill. Last fall's waterfowl hunting success was not greatly different from that of the previous two years. Conservation Commission personnel checked some 7,880 waterfowl hunters in 62 counties, who had hunted 26,400 hours during the season. At the time of contact the hunters had taken 7,200 ducks and over 300 geese, or slightly less than one duck to a hunter. For waterfowl the schedule of procedures in determining populations, reproduction, movements and estimation of the take has been improved for 1955, under leadership of the U. S. Fish and Wildlife Service for all four major migratory bird flyways. The continental populations of waterfowl was reported to have gained some last year.

The River Basin Studies Office of the U. S. Fish and Wildlife Service has reported recently on a national survey of wetlands suitable to waterfowl. The staff of the Iowa State Conservation Commission, several members of this committee, and many citizens cooperated with them in our State. A total of 138,000 acres of Iowa wetland was divided into 109,000 acres of high and moderate value, and 29,000 acres of low and poor value to waterfowl.

"Save America's Wetlands" was the theme for National Wildlife Week, March 20-26, 1955. That week was sponsored by the National Wildlife Federation, of which the All Iowa Conservation Council of a number of local conservation groups is an affiliate. The activities of that week were the kickoff for a year's program. The Izaak Walton League of America, with a division composed



of many local groups in Iowa, in its resolutions of last year asked for further decrease of unwise drainage on agricultural land, more control of stream pollution and greater limitations on large impoundments.

The Federal Aid in Fish and Wildlife Restoration Program of the State Conservation Commission continued its activities in the acquisition of lands for fish and game habitat. Under the Dingell-Johnson program 880 acres of land and water were purchased last year. This acreage included the purchase of two public access areas to rivers, three to State lakes and approximately one mile of trout stream. One strip mine area was acquired also. Under the Pittman-Robertson part of the program 603 acres of land were purchased primarily as additions to old areas and for one new area, Cardinal Marsh. During 1954 the farm-game habitat program added approximately 135 acres of small wildlife areas on 52 privately owned farms. About 60 percent of this increase was permanent nesting cover while 50 percent was planted to trees, shrubs and vines. In addition, 23 old areas received additional plantings. Development work to improve habitat for fish and wildlife was initiated on all newly acquired lands and was continued on older lands.

Last year's pheasant reproduction was slightly better than in the previous year, and the fall bobwhite counts indicated an increase in the population over a year before. While no specific checks were made on the ruffed grouse population in northeast Iowa, routine observations by personnel of the Conservation Commission pointed to an increase. A few breeding prairie chickens were observed in Appanoose County and a few were reported from Howard County.

The 1954 populations of fox and gray squirrels were good in areas of suitable habitat throughout the state. Muskrats were down substantially as a result of drouth, especially in southern counties. The beaver population went down, as indicated in less nuisance complaints and in the less take for fur. Substantial gains in cottontail numbers were made during the past breeding season over much of the state, although numbers were still far from peak levels. The raccoon population, though at a high level in most areas of suitable habitat, may have been past its peak. During the summer raccoons with undiagnosed disease were found in several localities, which was not believed serious enough to have caused decline in raccoon numbers. Some increase in otters in eastern counties bordering the Mississippi River was noted. Bobcat reports came from several more eastern and western counties. Foxes were slightly less numerous in some northeastern counties, and about as numerous in other parts of the state. The Conservation Commission continued demonstration trapping schools at which town and rural adults and youth learned particularly to

assess predatory losses, and to trail and to take those individual foxes and coyotes which do the major damage. That plan has proved much less costly than the bounty system, and more efficient in reduction of depredations among game and domestic animals. Striped and spotted skunks were reported in low numbers in western areas, and about the same in eastern parts. Mink about held their own. Badgers have increased apparently in southern and eastern counties.

Last year's total deer population in Iowa numbered about 12,000 animals. Deer were noted in nearly every county with the highest concentrations along the upper reaches of the Mississippi River and in the Missouri River basin. In a three-day open season hunters were permitted to take deer of either sex and any age. Preliminary reports, based upon 86 percent of the 3,880 licensed hunters and about 82 per cent of the 3,368 farmers that received free permits to hunt on their own land, show a harvest of near 2,700 animals. Fawns and adult females averaged more than 20 pounds heavier than the previous fall, and the average weight of all animals was 132 pounds. Hunting success was slightly lower with 53 per cent success compared with 61 per cent of 1953. Hunters saw an average of about 6 deer compared with 21 in last year's five-day season.

