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#### *About the Institute*

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

from Backlund  
McKague, Sask.  
May 5, 1941.

Dear Friend Ray C. Friesner:-

I received your nice parcel of 248 plant specimens. I am glad you do not ask for the exchange specimens immediately. I hope to have a lot of good collections by fall and in the winter I will put up a parcel of about 250 specimens.

There is a local *Solidago* here that I originally det. as *S. missouriensis* and then to *S. glaberrima* but when I got your specimens including *S. moritura* Steud. I now am convinced mine are also *S. moritura* by the conspicuous fascicled clusters of leaves in the axils of the upper stem leaves below the panicle. According to Rydberg, I am away out of the range of *S. moritura* but as your specimens were live plants from North Dakota

and planted in your botanical garden that comes closer to home. E. W. Hart at Ottawa, a Golden Rod specialist, does not give *S. moritura* in his key to Goldenrods of Canada and Newfoundland.

However I will send you specimen of *S. moritura*, etc, etc, etc.

yours Very Truly,

August J. Breitung

P.S. If I have good luck in collecting this summer and I can send you more than 200 plants I would accept willows as I seem to be more interested in these than anything else, of course also goldenrods, Delphiniums, Acer, Quercus, etc. A.J. B.

Rosa, Rubus idaeus var. wild & cultivated sorts

Goldenrods of Saskatchewan.

From "List of the Flowering Plants, Ferns  
and Fern Allies of Saskatchewan" by  
W. P. Fraser + R. C. Russell. Un. of Sask. page  
44-5 (1937).

- \* *Solidago canadensis* L.
- S. dumetorum* Lunell
- S. gilvocanescens* (Rydb.) Smith
- S. glaberrima* Martens
- \* *S. hispida* Muhl. var. *lanata*
- S. juncea* Ait. (Ont. and westward to Rock. Mts. - Macoun)
- S. lepidota* DC.
- S. Lynellii* (Rydb.)
- S. missouriensis* Nutt.
- S. nemoralis* Ait.
- \* *S. oreophila* Rydb.
- S. pallida* (Rydb.) Porter
- S. procera* Ait.
- S. pruinosa* Greene
- \* *S. pulcherrima* C. Nels.

- S. scopulorum* (A. Gray) A. Nels.  
\* *S. serotina* Ait  
*S. uliginosa* Nutt.  
*S. graminifolia* var. *campanum* (*Euthamia campanum* Greene)  
\* *S. graminifolia*  
\* *S. rigida* L.  
*S.*

Those marked with a star are those I can  
collect around here in my area. A. J. B.

May 6, 1941

Prof. Dr. Victor Pissarev  
Institut Sernowogo Khosjastwa  
Nemtschinowo, Moskow  
U. S. S. R.

Dear Sir:

Your communication regarding seeds of certain wild grasses and other plants has been received. I shall be glad to collect as many of these as come within my observation during the present season and to send them to you after the season is over.

The following species occur in our area: Elymus canadensis, E. riparius, E. villosus and E. virginicus; Vicia americana, V. caroliniana and V. villosa. We have now wild species of Avena. We have also many other wild grasses which could be sent if desired.

Sincerely yours,

Ray C. Friesner

RCF:mb



strated a very great increase in three days. This treatment of grinders should be discouraged in the meat market from a bacteriological standpoint.

By washing the grinder, after use, with strong soap and water, the bacterial count may be kept down. The method is superior to that employed by the grocery. Sterilization of the grinders gives better results than merely washing the grinder.

In conclusion, it is advocated that hamburger steak prepared in the grocery should be ground in sterile grinders.

#### ACKNOWLEDGEMENT

The writer expresses her sincere thanks to Dr. C. Mervin Palmer for suggestions and supervision of this research; and to Dr. Ray C. Friesner for his guidance in drawing the graphs, in writing the paper and the critical reading of the manuscript.

#### LITERATURE CITED

1. ABELE, C. A. Results of bacterial plate counts of milk on three media and two temperatures of incubation. Amer. Jour. Pub. Health. 29:821-846. 1939.
2. BORMAN, E. K., D. E. WEST and F. L. MICKLE. Laboratory examination of milk handlers. Amer. Jour. Pub. Health 25: 557-570. 1935.
3. GEER, LAURENCE. Bacteriological content of frosted hamburger steak. Amer. Jour. Pub. Health. 23:673-677. 1933.
4. KELLY, F. C. and G. M. DACK. Experimental Staphylococcus food poisoning. Amer. Jour. Pub. Health. 26:1077-1082. 1933.
5. LE FEVRE, E. A. A bacteriological study of hamburger steak. Amer. Food Jour. 12:140. 1917.

Kokomo, Ind. May 7- <sup>from EK</sup> 1941  
1812 North Purdue St.

My dear Dr. Friesner:

ever since I wrote you last  
had planned a second note - Now that  
the time is drawing near to May 21 -  
some of these - as curriculum changes at  
Butler - Can rest until we meet.

One time last fall you said it would  
not be a very big job (I think it would)  
to get me a complete list of all Howard  
Co. plants in Butler Herbarium. My  
ambition for a long time has been to  
have every Howard Co. species represented in  
Butler Herbarium. I have several lists  
but possibly some <sup>species</sup> have escaped. I have over  
800 species checked for Howard Co. Got a new  
Howard Co. record Apr. 26 - *Arenaria quinquefolia*  
Had collected it in 35-'37 - Station now gone -  
New Stations - 3-4 - 3-4 mi. S.E. along Wildcat.  
I have been collecting everything so far - wherever  
I've been.

Now if you have no N.Y.A. - or help



please don't use valuable time. - I should  
 have gone thru all your lists - I have every  
 letter &c. - you Dr. Pitzger & Deam have ever  
 sent me - even the postals. - I could have  
 compiled a list which would have been  
 practically complete. So I emphasize, - Don't  
 take time from your help & girls that could  
 be more valuable. - I suspect that owing  
 to ~~the~~ the Times. - your helpers are  
 fewer than usual. I shall continue  
 to collect - at least one sheet of all I contact.

Have had 6 letters from Dr. B. A. Kruckhoff.  
 He all sent me a list of 31-32 species  
 to collect. About  $\frac{9}{10}$  are new to me. - Don't  
 know them. - Am sure of about 18. - Have  
 1 drying now - & will get 3-4 next week & so  
 4-5 can get at Peru - Tipton Co. & L. Cicatt.  
 will get a few \$ for these. - 1 & 2 \$ for each  
 species. That will justify some bus trips.  
 So I'll have a busy summer. - Counting the  
 dogs - we can get North

A nice letter from Deam - They will  
 be away next week - on way to Lafayette - &  
 Ill. - Morton Arboretum - W of Chicago

3.  
 + I presume home. Her Kriebel  
 plan a trip to Tenn. - sometime -  
 probably after The Meet. -

As to May 21 - I ~~def~~ definitely  
 plan to go - Don't know which Bus.  
 but will come directly to Butler  
 unless you direct otherwise. If  
 sickness prevents - will tell you if  
 possible. - If I do not show up -  
 - of course - all you can do - is to  
 go in schedule time. Deam assures  
 me that I'll enjoy + profit by entire  
 trip. - my stay at your house - and all  
 the rest. I'm just common clay  
 and if Mrs. Friesner is expecting  
 some nobility or Aristocracy - she'll  
 be disappointed. I'm 1/2 Swedish - the  
 rest Hobo.

