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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.

March 28, 1929.

Mr. Irwin Welson R.R.17 Box 65 Indianapolis, Indiana

Dear Mr. Melson:

I am sorry to be a day later in replying to the questions of last Saturday than I had intended. Monday found me completely tied up with college duties so that I could not find time to seek answers.

I have gone thru all the material we have on the elms and am not able for certain to identify the three elms about which there was question last Saturday. Perhaps we can do better when the leaves are fully formed.

The books to which reference was made are as follows:

Trelease, William. Winter Botany, a Manual for determining trees and shrubs in their winter condition.

Trelease, William, Plant Materials of Decorative Cardening, A Manual for determining trees and shrubs in their summer condition.

These two volumes are for sale by the author, Urbana, Illinois,

Render, Alfred, Manual of Cultivated trees and shrubs. Macmillan Co. This latter volume is by far the most comprehensive and the better one to have if all three cannot be had. You really should have all of them to do your determining properly.

Mr. Smolenski and I both throughly enjoyed the afternoon with you last Saturday and I hope that we shall be able to be of further service to you in the future. Sincerely yours,

St game of plants become provide a process community special and the plants of the pla 1. Please salitary in sails of most of the leaves principles;

## VERONICA (Gray p. 726)

1.	Flowers racemose in axils of leaves; bracteolate2
1.	Flowers in terminal spikes or racemes
1.	riowers solitary in axils of most of the leaves8
	2. Swamp or brook plants, glabrous or minutely glandular above3 2. Dry soil plants, pubescent
3.	Leaves linear or linear-lanceolate
	4. Stem leaves sessile, partly clasping, entire or merely serrulate
	4. Stem leaves all petioled, serrate
5.	Stem leaves sessile or nearly so, ovate; peduncles longer than calyx
5.	Stem leaves petioled, oval or obovate; peduncles shorter than onlyx
	<u>V</u> . <u>officinalis</u> (727)
	6. Tall plants 0.5 - 2.0 m high
7. 7.	Leaves sessile; capsules emarginate <u>V. Wormskioldii</u> (728) Leaves petioled; capsules obcordate <u>V. serpyllifolia</u> (728)
	8. Peduncles shorter than leaves
9.	Erect; glabrous or glandular; capsules emarginateV. peregrina (728)
9.	billuse; pubescent; capsules obcordate
	10. Leaves orbicular, or broader; 3-7 toothed or lobed
	10. Leaves ovate or oblong; merely dentate or crenate not lobed11
1.	Corolla longer than calyx
1.	Corolla not longer than calyx

# CARNEGIE INSTITUTION OF WASHINGTON WASHINGTON, D. C.

October 6 /929

Dear Friesner :

Many thanks for your kindness with respect to the letters. Postage is enclosed.

As you would know, we had a most interesting and enjoyable evening with the Deams. They are both exceptional people, and he is a <u>rara avis</u> indeed. He accompanied us to the oak openings of Ohio, which were much less barren than anticipated.

We failed to reach both of our mountain objectives. It began to rain the very day we expected to reach Mt. Washington; this turned to snow and we came back here to enjoy a week of rain.

With best wishes to both of you from ourselves,

Florence ( 2 West 37 = 1937 Lipachy Columnaris pulcharima (GD) 424.37 Dry sandy soil near Toyal, Texas ME Jone and July 30, 1937 Lepideum montanum alyssoides (A. Gray) 6 2+ 37 Red Landy Desert Roadside U. S. 76 near Las Cinces, new mexico. July 30, 1937 me Springs, Calif. July 7, 1937 against ariz Gilia formoriosima (Greene) Wooten + Standley 12437 - 3021. 37 Grand Canon road latelles between Flagstaff and 21 illiams interes ariz. aug. 12, 1937 Edge of woods 25-36 probably same place as 24 27 32 2837 Provie mean Laramie, 28 y. aug. 14, 1937 3821.37 Prane along U. & 30 near Laranie, 27. aug. 14, 1937 6,000 ft, \* = New Contribution to Herbanium 25 Lupinus palmeri S. Wats 26 Connet determene Crassina grandiflora (Mitt) Kuntze 28 Engeron divergens T+G 29 Pentstemon ungatus Gray × 310 otherwise purposes allows Grang

Hunt Institute for Botanical Documentation

#### PENNSYLVANIA CHEMICAL CORPORATION

SALES OFFICE 75 BEAVER STREET NEW YORK, N. Y.

WHITEHALL 3-5185

MANUFACTURING AND CONSULTING CHEMISTS

JEFFERSON AND FREEMAN STREETS ORANGE, NEW JERSEY

DRANGE 5-7100

October 21, 1937

Dr. R. C. Prissner Butler University Imlianapolis, Ind.