Courses in conservation have been added at several colleges in the past year. Summer course offerings and numbers of students enrolled in conservation have increased somewhat at college campuses, off-campus summer schools and field laboratories. The number of scholarships in summer conservation teacher training courses have increased through continued support of several citizens organizations interested in better management of natural resources. The Iowa State Teachers College received the 1954 Award of Merit from the National Association of Conservation Education and Publicity for outstanding leadership in advancing conservation education in Iowa through teacher training. The television programs sponsored by the State Conservation Commission were received enthusiastically throughout the state. Other conservation programs originating at television stations met with good response. The Iowa State Conservation Commission has expressed a desire to consider renewal of the summer park naturalist program with the aid of conservation teachers residing near major State parks.

Respectfully submitted,

GEORGE O. HENDRICKSON, *Chairman*

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## **Burning in the Management of Prairie in Iowa**

By J. M. AIKMAN

Iowa now owns and manages two native prairie reserves. The state came into possession of these reserves according to well-formulated plans. Provision for their purchase was made in the twenty-five year conservation plan projected by the Iowa State Conservation Commission in 1933. The conservation committee of the Iowa Academy of Science cooperated with the Conservation Commission in locating existing tracts of prairie and in obtaining data on ownership, availability, history and climatic and edaphic classification. The Conservation Commission, after careful consideration, purchased a tract of 199 acres in north central Howard county in 1945 and a tract of 160 acres in southeastern Pocahontas county in 1948. The Conservation Commission has named the tract in Howard county "The Hayden Prairie Area" and the one in Pocahontas county "The Kalsow Prairie Area". In 1949 a memorandum of understanding was subscribed to by the Iowa State Conservation Commission and the Iowa Academy, providing that the academy advisory committee on the care and use of prairie reserves be responsible to the commission for the management of the reserves.

The advisory committee initiated a program for the management of the two prairie preserves in 1949. As a basis for determining policy and procedure the committee had (1) a general description of the soils, climate, vegetation and fauna of the two tracts provided by F. F. Reicken, Ada Hayden and G. O. Hendrickson in a progress report on the preservation of prairie (1); (2) the following statement of objectives: "To secure under state protection representative areas of virgin prairie to serve as natural reserves of native plants, animals and original soil profiles; to afford historic examples of the original landscape and to provide protected, undisturbed laboratories for scientific research"; (3) a review of previous research on the management of prairie prepared by two members of the committee (2).

The results of preliminary investigations made by members of the committee in 1949 were included in the report of the conservation committee in 1950. There were definite indications that the Kalsow prairie had been disturbed to a greater extent during the last few years than the Hayden prairie. The fact that it had been purchased later than the Hayden prairie and received three more annual mowings recently would not seem to account for all of the difference. The conclusion was reached after this preliminary study that both tracts had evidently been grazed at least

temporarily at some time. There would seem to be no other way to account for the distribution of small, suppressed timothy and bluegrass plants throughout the prairie stand than that cattle had been run on the tracts while under feed at least during the winter. The closing of the prairie stand in both tracts has all but eliminated these two grasses but they will doubtless remain in low quantity but scattered throughout for many years. The complete elimination of bluegrass from even the best developed prairies is almost impossible. A map of each area based on government aerial photos was prepared at this time.

A research project was developed in the fall of 1949 for the purpose of investigating the vegetation and the soils of the two reserves. These investigations were completed and the results written up in the spring of 1953 (4). The chief purpose of the investigations was to obtain as much information as possible on the status of the two plant communities in order to arrive at definite conclusions relative to their management and use. Included in the thesis was a comprehensive review of pertinent literature.

Each of these prairie tracts has a low swale through the middle of it. These two swales, which are wet and spongy in the spring and poorly drained throughout the year, constitute plant communities characterized by tall-grass prairie dominants and sub-dominants and are classified as tall-grass (9) or lowland prairie. The dominants listed in order from most hydric to mesic are: *Spartina pectinata*, slough grass, *Panicum virgatum*, switch grass, *Elymus canadensis*, wild rye, *Sorghastrum nutans*, Indian grass and *Andropogon gerardi*, big bluestem. In the nearly flat, Kalsow prairie the swale extends from the south side, slightly west of the middle, northward across the tract to the broad drainage ditch on the west side near the northwest corner. In the somewhat rolling Hayden prairie the swale arises in the tract near the middle of the south side and extends in a northeasterly direction across the tract, draining into the roadside ditch on the north side about 150 yards from the northeast corner. In each of the tracts the lowland prairie covers about one sixth of the area. They are being investigated separately. In general the vegetation is coarser and taller, has fewer species and the yield per acre is greater.