With Best Wishes, -

Very Sincerely Yours  
 Charles M. Ek.

THE NEW YORK BOTANICAL GARDEN

BRONX PARK (FORDHAM BRANCH P. O.)  
NEW YORK, N. Y.

PRESIDENT  
JOSEPH R. SWAN

VICE-PRESIDENTS  
HENRY DEF. BALDWIN  
JOHN L. MERRILL

TREASURER  
ARTHUR M. ANDERSON

DIRECTOR  
WILLIAM J. ROBBINS

May 8, 1941.

Dr. Ray C. Friesner,  
Botany Department,  
Butler University,  
Indianapolis,  
Ind.

My dear Friesner:

I am completely overwhelmed by the enthusiastic response on this beech project. Therefore--being completely without conscience--I'm going to ship along a lot of extra blanks. It is also possible that some of your students could be induced to get a few specimens this summer.

It is not <sup>at</sup> all necessary to have all specimens of both flowering and fruiting material. Fruiting material alone (or even sterile branches with leaves) can be used.

Sincerely yours,



W.H. Camp  
Assistant Curator

WHC/AM

May 12, 1941

Mr. August J. Breitung  
McKague, Saskatchewan

Dear Mr. Breitung:

We shall be glad to receive any herbarium specimens you may be able to send but please do not worry about an exact numerical exchange nor about the time when you are able to send them. We have over a year's mounting ahead in specimens now, so time is not a factor with us.

Solidago moritura is now considered to be a variety of S. glaberrima. The correct citation now is considered to be S. glaberrima var. moritura (Steele) Palmer and Steyermark. If your material is what you think it is, you have a nice range extension. I would be glad to check any of your *Solidago* determinations. Have you received a copy of my *Solidago* key? If not, I shall be glad to send you one.

Sincerely yours,

Ray C. Friesner

RCF:mb

March 1912



14. *Quercus laevis*



15. *Quercus laevis*



16. *Quercus laevis*



17. *Quercus laevis*

May 16, 1941

Dear Children of Room 10:

I should think that your best way to help the children in Providence to build up their arboretum would be to collect and carefully label as many seeds of wild flowers as you can find and send them to the children there. Let them select the kinds of seeds they will plant because they are in a better position to know which of the seeds you send are of species of plants absent from their area.

I suggest that each of you collect seeds during this summer, carefully label and preserve them and then when school opens in the fall you can all bring them to school and together you can send them on in one large lot.

If you get seeds of plants whose names you do not know, we will be glad to tell you the names if you will send a specimen of the plant to the Botany Department of Butler University. I hope you will get a lot of real satisfaction out of your project.

Sincerely,

Ray C. Friesner

ECF:mb



... (Table II). This tree had only 50.5% of the total  
years of life showing greater growth in longest radius above  
roots. In 17.7% of years of growth this tree grew the same  
amount in both longest and shortest radii while in 30.5% of  
the years the shortest radius grew more than the longest radius.  
In 10 of the 18 trees studied the average percent of growth on  
willow above roots is greater than that in radii between roots.

May 22, 1941

is better than half of the tree's life. For example tree No. 8  
Dr. John W. Leedy,  
Department of Botany  
Wheaton College  
Wheaton, Illinois

Dear Dr. Leedy:

We are in receipt of your package of herbarium specimens  
and wish to thank you for them. They are all excellent  
specimens and will make a valuable addition to our Herbarium.

For the past several years we have been poisoning our  
specimens before mounting and I am wondering whether you  
might be interested in the "dip" used. We dip them and then  
stack them between driers and ventilators for a day or so  
before mounting. We use the following formula:

95% alcohol	- 1 gal.
Mercuric chloride	- 90 grams
Glycerine	- 80 cc.

Sincerely yours,

Ray C. Friesner

RCF:mb

No. 8 (table II). This tree had only 54.51 % of its total years of life showing greater growth in longest radius above roots. In 17.74 % of years of growth this tree grew the same amount in both longest and shortest radii while in 29.05 % of the years the shortest radius grew more than the longest radius. In 10 of the 16 trees studied the average percent of growth on radii above roots is greater than that in radii between roots is better than half of the tree's life. For example tree No. 8 shows an average growth above roots of 55.15 % greater than that of radii between roots in the last half of the tree's life, (table III). In this tree however, radius No. 65 on a root grew 6.90 % less than radius 6 which was between roots. Behavior of radii No. 12 and 5 was the same in that each grew more in the last half of the tree's life than in the first half. In the remaining six trees growth was greatest in the first half of the life of the trees. Tree No. 28 grew the same amount in all years of its life, that is, it did not grow more in the first half of life than it did in the later half or vice versa. Growth was even and continuous. From this it appears that effectiveness of root position may play an important role in eccentric growth of trees. It seems that root activity as a factor in unsymmetrical growth may begin early in life of trees and continue to increase in effectiveness throughout life (radius No. 1 vs. No. 2, tree No. 8, table III). It may begin in early life along other radii and decrease in effectiveness with age (radius 5 vs. 6, tree 8, table III). Table IV shows relation between eccentric growth on roots growing uphill and roots growing downhill while only three showed greater growth along

Department of Botany  
University of Michigan  
Ann Arbor, Michigan  
May 25, 1941

Prof. Ray C. Friesner  
Butler University  
Indianapolis, Indiana

Dear Professor Friesner:

If you should find it convenient,  
I should greatly appreciate your  
sending to me from Indiana a  
chunk of Sedum ternatum. I need  
living material to be used for  
cytogeographic study.

Thank you.

Sincerely yours,

J. I. Baldwin, Jr.

# Jacobson Commissary Company

105 West Monroe Street

Chicago, Illinois

AFFILIATED OFFICE  
874 BROADWAY  
NEW YORK

FLORIDA OFFICE  
830 W. BAY ST.  
JACKSONVILLE

May 27, 1941

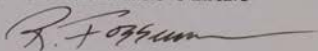
Butler University  
Bacteriological Dept.  
Indianapolis, Indiana

Gentlemen:

On or about March 16th and on April 28th a specimen of meat loaf and a specimen of baked ham respectively were submitted to your department for analysis by the Hawthorne Rest House at 760 South Emerson, Indianapolis which is operated by our company. Extenuating circumstances necessitated our immediate submission your reports regarding these cases to the Pennsylvania Railroad Company and as a result we did not obtain copies for our files. Our Insurance company has made a request for this information and as the railroad has included this data in a report to their main offices we have been unable to obtain same from them. We would therefore appreciate your forwarding to this office at your earliest convenience the transcript of these reports. Thanking you for your cooperation, we remain

Very truly yours,

JACOBSON COMMISSARY COMPANY



RF:JG

**"TEXAS GRASSES"**

W. A. SILVEUS, Author and Publisher  
832 Cambridge Oval

SAN ANTONIO, TEXAS, May 27-41 193

Prof. Ray C. Friesner,  
Dept. of Botany,  
Butler University,  
Indianapolis, Indiana.

Dear Mr. Friesner;

I am sending you today several specimens of grasses. While collecting the ones you wished I put in a few others I collected at sa same time.

We are leaving for Washington ,D.C. June 5th by way of Florida and will arrive at Washington about June 17th. I will return to San Antonio about July 15th and will be <sup>here</sup> ~~home~~ all summer and fall except will make a few short trips in Texas.