Dear Dr. Friesner:

We are grateful to you for the courtesy shown our Mr. F.N. Supplee during your recent conversation with him in regard to the new plant "hormone", Auxilin.

The sample of Auxilin, which Mr. Supplee requested us to send you, is now in the mail. It is our desire that you shall have a great deal of personal pleasure in using it. However, should you like to make more extended experiments in your laboratory or under field conditions, we shall be glad to send you, upon request, larger samples of Indolebutyric acid. or the solution Auxilin.

For your confidential information, Auxilia contains 3.551 mg. of Indolebutyric acid dissolved in 1 cc. of 38% Ethyl alcohol.

We are receiving letters from a tremendous number of amateur and commercial growers in your state, all of whom are very much interested in local experiments and results with the plant "hormones". Consequently, the thought has occurred to us that you may have in mind certain potential uses for Indolebutyric acid or its related hormone-like acids with which you should like to experiment.

In fact, it is more than likely that you share in our opinion that there are many climatic variables and geographic differentials which should be worked out under sectional propagating conditions in regard to the activity of the root-forming "hormone". Further experimentation by you may show that no one set of directions for the treatment of plant cutting by Indolebutyric acid or its homologues are applicable to the United States as a whole.

Our Indolebutyric acid is synthesized by the method developed by Dr. R.H. Manske, National Research Council, Ottawa, Canada. Dr. Manske's former assistant is preparing it for us. Each batch is carefully tested and is uniform in purity. Its mixed melting point is 124° and it contains no skatol.

If you should find our directions for the application of Auxilin to plant cuttings at variance with your experience, any suggestion or criticism you may care to make will be gratefully received.

In the light of additional experimental data, these directions are now being revised and the new directions will conform to the methods used by experimental station workers, such as milligram dosages, etc. It is our belief that this change will be helpful to the grower and will tend to bring the experimental station worker and the commercial propagator and amateur gardener in much closer contact.

If possible, it would be appreciated if you will add our name to your mailing list. We are desirous of keeping abreast with the latest experiments being conducted by yourself and colleagues in the plant "hormone" field.

Please let us hear from you as often as we can be of assistance.

Yours sincerely.

PENNSYLVANIA CHEMICALCO PORATION

stanger ( Research Department

JVS:ME

October 22, 1937

Pennsylvania Chemical Corporation Orange New Jersey

Gentlemen:

Please accept our thanks for your shipment of "Auxilia", which reached us today.

We have one instructor and two or three students who are anxious to make use of this, and we will communicate with you later regarding the results we secure from its use.

Very truly yours,

Ray C. Friesner

RCF:VC

### PENNSYLVANIA CHEMICAL CORPORATION

BALES OFFICE
78 BEAVER STREET
NEW YORK, N. Y.
WHITEHALL 3-5185

MANUFACTURING AND CONSULTING CHEMISTS

JEFFERSON AND FREEMAN STREETS

ORANGE, NEW JERSEY

GENERAL OFFICES

October 25, 1937.

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

Dear Dr. Friesner:

We are grateful to you for your letter of October 22nd informing us that you have received the Auxilin sent you.

We note that you have one instructor and two or three students who are anxious to experiment with Auxilin, and when they have progressed further with their experiments, we shall be glad to learn of their success.

In the meantime, please feel free to call upon us as often as we can be of assistance in furnishing you with additional experimental quantities of Auxilin.

Yours sincerely,

V. Stanger

PENNSYLVANIA CHEMICAL CORPORATION

J. V. Stanger Department

JVS:ME

GEORGE S. AVERY, JR., exoficio
Connecticus College
FREDERIC K. BUTTERS,
University of Minocata
OTIS W. CALDWELL,
Boxe Thompson, Institute for

HARRY M. JENNISON, University of Tennesses LOREN C. PETRY, Consell University

#### THE BOTANICAL SOCIETY OF AMERICA

Committee on the Teaching of Botany in Colleges and Universities

> CLARK W. HORTON, Research Assistant Hayes Hall, Ohio State University COLUMBUS

Oct. 27, 1937

HOMER C. SAMPSON, Oha State University EDMUND W. SINNOTT, Bernard Gologa, Calomba University ERNEST L. STOVER, Charman, Easter Illinea State Teacher College IRA L. WIGGINS, Lilend Stanford Junior Unigary

CARL L. WILSON

Dr. Rdy C. Friesner Dept. of Botany Butler University Indianapolis, Ind.

Dear Dr. Friesner:

One of the stated purposes of an exploratory study of the general botany course now being carried on by the Committee on Botanical Teaching is that of obtaining descriptions of teaching practices which seem to be significantly different from the "typical" or the "usual". The Committee believes that the inclusion of such descriptions in its published report will prove both interesting and informative to other teachers, and perhaps will stimulate other teachers to try out and to evaluate the effectiveness of these practices in their own work.