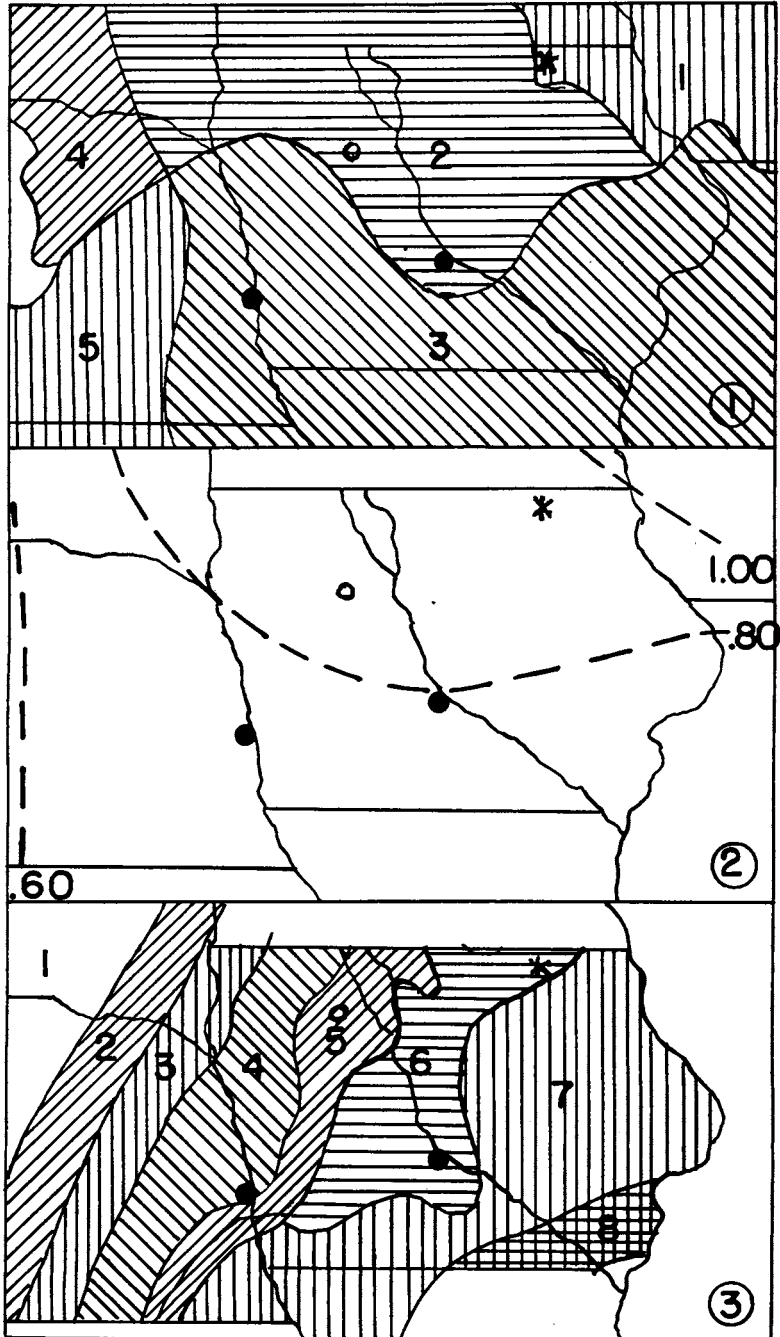
Vegetation of the major portions of the two prairies is classified as upland or true prairie (9) because 45 percent of the vegetation by weight is composed of true prairie dominants: *Sporobolus heterolepis*, prairie dropseed, *Andropogon scoparius*, little bluestem, *Koeleria cristata*, June grass and *Stipa spartea*, porcupine grass. The presence of 28 percent by weight of lowland prairie dominants, about half of which was big bluestem, accounts for the fact that the casual observer would consider the vegetation lowland prairie. On an area basis rather than a weight basis the ratio of true

prairie dominants to the taller lowland prairie dominants was greater. In total number of species the two tracts are characteristically true, upland prairie. However the Hayden prairie with fewer species, 134 compared to 149 and with slightly more lowland prairie grasses, is nearer an intermediate of the two types of prairie than is the Kalsow prairie.