Yours truly,

W. A. Silveus

May 27, 1941

Dr. J. T. Baldwin, Jr.  
Department of Botany  
University of Michigan  
Ann Arbor, Michigan

Dear Mr. Baldwin:

Your communication regarding Sedum ternatum is at hand. I shall keep it in mind and send you some material at my earliest opportunity to collect it. Will you be at the University to receive it during the summer session?

Sincerely yours,

Ray C. Friesner

RCF:mb



- 914.96 The near east from within. 1916.
- 914.54 Moyes, Ella The story of Ferrara. 1904.
- 914 Osborne, Albert Finding the worth-while in Europe. 1913.
- 939.5 Palmer, Frederick Going to war in Greece. 1897.
- 914.6 Perkins, C. C. Builders of Spain. v.1, 2.. 1909.
- 826.69 Piczzi, Mrs. H. L. The letters of Mrs. Thrale. 1926.
- 738.38 Pottier, Edmond Douris and the painters of Greek vases.  
1909.
- 810.9 Rankin, T. B. American writers of the present day, 1890  
to 1920. 2d ed., rev. and enl. 1920.
- 814.44 Repplier, Agnes A happy half-century, and other essays.  
1908.
- 137.7 Rice, Mrs. L. G. Graphology, or the science of reading  
character in handwriting. 1925.
- 914.49 Richardson, Leslie. Things seen in Provence.
- 709.493 Rooses, Maximilian. Art in Flanders. 1914.
- 920 Burke, Mrs. Melina The story of Melina Burke, R.R.C.  
1938.
- 842.89 Rostand, Edmond L'Agilon, drame en six actes, en vers.  
1900.
- 792 Ruhl, A. B. Second nights; people and ideas of the theatre  
today. 1914.
- 759.1 Russell, John Lines and ideals of representative American  
painters. 1901.
- 824.86 Ruskin, John The crown of wild olive, and the cestus of  
Aglais. 1908.
- 920 Sadleir, Michael Blessington-D'orsay, a masquerade. 1933.
- 823.73 Scott, Sir Walter Kenilworth. 1907.
- 823.73 Scott, Sir Walter Maverley.
- 822.53 Shakespeare, William Tragedy of Othello. 1900.



THIS SIDE OF CARD IS FOR ADDRESS

Professor Ray C. Freisner  
Butler University  
Indianapolis, Indiana

5/29/41

American Eugenics Society, RKO Bldg., N.Y.C.

Dear Professor Freisner:

A 12 page booklet on human heredity, being prepared by leading geneticists is to be distributed by us.

There is great growing interest among young people, just married or who are likely to be married soon.

The Society should build up this awakening interest in the eugenics movement. We need names and home addresses of college under-graduates and graduates who are taking, or have taken, courses in fields related to eugenics, indicative of a background for enlarged interest.

We would greatly appreciate your sending us a list.

Sincerely yours,

*Rudolph C. Bertheau*  
Secretary

June 5, 1941

Jacobson Commissary Company  
105 West Monroe Street  
Chicago, Illinois

Gentlemen:

Your letter of May 27 regarding bacteriological analysis of meat loaf and baked ham is at hand.

I am unable to find any record of such an examination made by our department. If you could supply me with information as to persons to whom the material was submitted, I might be able to help in locating the place where the work was done. I feel reasonably certain that it was not done in the bacteriology department here at Butler.

If we can be of service to you, we will be glad.

Sincerely yours,

Ray C. Friesner

RCF:mb

June 5, 1941

Dr. W. A. Silveus  
832 Cambridge Oval  
San Antonio, Texas

Dear Dr. Silveus

Your package of grasses came this morning and we are very grateful to you for your kindness. The specimens will fill some important gaps in our herbarium and I hope we will be able to repay you for them.

Sincerely yours,

Ray C. Friesner

RCF:mb

June 5, 1941

Miss Elizabeth Halfert  
9026 Woodward Avenue  
Detroit, Michigan

Dear Miss Halfert:

I appreciate very much the specimens of Collinsia verna which you sent the Youngmans. It is on the limits of its northern range somewhere in Michigan. I am especially grateful for these specimens because I am making a special study of extraneous specimens.

It is too bad for me that my Saturdays are always taken with classes so that we haven't been able to get away for a weekend for a long time for I would certainly like to get up for a spring trip with you.

I am mailing a copy of the recent Botanical Studies issue.

Sincerely,

Ray C. Friesner

RCF:mb



June 5, 1941

Dr. C. Bertheau  
American Eugenics Society  
R K O Bldg.  
New York, New York

Dear Dr. Bertheau:

I have your request for names of students with background of college training sufficient to appreciate and profit by your 12-page booklet on human heredity. I am puzzled to know just how to proceed in meeting your request. We have approximately 300 students in the Departments of Botany and Zoology who have been given work in heredity sufficient, I believe, to profit by the booklet. I am wondering whether you want such an imposing list or whether you would like us to cut it down to only the outstanding students.

Sincerely yours,

Ray C. Friesner

RCF:mb

June 5, 1941

Dr. Delzie Demaree  
Arkansas A. & M. College  
Monticello, Arkansas

Dear Dr. Demaree:

The package of plants came in good condition yesterday. It caught me in the midst of final examinations and so I have not had time to open it. From all appearances, however, the material is without damage by the trip. I will make a report to you as soon as possible and greatly appreciate the privilege of doing so. I have several other lots on hand and will, therefore, be delayed in getting at the material.

With best regards, I remain,

Sincerely yours,

Ray C. Friesner

RCF:mb

McKague, Sask.

June 6, 1941.

Ray C. Friesner.

Dear Fellow Botanist: -

I have your last letter and the news about the new name for Solidago moritura. I wish to thank you ever so much also for your offer of your Goldenrod Key. I would be very glad to have a copy. It might help me in collecting goldenrods this summer. Otherwise I would not have asked for a copy till I had sent you some specimens.

I have recently made a quick trip to Hudson Bay Junction which is about 100 miles east of here. I collected mostly woody plants which are rare in Sask or which I have found in new range extensions, such as Salix lucida, S. amygdaloides, Ulmus americana. I made collections of these last summer but too late for flowers & fruit. Before that S. lucida was unrecorded for Sask. This is a new westward range extension. Then S. amygdaloides was formerly known in the prairie provinces of Canada only by a narrow strip along the southern boundaries. And so with a number of other things of which I found in new ranges. So I am pretty sure the goldenrod here is Solidago glaberrima var. moritura. Yours Very Truly, August J. Breitung.

3746 North Pennsylvania Street  
Indianapolis, Indiana  
June 10, 1941

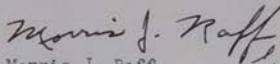
Butler University  
Indianapolis, Indiana

Gentlemen:

I am extremely interested in the raising of mushrooms. Do you have any available information on this subject? Is there any course I could take at Butler that would acquaint me with this subject?

Looking forward to receiving any and all information you might have available, I beg to remain,

Very truly yours,

  
Morris J. Raff

MJR:L

1. Please direct all correspondence to the above address.  
2. Please include a return address.  
3. Please indicate the nature of the correspondence.  
4. Please indicate the date of the correspondence.

NOTE: This is a carbon copy of the original.

1. Please direct all correspondence to the above address.  
2. Please include a return address.  
3. Please indicate the nature of the correspondence.  
4. Please indicate the date of the correspondence.  
5. Mr. J. T. Baldwin, Department of Botany,  
University of Michigan, Ann Arbor, Michigan.

NOTE: This is a carbon copy of the original.

Dear Mr. Baldwin:  
Under separate cover I am sending you a package containing some plants of *Sedum terratum*. I hope they will be of some value to you in your work. They were collected about 5 miles northwest of Sims, in Grant County, Indiana. They were in an open beech-maple flat.

Sincerely yours,  
Ray C. Friesner

NOTE: This is a carbon copy of the original.

Ray C. Friesner

1. Please direct all correspondence to the above address.  
2. Please include a return address.  
3. Please indicate the nature of the correspondence.  
4. Please indicate the date of the correspondence.

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3. Please indicate the nature of the correspondence.  
4. Please indicate the date of the correspondence.  
5. Please indicate the name of the person to whom the correspondence should be sent.  
6. Please indicate the name of the person who is sending the correspondence.  
7. Please indicate the name of the person who is receiving the correspondence.

NOTE: This is a carbon copy of the original.

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## BOTANY EXHIBITS

### Room 330--General Botany Laboratory

1. Mounted Specimens: Marine Algae, Ferns, Grasses, Sedges, Mosses, et al.
2. Exhibits of Dutch Elm Disease with explanation by attendant.
3. Microscopic demonstrations of Plant Structures.
4. Models and other equipment for general botany.
5. Experiments with explanations for plant pigments and autumn coloration.
6. Exhibits of studies on tree growth.
7. Card files of current literature in various fields of botany.

### Room 331--Botanical Conservatory

1. Exhibits of various types of plants used in botany courses.

### Room 331 A. Soil Testing Laboratory

1. Exhibit with explanation of apparatus for determining moisture-holding capacity and wilting coefficient of soils.
2. Exhibits of reprints in Botany

### Room 334--Botanical Library

1. Bound volumes and current numbers of over 200 different botanical periodicals regularly received by the library.
2. Exhibit of recent publications by members of the department.
3. Special exhibit of foreign periodicals received by the library.

### Room 338--Bacteriological Laboratory

1. Modern Bacteriological equipment.
2. Cultures of living bacteria.
3. Microscopic exhibit of bacteria.
4. Demonstration of Water contamination determination

### Room 342--Plant Physiology, Ecology and Microtechnia Laboratory

1. Equipment for preparing microscope slides.
2. Evaporation apparatus in action.
3. Evaporation equipment standardizing apparatus in action.
4. Peat borer apparatus with samples of peat recently obtained.
5. Experiments in plant physiology and ecology.
6. Correlation between tree growth and Butler University history.

### Room 343--Botanical Herbarium

1. Exhibits of over 30,000 mounted specimens from all parts of the world.
2. Special exhibits of mounted garden plants.
3. Demonstration of herbarium mounting.
4. Special display of recent valuable and rare Taxonomic books.



June 11, 1941

Mr. Morris J. Raff  
3746 N. Pennsylvania Street  
Indianapolis, Indiana

Dear Mr. Raff:

Your inquiry regarding the growing of mushrooms has been referred to me for answer. We have a number of publications including, also, several U. S. Department of Agriculture publications dealing with the growing of mushrooms. These can readily be made available to you if you will call the Botanical Library. It might be well for you to call over the telephone in advance before coming out in order to be certain of finding someone here when you come. If you call Bu.1348 and ask for Mr. Friesner in the Botany Department, it may save you some time.

Sincerely yours,

Ray C. Friesner

RCF:mb

# AMERICAN EUGENICS SOCIETY

INCORPORATED 1926

RKO Building, Rockefeller Center, New York City, N. Y.

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## Address

RUDOLF C. BERTHEAU

*Secretary*

8054 RKO Building

Rockefeller Center

New York, N. Y.

Tel. Circle 5-6934

June 13, 1941

Professor Ray C. Friesner  
Department of Botany  
Butler University  
Indianapolis, Indiana

Dear Professor Friesner:

Many thanks for your cooperative note of June 5th.

We received a special grant for the publication and distribution of a pamphlet on human heredity. Naturally, we should like to give it as large a distribution as we can afford to, but it will be necessary for us to have a little better idea of how far the funds will reach in the distribution, before we undertake to send out possibly more than we will be able to supply. The demand for the pamphlet is very great.

In view of these considerations, may I ask you to let us have a fairly full list of your students whom you think are the most interested, with the idea that the list might be supplemented later on, if we find we can make a larger distribution, or in the event that we receive additional funds for a larger distribution, due to demand.

You will realize that the preparation of this booklet is an extremely difficult task for the Society to undertake in view of the fact that we want the booklet to have prestige and value. Its publication is under the able direction of our Board Member, Robert C. Cook, Managing Editor of THE JOURNAL OF HEREDITY. Present indications are that it is apt to be longer in preparation than we had at first contemplated so that I cannot give you any very definite idea as to when the booklet will appear.

Sincerely yours,

*Rudolf C. Bertheau*

Rudolf C. Bertheau  
Secretary

RCB:EB

Send Names and addresses of

- ① All students in Department with grades of B or Better
- ② All major students regardless of grades

Donnie Douglas	402 E. Louisiana St. Apt. 1, Indianapolis
Virginia Hartman	5163 Sangster Ave., Indianapolis
Pat Maguire	3345 N. Pennsylvania St., Indianapolis
Mary Jane Reeder	1426 S. Talbot Street, Indianapolis
John Ed. Ross	Long Beach, California
John D. Williams	430 Massachusetts Ave., Indianapolis
Peggy Bosart	5723 Lowell Ave., Indianapolis
Robert King	805 E. Maple Rd., Indianapolis
Geraldine Bagby	Greenwood, Indiana
Patricia Bridgins	R.R. 1, Box 30, New Augusta, Indiana
Ruth Chandler	302 Blue Ridge Rd., Indianapolis
Arth A. Downey	947 E. Georgia St., Indianapolis
Irene L. Goodlet	R.R. 17, Box 4180, Indianapolis
Cottfried Gussnell	5154 Park Ave., Indianapolis
Ken Henning	5661 Guilford Ave., Indianapolis
Robert Jacob	Greenfield, Indiana
Janet Ann Johnson	5116 North Capitol, Indianapolis
Edna Liljehlad	3846 Park Ave., Indianapolis
Elizabeth Lowe	Noblesville, Indiana
Mary Jean Sayles	8239 Riverview Dr., Indianapolis
Harriett Shelhorn	1051 E. 54th St., Indianapolis
Virginia Skidmore	949 E. Olney, Indianapolis
Mary Marjorie Sneed	334 Whittier Place, Indianapolis
Elizabeth M. Smith	Elwood, Indiana
George Spiegel	212 Berkeley St., Indianapolis
Evaldo Nise	R.R. 4, Box 226, Noblesville, Indiana
Dorothy Alexander	2930 Boulevard Place, Indianapolis
Corris J. Boyce	Kokomo, Indiana
Christina J. Cherpas	3736 N. Illinois St., Indianapolis
Diana M. Galsman	626 N. Hamilton, Indianapolis
Betty Ann Ginney	321 N. DeQuincy, Indianapolis
Juanita L. Lewis	903 Dawson St., Indianapolis
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Dorothy Newgent	54 Whittier Place, Indianapolis
Katherine Parrish	R.R. 16, Box 452P, Indianapolis
Charles W. Reimer	R.R. 2, Box 563B, Indianapolis
Frances Trueblood	408 E. Michigan St., Apt. 5, Indianapolis
Howard A. Barnett	Lebanon, Indiana
Eather L. Benjamin	Hamilton, Indiana
Winifred Davis	1659 Allison St., Speedway City, Indiana
Florence Forehand	Kokomo, Indiana
Wilma D. Grabhorn	5451 Brookville Rd., Indianapolis, Indiana
Gale King	Wanatah, Indiana
Mary M. Shortomeier	3740 N. Pennsylvania St., Indianapolis
Everett Smith	Auburn, Indiana
John Tyrrell-Baxter	Orange, Indiana
Mary Jane Able	4257 Boulevard Pl., Indianapolis
Anna Kirby	1342 Tabor St., Indianapolis
Leila Gilbert	Rushville, Indiana
Dorothy Grigsby	1506 Prospect St., Indianapolis
Helen L. Poinak	1509 N. Jefferson, Indianapolis
Janet Williams	317 E. 47th Street, Indianapolis