The two prairie reserves are in excellent condition. Under proper management the possibility of invasion by weedy species is remote. The roadsides adjacent to both tracts have an abundance of quack grass but it is represented in the prairie by only a few widely scattered, spindly plants. The Canadian thistle is present in the vicinity of both prairies but has not as yet invaded either reserve. Timothy and Kentucky bluegrass are widely distributed in both reserves and red top and Canada bluegrass to a lesser extent. However, the small size and lack of vigor of the chiefly solitary plants indicate little danger that any will form a sod and become an invasion problem under proper management of the prairie. Kentucky bluegrass offers the greatest threat if the reserves were ever grazed. Thousands of acres of Iowa prairie have been converted to bluegrass pasture simply by grazing which in many instances did not seem excessive. Bluegrass is present throughout the two preserves. All that is needed for its establishment under climatic conditions which are extremely favorable for its development is the suppression of the prairie plants, especially the grasses, by grazing and the compaction of the soil by trampling which will further retard the growth of the native vegetation.

The problem of the control of organic matter in the reserves has been considered by the advisory committee to be an important one since they assumed responsibility for management practices for the reserves. It was recognized that, because of more favorable conditions for plant growth, the total carbon and nitrogen content in natural communities generally become progressively greater from the plains region eastward (3). Although moisture conditions farther west in the prairie region may be sufficient to produce only the requisite quantity, or even less of organic matter for adequate prairie maintenance, in Iowa periodic removal of at least a portion of the organic matter from protected prairie preserves may be necessary (2).

Figure 1 delimits the plant growth regions of Iowa and portions of surrounding states. The Kalsow prairie is seen to lie within the northern prairies but is only a short distance from the border of the central prairie region. The Hayden prairie lies outside the northern prairie region, barely within the western great lakes coniferous forest region. Figures 2 and 3 in which precipitation-evaporation ratio lines and zones of normal annual precipitation in inches are located provide two climatic factor



criteria for the mapping of the plant growth regions. Many factors must be considered in explaining the presence of native prairie in its original location. One of the most important is the precipitation-evaporation ratio (7).

The western border of the northern black soil region in Nebraska and South Dakota (Figure 1) represents the western extent of the prairie association in the same latitudes as the two prairie reserves in Iowa. The annual precipitation of this western border of the black soil region as shown on the map is from 17 to 19 inches as compared to 28 to 30 inches for the Kalsow prairie and 30 to 32 inches for the Hayden prairie. Based on averages within the precipitation zones the ratios would be 18:29:31. If a prairie tract in this portion of the black soil region in Nebraska and South Dakota had an annual yield of prairie hay of 18 tons for a given area, an area of equal size in the Kalsow prairie would yield 29 tons and in the Hayden prairie would yield 31 tons, computed on the basis of precipitation differences alone.

According to Figure 2 this western border of the black soil prairie region in Nebraska and South Dakota has an average precipitation-evaporation ratio of 60 percent, the Kalsow prairie a ratio of about 85 percent and the Hayden prairie a ratio of about 95 per cent. The yield ratios on this basis would be 18:25.8 and 28.5 tons respectively. These computed values are probably more nearly correct because the precipitation-evaporation ratios generally have a better relationship to yield than rainfall values alone because they more nearly denote effective rainfall. These relative computed yields are not greatly out of line with variations in yield from west to east in the prairie association (4,9,3). They emphasize the importance of giving consideration to the climatic factors in attempting to determine the best long-range management practices for each tract of prairie.

For the two Iowa prairie reserves the computed yields, based on precipitation-evaporation ratio differences, were 28.5 for the Hayden prairie and 25.8 for the Kalsow prairie. Considering the yield of the Hayden prairie as 100 percent, that of the Kalsow would be 90 percent. Although there is evidence of more disturbance in the Kalsow prairie because of more and closer previous

Figure 1. Plant growth regions (5).      Figure 2. Precipitation-evaporation ratio in percent (6).  
 1 Western great lakes                      Location of prairie tracts.  
 2 Northern prairies                        \* Hayden prairie  
 2 Central prairies                         O Kalsow prairie  
 4 Northern black soils  
 5 Cultural black soils