Michael Baker 956 N. Oakland, Indianapolis  
Margaret Branson 4226 Sunset Ave., Indianapolis  
June Davis 2251 Northwestern Ave., Indianapolis  
J. Gordon Edwards 3054 Broadway, Indianapolis  
Arian E. Evans 2533 Roosevelt Ave., Indianapolis  
Harrison Feldman 316 W. 39th St., Indianapolis  
Jane L. Goodlet 4334 Broadway, Indianapolis  
Ruth Hair 4121 Central Ave., Indianapolis  
Matthew Harmon 2350 E. New York, Indianapolis  
Charles Hill 3055 N. Meridian, Indianapolis  
Donald Mosier Logansport, Indiana  
Eugene Rupp 621 W. 51st St., Indianapolis  
Frank Knaplain 1200 Alabama, Indianapolis  
Carl Kessler 1720 N. Rural St., Indianapolis  
Mardie B. Lee 4950 Cornelius, Indianapolis  
Howard E. Manning 1014 Villa Ave., Indianapolis  
Janet M. Murphy 620 N. Hamilton, Indianapolis  
Mrs. Joan P. Nap 4420 N. Meridian St., Indianapolis  
Leander C. Parker 4012 Cornelius, Indianapolis  
Robert C. Pittenger 3559 College Ave., Indianapolis  
Julia Renfrew 234 Blue Ridge Rd., Indianapolis  
David Scottfield 2237 Carrollton, Indianapolis  
Ruby Shelton 1335 W. 37th St., Indianapolis  
Georgiana Thompson 240 W. Parchin, Indianapolis  
May A. Wible 753 N. Riley Ave., Indianapolis



THE ARNOLD ARBORETUM  
HARVARD UNIVERSITY

JAMAICA PLAIN, MASS., U.S.A.

June 14th, 1941

Prof. R.C. Friesner  
Butler University  
Indianapolis Ind.

Dear Prof. Friesner:

Thank you very much for your letter, and even more for the friendly spirit in which you penned it. Writing about nomenclature one always smacks of pedantry, looking like a judge wearing a big wig and enormous eyeglasses. So, to have somebody like you who can take that gracefully is a relief. Let's all smile at the judge, after all.

As you may imagine, I will never be able to publish another paper like the one which has been printed in January. The facts are unanswerable but they should not have been told, truly, because in the field of science truth is not material. As I see it, however, this is fundamentally to be reckoned with: (1) Nomenclature is a sore, so to have it a tolerable evil let's digest it once for ever; (2) Nobody, high or low, should be authorized to palm off as "the Rules", something that he thinks the Rules say; (3) Even there, where the Rules are absurd let us apply them. It is only by driving them to their logical conclusion that we will know whether they work or not, thus learning where they must be mended; (4) To be able to steer clear of the deepest mires in handling cases of detail, let us clear out the fundamentals, that is to say such concepts as that of type [nomenclatural type or otherwise], of rank and so forth.

In the Rules there is detectable a fundamental contradiction. As you well know, the old European taxonomic practice neglected the use of type-specimens. A botanist writing, like Briquet, about Stachys recta felt that everybody knew what Stachys recta was, consequently, that the Linnean specimen may be allowed to sleep. What these botanists laid stress upon was descriptions and trinomials. They dealt, in fact, with a well known flora, and they were preoccupied with establishing the limits of its minor circumscriptions. This is perfectly understandable, for it answers the needs of the elaboration of a flora which is already fairly well known and the main forms of which are - or are supposed to be - "definitely defined".

Britton and his associates, in formulating the American Code 1904-1907, were entirely on a different foot than Briquet and his school. To the American taxonomist, Euphorbia Fendleri meant little or nothing, unless the specimen could be known to which the binomial applied. Who knew what that Euphorbia was unless he who had seen the "type"? Naturally the American Code 1904-1907 emphasize the actual holotype, the plant first named, for without that American botanists were helpless.

In 1905 an attempt was made to fuse the American Code with the Code followed by European Botanists. I know perfectly French and certain other languages, so I have been able to follow the proceedings of that memorable debate to the bone. Briquet thoroughly misunderstood Britton, because the European botanists had certain needs, and the American ones certain others.

THE ARNOLD ARBORETUM  
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JAMAICA PLAIN, MASS., U.S.A.

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I have had some law schooling. Had I been present I would have asked Briquet and Britton to elucidate thoroughly what they understood as type. It would have been seen that as type Briquet understood essentially a name. For instance: Portulaca is the type of the Portulacaceae. It means perfectly nothing whether you "typify" Portulaca with this or that species, or with this or that dried twig, once you know that you can not "segregate" Portulaca from the Portulacaceae, because Portulaca is the "type" of the family (see Art. 66, cited by Art. 18). Britton, on the contrary, understood as type the actual specimen. Thus when Briquet said "The type of the Portulacaceae is Portulaca" Briquet did not even think of the "type" of Portulaca, resting satisfied with the knowledge that the name Portulaca and the name Portulacaceae were associated permanently together. But when Britton said "The type of the Portulacaceae is Portulaca" he meant that specimen which in the Linnean herbarium "typifies" Portulaca oleracea.

*one emphasizing name, the other specimens*  
To make the long story short: two concepts were in conflict and the Proceedings of the Vienna Congress show it. In 1930 an attempt was made to conciliate these two concepts. How was this made? By the logical process of elucidating the opposite points of view? No, sir... Something of either was taken, and the whole was clapped up together, making a crazy quilt. Naturally, the Rules were not harmonized, either. Thus in some of their part they speak the language of Briquet and in others that of Britton.

This long preamble is merely to conclude as follows: we NOW in this country are entering a stage of trinomial elaboration of OUR FLORA, something that you well know Britton, Small and all other botanists of their school held to be absurd, as they had no use for trinomials. To work out the oftentimes extremely involved nomenclature that such a trinomial elaboration requires we are bound to use Rules that are often poorly worded and thought out, and are fraught with basic contradictions. Nobody knows that better than you do. So do I, about as well.

I have the greatest sympathy for the average honest student of botany and the professional botanist who comes to grip with the Rules because I know that he can not avoid failing. It is the tool which he uses that is rotten.

I have had legal training in my younger days, therefore I look at these question in a juridical manner. The principles must be carefully defined so that the individual cases can take care of themselves. In truth, the Rules are child play to anyone who is familiar with the rudiments of civil and criminal codes. A legal approach to the Rules does not mean that one wishes to cavil. It means that trained common sense is called upon to elucidate fundamentals.

What have we? a host of perfectly ignorant and self-appointed commentators who dabble with the Rules, now taking half a Article, now half another, now thinking that the Rules say this and the Rules say that.... Fernald's nomenclature is putrid and he seldom goes right on anything he says about fundamentals. He thinks that he is the Rules, and that's that. Wheeler, schooled by him, utters perfectly meaningless oracles, not knowing what he speaks of. The lack of knowledge of these gentlemen is fundamental. It is not what they do as to this or that detail that counts, for their happen to be right now and then. The trouble



THE ARNOLD ARBORETUM  
HARVARD UNIVERSITY

JAMAICA PLAIN, MASS., U.S.A.

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is that they use a body of prescriptions, that is to say a code of law ( such are the Rules, for they forbid and order, which is the essential function of any law ) in complete and utter inability to treat it under a juridical standpoint.

I have mentioned <sup>here</sup> Fernald and Wheeler for I have <sup>already</sup> taken them to task in a printed work, but I may add that their ilk is legion. He who told you that you must effect a new combination because you had not indicated the rank of the trinomial in the first place, did not know the Rules, and that is all. Had he known then, he would have realized that you had acted against something that was not an Article. In other words: this well-meaning, but very much befuddled adviser, confused the nature of an Article which is mandatory and retroactive, with that of a Recommendation which is neither. The case against him ~~is~~ sealed with reference to Art. 2 that defines articles and recommendations; with reference to Rec. xxi, which I have already cited; with reference to Art. 74 which says, in few words that nobody can have the Rules say what he wishes. It is plain that Rec. xxi is not an Article. That's all. The Court may adjourn: you were right as to fundamentals, and your adviser ~~was~~ wrong. Of course, you should have complied with the Recommendation, but you were under no obligation to do so.

As you see, the Rules are not difficult. There is the solution: Art. 2; Rec. xxi; Art. 74.

I have been forbidden to write anything at all on nomenclature. This is not because what I say is true or untrue. They know better. But they do not wish me to write anything at all on the subject. I had meant to publish in a brief review the data which I give you about the Briquet-Britton conflict, but I may not do so, so long as I am here. I would be dismissed if I did. Truth is no consideration.

Thus, I will be glad to consult <sup>privately</sup> with you and any of your students and associates on any issue of nomenclature. My opinions will be returned in each and every case with reference to the Articles and the Recommendations of the Rules. You will be told: This can be done or can not be done, because Article so-and-so is, or is not in the way. You will learn what my opinion is in a case in which the Articles are not clear, nor conclusive. Be sure of one thing: I will not tell you something that comes out of my "noddle" stewed and cooked because I am "God". No, sir, that's the rot and an "authority" does not make rot palatable.

The friendly and understanding tone of your letter has prompted me to "unbutton", giving you an inkling of the basic premises of my thought on the subject of nomenclature. Rest assure that I will have much to learn by handling your cases. I see you have plenty of excellent ones.

Sincerely yours,

René Brizet

UNIVERSITY OF MICHIGAN  
ANN ARBOR  
DEPARTMENT OF BOTANY

June 17, 1941

Prof. Ray C. Friesner  
Butler University  
Indianapolis, Indiana

Dear Professor Friesner:

Thank you very kindly for  
the specimens of Desmodium ternatum  
that came this morning.  
They are tetraploid, with a  
2n-number of 32.

Sincerely yours,

J. T. Baldwin, Jr.

THE SPONSOR  
The following are suggested by the Board as being typical of the type of work which  
(1) the student should be able to do in the laboratory  
(2) the student should be able to do in the field  
(3) the student should be able to do in the classroom  
and the student should be able to do in the laboratory  
and the student should be able to do in the field  
and the student should be able to do in the classroom

The following are suggested by the Board as being typical of the type of work which  
the student should be able to do in the laboratory  
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THE SPONSOR

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the student should be able to do in the laboratory  
and the student should be able to do in the field  
and the student should be able to do in the classroom

Dr. Rudolf C. Borthenau, Secretary

American Eugenics Society

1000 Bldg., Rockefeller Center

New York, New York

Dear Dr. Borthenau:

I am enclosing a list of students' names whose work in biology  
has been of such a caliber that I feel they will be able to  
thoroughly understand the materials likely to be in your  
past paper on human heredity. These students are well above the  
average of college students in mental capacity.

Sincerely yours,  
Ray C. Friesner

THE SPONSOR  
The following are suggested by the Board as being typical of the type of work which  
the student should be able to do in the laboratory  
and the student should be able to do in the field  
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THE SPONSOR  
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THE SPONSOR  
The following are suggested by the Board as being typical of the type of work which  
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and the student should be able to do in the field  
and the student should be able to do in the classroom

THE SPONSOR

West Virginia University  
MORGANTOWN, W. VA.  
COLLEGE OF ARTS AND SCIENCES

DEPARTMENT OF BOTANY AND ZOOLOGY

June 26, 1941

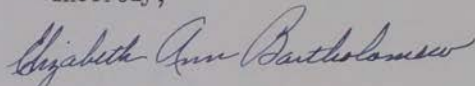
Dr. Ray C. Friesner  
Department of Botany  
Butler University  
Indianapolis, Ind.

Dear Dr. Friesner:

Due to the fact that our printer has been obliged to do a considerable amount of printing for the Government, our April issue of Castanea has been delayed. We hope to have it all out by the first of July. There is one question I will have to ask you. Dr. Core has gone to Put-in-Bay for the summer and your order for reprints has gotten misplaced. I wonder if you would put the number of reprints you desire on the enclosed card and return it to me by return mail.

Thank you very much.

Sincerely,



Elizabeth Ann Bartholomew  
Herbarium Clerk

encl.

on the Department of Botany at the University of Kentucky, Lexington, Kentucky. I am very glad to hear from you and hope you are well. I am very glad to hear from you and hope you are well.

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June 27, 1941

Dr. F. I. McFarland, Head  
Department of Botany  
University of Kentucky  
Lexington, Kentucky

Dear Dr. McFarland:

I have finally finished checking the Solidago specimens from your herbarium and am forwarding them to you via railway express.

I hope you will pardon the delay because pressure of regular duties often leaves me little time for the things I'd like to do. I have enjoyed going over your material; thank you very much for the privilege.

Sincerely yours,

Ray C. Freeman

RCF:mb

THE HERBARIUM OF THE UNIVERSITY OF CALIFORNIA

ANNOUNCEMENT

The herbarium of Ira W. Clokey is now deposited as a loan at the University of California in Berkeley where it is being maintained as a separate unit under the joint supervision of Mr. Clokey and the staff of the University Herbarium. Since there is a formal understanding between Mr. Clokey and the Regents of the University of California that the Clokey Herbarium is eventually to be permanently incorporated with the University Herbarium, it is desirable that institutions exchanging with both the Clokey Herbarium and the University Herbarium should not send duplicate sets of specimens to these two herbaria. In order to avoid duplication it is recommended that exchange accounts with Mr. Clokey and the University be combined. Both Mr. Clokey and the University Herbarium will continue to send out exchanges independently.