Figure 3. Normal annual precipitation in inches;  
 1 - 17 - 22 inches      5 - 28 - 30 inches  
 2 - 22 - 24 inches      6 - 30 - 32 inches  
 3 - 24 - 26 inches      7 - 32 - 34 inches  
 4 - 26 - 28 inches      8 - 34 - 36 inches

mowing than in the Hayden prairie, the Kalsow prairie does not seem to have suffered lasting injury because there was no significant difference between the two prairies in the quantity of roots in the upper 18 inches of soil. These yields in both prairies were sufficiently high in relation to other well developed prairies to indicate the excellent condition of the vegetation (4). The yield of the vegetation in tons per acre for 1950 for the Hayden prairie was 2.42 as compared to 1.78 for the Kalsow prairie and the duff yields were 1.66 and .98 tons respectively (4). On the basis of the precipitation-rainfall ratio in the Kalsow prairie being 90 percent as effective in the production of yield and litter and duff as in the Hayden prairie, the yield of vegetation and combined litter and duff in the Kalsow prairie in 1950 should have been 2.18 and 1.49 tons per acre respectively. Since an additional period of time seemed to be necessary for the recovery of the Kalsow prairie from the severe disturbance of frequent and close mowing and possibly from grazing it was decided that it should continue under full protection for further study.

The Hayden prairie, however, with vegetation and duff yields of 2.42 and 1.66 tons per acre for 1950, seemed to be approaching the danger point of interference of organic matter with the development of the vegetation although the prairie was in excellent condition. Yield data for the 1953 season were taken in January 1954 by the writer upon his return to the state. The vegetation and combined litter and duff yields were 1.84 and 2.12 tons per acre respectively. The large accumulation of litter and duff seemed definitely to be interfering with the growth of the prairie. Mowing of this prairie had been considered previously but did not seem feasible because the hay would be of no value without separating it from the litter and duff. The difficulty and expense of mowing with the litter and duff in place and then raking and hauling hundreds of tons of organic material off and disposing of it were too great to consider. The decision was made with the approval of the Commission to conduct a burning experiment on a relatively large scale. Eight pairs of plots, each 440 by 440 feet, were selected in the upland prairie. The one of each pair to be burned was determined by lot.

The time of burning was considered to be of great importance. The soil should be frozen. The vegetation should be sufficiently dry to insure the removal of the litter and duff as well as the standing, dry vegetation. Burning should not be done early enough to expose the bare prairie to severe winter weather for too long a time because adequate protection from an even cover of snow



could not be assured. Burning in early spring was inadvisable, even if the soil were frozen because of the danger of injury to the crowns, rhizomes and shallow roots of the plants. Plans were completed for burning as soon after the last of January as the prairie was clear of snow and the material was sufficiently dry. The eight plots were burned by game division personnel of the Conservation Commission, February 19, 1954. Care was taken by the use of pressure water sprays and a large crew of men to prevent the spread of fire. The high degree of duff removal by burning is shown by the low duff yields (.28 tons per acre) of the burned plots in Table 1.

**Table 1**

Comparison of burned and unburned plots in the Hayden prairie at the end of the 1954 growing season following burning, February 19, 1954.

Plot number and treatment	Ave. dry wt. and yield in tons per acre.			Number of flowering and fruiting stalks.				
	Grasses	Forbs	Duff	Big blue stem	Indian grass	Wild rye	Little blue stem	Prairie dropseed
35, unburned	2.13	.07	3.70					
36, burned	2.84	.08	.60					
31, unburned	2.04	.06	1.75				48	
30, burned	2.73	.10	.15				144	
25, unburned	1.36	.24	1.75	46	26	2	8	
36, burned	2.72	.36	.15	206	66	4	76	
6, unburned	1.12	.40	1.90	0	12	0	16	188
5, burned	3.04	.12	.20	32	16	0	24	928
Ave, unburned	1.66	.19	2.28	23	19	1	24	188
Ave, burned	2.83	.17	.28	119	41	2	122	928

The most evident effect of burning was early growth of the vegetation on the burned plots. They had the appearance of a bluegrass pasture in early spring in contrast to the dry, brown, unburned plots. Flowering and fruiting of most of the plants were about two weeks earlier. Prairie plants other than grasses (forbs) were more evident in the burned plots than in the unburned but there was no difference in yield. Not only did the flowering stalks of the grasses develop earlier in the burned plots but the flowering and fruiting stalks of a given grass species generally had about 20 percent greater height in the burned than in adjacent unburned plots.