Ira W. Clokey  
1635 Laurel Street  
South Pasadena, California

Herbert L. Mason  
Curator of the Herbarium  
University of California, Berkeley

---

As our records stand at present our exchange balance with you is as follows:

	Received	Sent
Clokey Herbarium, balance due	14	
University of California Herbarium	570	674
Total in our favor		<u>114</u>

If these figures are at variance with your records kindly communicate with us.

July 1, 1941

Lincoln Constance  
Assistant Curator of the Herbarium

All exchange specimens intended for Mr. Clokey should be sent directly to him.



UNIVERSITY



OF KENTUCKY

LEXINGTON

COLLEGE OF ARTS AND SCIENCES  
DEPARTMENT OF BOTANY

July 5, 1941.

Doctor Ray C. Friesner,  
Department of Botany,  
Butler University,  
Indianapolis, Indiana.

My dear Doctor Friesner:

The Solidago sheets came in Monday and I have not had a chance as yet to open them and see the changes. Will try and get to them this P. M.

Under separate cover I am sending you the First Century of plants and I trust that you will find something among them that are interesting.

Have been laid up most of the spring since I was operated on the first of March and am now getting back to normal. Have made but a couple of brief trips but will do a lot of collecting I hope, this second term.

I suppose that you are about ready to start on your Maine summer vacation and if it were not for the collecting in this Terra incognita I would go somewhere myself for such a vacation. However, the Falls school will be combined into both.

Yours very sincerely,

*Frank T. McFarland*

Frank T. McFarland,  
Professor and Head of the  
Department.

July 8, 1941

Dr. F. T. McFarland, University of Kentucky, Lexington, Kentucky, is the recipient of the letter. The letter is dated July 8, 1941. The letter is from Ray C. Friesner, University of Kentucky, Lexington, Kentucky. The letter discusses the exchange of botanical specimens between the two institutions.

July 8, 1941

Dear Dr. McFarland: Some of the specimens from the recent exchange of botanical specimens between the two institutions have been received. The letter is dated July 8, 1941. The letter is from Ray C. Friesner, University of Kentucky, Lexington, Kentucky. The letter discusses the exchange of botanical specimens between the two institutions.

Your package of specimens came yesterday. We are very grateful to you for them because our herbarium is short in Kentucky plants. I am sure that you and your students are doing the cause of plant distribution a great service in your field and exchange work. I hope our herbarium can continue to receive exchanges from you. Sincerely yours, Ray C. Friesner

Dr. F. T. McFarland, University of Kentucky, Lexington, Kentucky, is the recipient of the letter. The letter is dated July 8, 1941. The letter is from Ray C. Friesner, University of Kentucky, Lexington, Kentucky. The letter discusses the exchange of botanical specimens between the two institutions.

Dr. F. T. McFarland, University of Kentucky, Lexington, Kentucky, is the recipient of the letter. The letter is dated July 8, 1941. The letter is from Ray C. Friesner, University of Kentucky, Lexington, Kentucky. The letter discusses the exchange of botanical specimens between the two institutions.

12. With the needles separate a few microsporophylls from the male cone and mount in water. Under the medium and low power note:

a. Two elongated sack-like bodies, the microsporangia, or pollen sacs, which occur on the lower surface of the microsporophylls.

b. An upturned portion of the microsporophyll curves over the pollen sacs.

c. A very short stalk attached the sporophyll to the cone axis.  
DRAW A SINGLE MICROSPOROPHYLL WITH POLLEN SACS.

13. When the pollen sac is mature it ruptures by a longitudinal slit and permits the escape of the pollen grains. With the needles tear open a pollen sac and study single pollen grains. Note:

a. Each pollen grain has double wall. The outer wall is inflated to form two wing-like appendages. Are the surfaces of the wings smooth or marked in some way? How? Of what value is the wing?

b. The central portion of the pollen grain is a more or less spherical cell containing one or two nuclei and one or two remnants of disorganized cells (number depending upon age). The pollen grain is the immature male gametophyte in the pines. DRAW A POLLEN GRAIN.

14. The female cones begin their development in the early autumn. They are not visible, however, until the following spring. Secure a female cone of the first year, study with hand lens, and observe:

a. Each cone is composed of a central axis or cone axis to which is attached a number of minute scale-like structures, megasporephylls or carpels.

b. The axis on which the female cone appears does not continue as the main vegetative axis as in the case of the male cone. DRAW A FEMALE CONE OF THE FIRST YEAR.

15. Secure a female cone of the second year that has been split longitudinally to show the ovules and note:

a. The central or cone axis.

b. The megasporephylls attached in a spiral manner to the cone axis.

c. On the upper surfaces of the megasporephylls occur the ovoid ovules (which constitute the megasporeangia). Do you find ovules on every carpel? Why? DRAW A SPLIT CONE.

16. Secure a mature female cone. Compare with female cones of the first and earlier part of the second year. How are the carpels arranged on the cone, with respect to each other? DRAW A HABIT SKETCH.

17. Secure a single carpel that has been severed from the cone axis. Note the two seeds each with a wing-like appendage. Draw A CARPEL WITH SEEDS.

18. Secure slide of <sup>a</sup> longitudinal section of <sup>an</sup> ovule. Select a median section and study under both high and medium powers. Note:

a. The outer coats differentiated into outer and inner integuments.

b. The micropyle, an opening thru the integuments. Not all sections will show this. Why? What is the function of the micropyle.

c. The pollen chamber, a chamber just beneath the micropyle. What is the function of the pollen chamber?

d. Immediately beneath the integuments is the nucellus. This is

reverse  
the order

July 11, 1941

Dr. Delzie Demaree  
Arkansas A. & M. College  
Monticello, Arkansas

Dear Dr. Demaree:

Your package of herbarium specimens arrived today in good condition. We are very grateful to you for them because they add that much to the value of our herbarium. We have now passed the 55,000 mark with approximately 10,000 awaiting mounting.

The summer schedule has kept me too closely occupied to get at the determinations of your *Solidagos* but someday I'll have them done.

I certainly appreciate your generosity in sending us so many specimens.