The yield in tons per acre of grasses, forbs, and duff and the number of flowering and fruiting stalks of grass species are presented in Table 1. These data are the means for three quadrats selected at random within the width of five (3.3 feet by 3.3 feet) quadrats, the distance of a rod, on each side of the border between four pairs of burned and unburned plots. The degree of variation

within replicates was very low. The greater magnitude of the differences among the several paired plots is caused chiefly by the difference in the yield of true prairie dominants and lowland prairie dominants. The mean yield of grasses in the unburned plots was 1.66 tons per acre and of the burned plots was 2.83 tons. The duff yields were 2.28 and .28 tons respectively. The increase in the number of fruiting stalks in the burned plots in comparison with the unburned plots is so apparent in the field that the boundaries between the plots are very distinct. However there is some variation among species in this response.

The most evident difference in the vegetation between the burned and unburned prairie the first year after burning was in the habit of growth and the general appearance of the prairie. It was very evident in the winter following two or three snow storms. The vegetation of the unburned plots was matted down and intermingled with litter and duff of previous years. In contrast the vegetation of the plots burned the previous year was erect and not even the leafy parts of the grasses were matted down.

The decision was made in the fall of 1954 to burn the northern two thirds of the Hayden prairie. This procedure would result in a pattern of burned and unburned plots which would provide a means of comparison of adjacent burned and unburned plots, of two plots burned in succeeding years and of the same plot burned twice in succeeding years. Although this latter treatment probably never would be recommended it has often occurred in nature without seriously damaging the prairie vegetation and should furnish some much needed information. The large expanse of prairie burned in 1955 would provide an area sufficiently large to obtain information on how soon after burning, and how often, prairie should be mowed to obtain the best management results.

Plans were made to do the burning as soon as conditions were favorable after January 15. Conditions were not favorable because of the late melting of snow until March 15.

Figure 4 shows a part of the crew from the game division of the Conservation Commission in the prairie making preparations to start the back-fire strip across the prairie from west to east. In Figure 5 the crew is shown finishing the back-fire strip at the east border a half-mile distant. The prairie vegetation of the portions of the two plots shown in Figure 4 was burned in 1954. The tall, unmatted vegetation may be contrasted with the low, matted condition of the vegetation in the unburned plot in the foreground in Figure 5. The pressure tank, and spray hose used to smother the fire on the southern border line is in the left foreground. The direct fire, sweeping across the northern two thirds of the tract from the points of firing in the northwest corner is pictured in Figure 6.

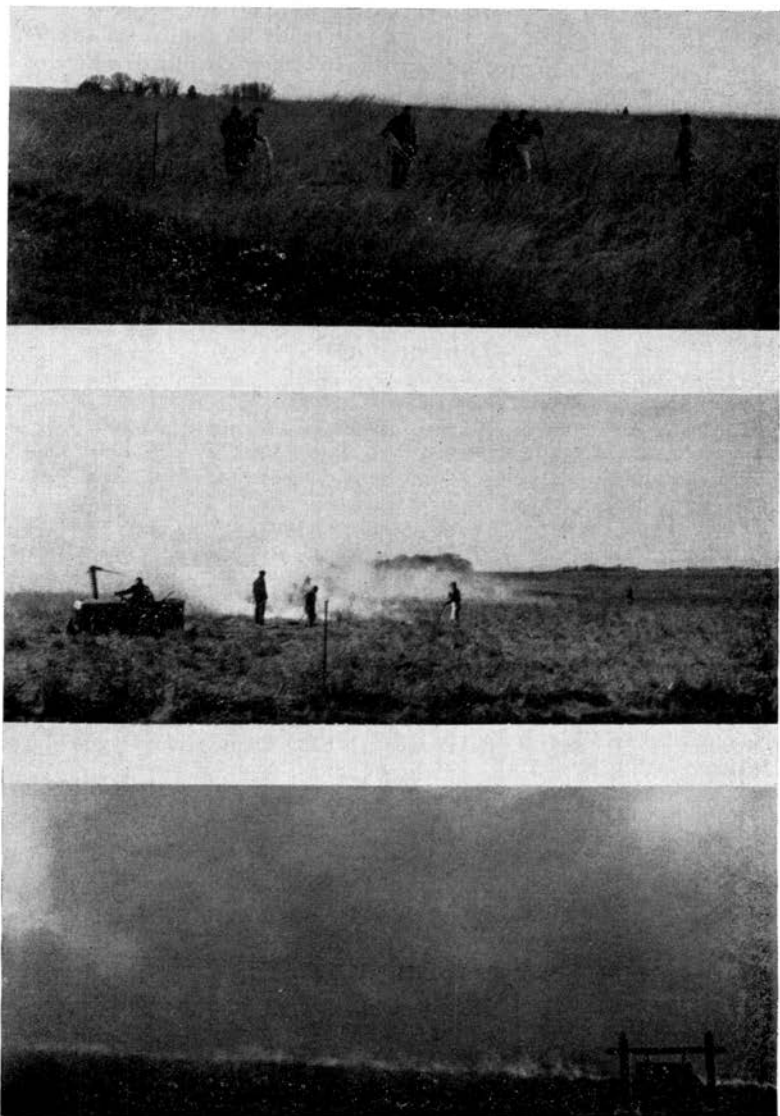


Figure 4. Part of crew in prairie vegetation burned in 1954, near the stake marking the line to be established by the back-fire. March 15, 1955.

Figure 5. On the eastern border; a half-mile of backfire almost completed.

Figure 6. The direct fire sweeping across the prairie from the northwest toward the back-fire strip.

Examination of the burned area has disclosed the fact that more duff was left unburned in this burning operation than in the one in 1954. Although an attempt was made to match as nearly as possible the conditions of burning in 1954, the duff was not as dry and inflammable as it was in 1954. Duff samples have been taken to determine the degree of duff removal by burning. The first week in April, tenth-acre stations replicated four times were marked out by steel posts in each of the three burn treatments and in the check for comparing the response of the prairie vegetation in adjacent plots. Replicated mil-acre sampling and factor areas are being located at random in the tenth-acre plots to make definite comparisons possible.

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DEPT. OF BOTANY AND PLANT PATHOLOGY  
IOWA STATE COLLEGE  
AMES, IOWA

## Report of the Resolutions Committee

Your committee on resolutions begs to submit the following report.

1. The Iowa Academy of Science has suffered the loss of one of its most faithful members by the unexpected death of Dr. Frank G. Brooks of Cornell College. Dr. Brooks served with marked efficiency as Editor for the Academy for eight years. *Be it resolved* that the Academy recognize at this time the faithful and efficient service that he gave to this organization. *Be it further resolved* that the Secretary of the Academy convey to Mrs. Brooks our sincere sympathy and our appreciation for his long and faithful services to the Academy.

2. During the last year Dr. Herbert Osborn of Columbus, Ohio was taken by death. Dr. Osborn was the first president of the Iowa Academy and served during the year of 1887-1888. He was one of those instrumental in organizing the Academy and in keeping it intact during those early years. We should at this time recognize the passing of this distinguished scientist and long time member of the Academy.

3. We wish to extend to Clinton Foods our thanks for the contribution that they are making to science in providing scholarships for high school science students. These scholarships are acting as a stimulus for encouraging an interest in science among young people. This is especially significant because of the critical need that exists today for trained scientists and science teachers.

4. *Be it resolved* that the Academy express its appreciation and thanks for the services rendered by Mr. C. D. Nolan, Attorney-at-Law, in furnishing volunteer aid to the Committee in drafting the Articles of Incorporation for the Academy.

5. *Be it resolved* that the Academy express its thanks to the Trinity Episcopal Church for the dinner served to us.

6. *Be it resolved* that we express thanks to the local committee St. Ambrose College and the Davenport Public Museum for the accommodations and hospitality that they have provided for this meeting.

PAUL A. MEGLITSCH

H. S. DOTY

C. W. LANTZ, *Chairman*

## Report of the Necrology Committee

The Necrology Committee reports the passing of the following members: Joseph Hall Bodine, Frank G. Brooks, Harold B. Bryant, Philip Greeley Clapp, Dio L. Holl, William Henry Kadesch, John Milton Lindly, Bradford K. MacGaw, Herbert Osborn, Jessie A. Parish, Oscar Wallace Park, Ralph M. Robinson, Harold Stiles, Reuel Hull Sylvester, A. Milton Weidman, G. L. Wittrock, Otis R. Wolfe.

HARRY H. KNIGHT

J. HAROLD ENNIS

CORNELIUS GOUWENS, *Chairman*