Sincerely yours,

Ray C. Friesner

RCF:mb

### VIII SEX DETERMINATION

1. If sex determination in the cat is of the XO type and there are 17 pairs of autosomes show the types of (a) sperms produced, (b) eggs, (c) zygotes, and label the sex of each.
2. If sex determination in the moth, *Talaeoporia tubulosa*, is of the ZO type and there are 29 pairs of autosomes show the types of sperms, eggs, and zygotes with sex of each of the latter.
3. If sex determination in the moth, *Fumica casta* is of the ZO type and there are 30 pairs of autosomes show the types of sperms, eggs, and zygotes and label the sex of the latter.
4. If sex determination in the moth *Talaeoporia tubulosa* is of the Zo type and there are 29 pairs of autosomes show the maturation of the female gametes when (a) high water and high temperature result in a larger number of male offsprings. (b) low water content and low temperature result in a larger percentage of female offspring.
5. If sex determination in the nematode worm, *Ascaris canis*, is of the  $X_nO$  type and there are 12 ~~pairs~~ pairs of autosomes and the X complement is 6, show the types of sperms, eggs, and zygotes and the sex of the latter.
6. If sex determination in the insect, *Phylloxera*, is of the  $X_nO$  type, there are 4 pairs of autosomes and the X complement is 2, show the types of sperms, eggs, and zygotes and label the sex of the latter.
7. If sex determination in the fruit fly, *Drosophila melanogaster*, is of the XY type and there are 3 pairs of autosomes show the types of sperms, eggs, and zygotes and label the sex of the latter.
8. If sex determination in the moth, *Phragmatobia*, is of the ZW type and there are 27 pairs of autosomes show the types of sperms, eggs, zygotes.
9. If sex determination in the nematode worm, *Ascaris incurva*, is of  $X_nY$  type, there are 13 pairs of autosomes and the X complement is 8, show the types of sperms, eggs, and zygotes and the sex of the latter.
10. If sex determination in the insect, *Acholla multispinosa*, is of the  $X_nY$  type, there are 10 pairs of autosomes and the X complement is 5, show the types of sperms, eggs, and zygotes and the sex of the latter.
11. If sex determination in the dock or sheep sorrel, *Rumex acetosa*, is of the  $XY_n$  type, there are 6 pairs of autosomes and the Y complement is 2, show the types of sperms, eggs, and zygotes and the sex of the latter.
12. If the female honey bee has 16 pairs of chromosomes and the male has 16 unpaired show maturation of gametes in both male and female and the types of offspring produced and label the sex of the latter.



July 22, 1941

Miss Mary Henderson  
Park Naturalist  
Turkey Run State Park  
Marshall, Indiana

Dear Miss Henderson:

Under separate cover I am sending you copies of my fern key and also of a key to goldenrods. I am sending three copies of each with the thought that Mr. Long and the other member of your staff whom I did not meet might care for them.

I find that Dorothy Parker's papers on the liverworts of Indiana were published in the *Bryologist*. References are: The Hepaticae of Indiana. *Bryologist* 41:41-46. 1938 and Some liverworts from Indiana. *Bryologist* 40:79-80. 1937.

The reference to the Illinois plant book wanted by Mr. Long is Fieldbook of Illinois Wild Flowers; Illinois Natural History Survey Manual 1. Department of Registration and Education, Natural History Survey Division, Urbana, Illinois.

I have greatly appreciated the privilege of being with you in your work at Turkey Run and hope you will not hesitate to call if I can be of service.

Sincerely yours,

Ray C. Friesner

RCF:mb



July 22, 1941

Professor Howard H. Michaud  
McCormick's Creek State Park  
Spencer, Indiana

Dear Mr. Michaud:

Under separate cover, I am sending you a copy of my fern key and one of the goldenrod key. I have sent 3 copies of each to the Park Naturalists at Turkey Run and can furnish them for any others you may care to have them.

The references to Miss Parker's papers are: Some liverworts from Indiana. Bryologist 40:79-80. 1937 and The Hepaticae of Indiana. Bryologist 41:41-46. 1938. In case you should want reprints you should write to her at St. Mary's College, Holicross, Indiana.

I am unable to locate the list of plants sent to Mr. Goshorn at Shakamak. I am not certain that we ever made up a list, but I think we did.

Analysis of the sand at the botton of the cliffs where the Bladder fern and Walking fern were growing showed no lime. Probably the lime was all leached out of the material I took. I should have broken off an unweathered piece.

I greatly appreciated the privilege of being with you last Saturday and thank you sincerely for your courtesies.

Sincerely yours,

Ray C. Friesner

RCF:mb

July 30, 1941

Dr. Ira W. Clokey  
1635 Laurel Street  
South Pasadena, California

Dear Dr. Clokey:

Today I am sending you a small package of herbarium specimens which temporarily closes our account with you. I am enclosing a few additional specimens to partly offset the duplicates I sent you earlier before you informed me of your intentions regarding the University.

I still owe the University 114 specimens which I am in the process of collecting now but since I send them quite a large number in earlier sendings and since all I have sent you likewise become accountable in determining what can be sent, I do not find now available species rapidly.

All of the specimens I am sending have been poisoned by dipping in alcoholic solution of mercuric chloride.

Appreciating the privilege of exchange with you, I remain

Sincerely yours,

Ray C. Friesner

RCF:mb

IRA W. CLOKEY  
1635 LAUREL STREET  
SOUTH PASADENA, CALIFORNIA

Aug. 13, 1941

Dr. Ray C. Friesner  
Botanical Department  
Butler University  
Indianapolis, Ind.

Dear Dr. Friesner:

I returned yesterday from Berkeley and found your letter of July 30th. and the package of 21 very satisfactory specimens. Please accept my thanks for same.

During the winter I will be able to send you a package of perhaps 200 numbers. Sorry that it will not be larger.

Sincerely yours,

*Ira W. Clokey*

Dear Dr. Wisner,

I am hurriedly sending you, from camp, a few duplicates from the Josselyn Bot. Soc. trip. Some are very fine, but none will know if you throw them away. I wish I might have collected more for you, but another friend had asked me to get duplicates for her, and, at the end of the first day even, my presses were filling alarmingly.

It was a wonderful trip. Such rich woods, and a guide, who was born in the vicinity, Dr. Sumby, of the Mass. College of Pharmacy. I shall write the story for my friends who enjoy my doings, but who aren't botanists, as I did last year, and if you'd be interested, I'd let you read it. I purposely make it as much of an unscientific ramble as possible, so it's of no great interest to a botanist.

From Bicknell 21-VIII-41

Mr. Norton, curator of the Port-  
land Museum of Nat. Hist., Mr. Herbert  
Hansen, <sup>from Portland,</sup> the Sonntags from Portland,  
whom you met here, and one of  
my nephews, spent last Wednesday  
botanizing Norton Pond with me. The  
wind hid many of the aquatic, but  
we had a good day. Mr. Norton was  
pleased to find Elochans Roblinii  
in the country, <sup>and</sup> a quillwort, that I  
think will prove to be Tuckermanni.

I very much appreciated the  
Butler University Botanical Studies  
you sent me, and should have  
acknowledged them long since, but  
that I have had a very busy and  
trying summer.

We shall hope some summer  
to have you with us for the Josselyn  
meetings.

Yours sincerely,

Edith Bicknell

Lincolnville Center, Me.

Aug. 21, 1941

To Richard Moody.

*Dianthus deltoides*. Exeter, N.H. July 10  
*Potentilla recta* " " " "  
*Centaurea jacea* Corinna " " 9  
*Campanula uliginosa* Newfort " " 9  
*Silene palustris* Corinna " " 9  
*Thymus Serpyllum* Newfort " " 8  
*Lobelia spicata* St. Albans " " 9  
*Cystopteris bulbifera* Corinna " " 8  
*Lonicera caerulea* (?) Stetson " " 10  
     *var. villosa*  
*Grass* (not identified yet) St. Albans " " 9  
*Silene antirrhina* Lincolnville  
     Center. June 14. 41

*Ranunculus delphinifolius* - flowers (very few spec's) from L. Center. Small leaves and roots, from muddy shores from which water had receded - Thane's Mill Pond, W. Levant, N.H. July 10. 1941

*alopecurus aequalis*  
     *geniculatus*  
     *pratensis*  
     *mysuroides*