At its September meeting the Committee asked me to collect such descriptions from a number of successful teachers for possible inclusions in its report. On the basis of a visit with you last spring I believe that a concise description of your general botany course would be of interest to other teachers, particularly the ways in which you believe it differs from others. For example, one of the things that I remember is your emphasis on carefully prepared drawings by students and the use of excellent sample drawings to stimulate them to do good work.

Will you write for other botanists a concise description of what you are doing in that course, particularly the ways in which it differs from what we might call the "typical" course, give some reasons for doing it that way, and tell us how successful you believe it is?

Your description should reach me before December 20th to make possible its inclusion in the report. Please write it as you would be willing to have it appear over your name in the report.

If you know of any other botany teacher who is doing something "unusual" a description of which should find a place in our report, will you kindly let me know?

Very truly yours. Olcur W. Harton

Clark W. Horton Research Assistant to the Committee

# THE NEW YORK BOTANICAL GARDEN BRONX PARK (FORDHAM BRANCH P. O.) NEW YORK, N. Y.

October 28, 1937.

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

Dear Sir:-

Herewith is enclosed a list of recent determinations of the Krukoff plants, some duplicates of which are deposited in your herbarium.

Very sincerely yours,

S. L. Willrock
G. L. Wittrock

GLW/RG

11/3/37 De Frieder, 3 plants in this list. Exponention has been placed upon there lately and the plants placed in line for mounting, all unidentified numbers on learned listed on book of this sheet. Seath

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	8034	8570
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7310		9092

Hunt Institute for Botanical Documentation

Erukoff VI & VII. - Supplementary list of determinations. Oct. 1937

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7552. Manicaria sp.
  7558, Adelobotrys scandens (Aubl.) DC.
 7917. Rhynchosia pyremidalis (Lam.) Urban (det. R. P. Hillip.)
 8047.
         Justicia sp.
 8079. Hypospathe elegans Mart.
8100. Hirtella obidensis Ducke
 8125. Mendoncia pedunculata Leonard
 8127. Bactris actinoneura Drude et Fr. vel valde affinis
 8128. Sanchezia sp.
 8129. Pseuderanthemum sp.
 8138. Licania Posppigii Fritach
 8144. Taenianthera oligosticha Burret
8146. Epidendrum imatophyllum Lindl.
 8190. Hirtella physophora Mart. & Zucc.
 8847. Combretum laxum Jacq.
 8276. Licania Posppigii Fritach
 8289. Mendoncia (probably sp. nov.)
 8404. Combretum laxum Jacq.
 8441. Mendoncia Elugii Leonard
 8445. Licania Ballida Britton
 8451. Licenia anisophylla Standl. sp. nov.
 8472. Terminalis dichotoms G. F. W. Mey, not Combretum
 8507. Licania pallida Britton
 8545. Mendoncia aspera (R. & P.) Nees
 8553. Licania Stenocarpa Standl. sp. nov.
 8560. Licania Hostmanni Fritsch. ?
 8565. Rhynchosia pyramidalis (Lam.) Urban (dat. E. P. Killip)
 8599. Hyospathe elegans Mart.
 8640. Licania riparia (Gleason) Standl.
 8646. Licania heteromorpha Benth.
8700a Clidemia juruensis (Pilgar) Gleason
 8725. Licania Rondonii Filger
 8727. Hirtella
 8751. Licania Rondonii Pilger
 8761. Licania emarginata Spruce
 8795. Lepidocaryum gracile Burret
8843. Licenia Hostmanni Fritsch
 8850. Licania sp. nov.?
 8851. Licania minutiflora Sagot?
 8869. Licania emarginata Spruce
 8886. Licania Rondonii Pilger
_ 8907. Licania emarginata Spruce
 8936. Miconia filamentosa Cleason, sp. nov.
 8962. Licamia heteromorpha Benth.
 8966. Hirtella elongata Mart. & Zucc.
 9022. Licania utilis Hook. f.?
 9027. Octomeris surinamensis Feke.
 9029. Maxillaria amazonica Schlt. ex. char.
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Krukoff I. Supplementary list of determinations. Oct. 1937.

1066. Lantana Camara var. aculeata (L.) Moldenke, not L. aculeata.

1181. Epidendrum imatophyllum Limil.

1239. Combretum fruticosum (Loefl.) Stunz.

1267. Epidendrum atropurpureum Willd.

1452. Licania oblongifolia Standl. sp. nov, 1467. Epidendrum crassilabium Poepp. & Endl. THE OHIO STATE UNIVERSITY

GEORGE W. RIGHTMIRE, Perident

DEPARTMENT OF BOTANY

E. N. TRANSPAU
J. H. SCHAFFNER
W. G. STOVER
H. C. SAMPSON
A. E. WALLER
B. S. MEYER
A. L. PIERSTORFF

G. W. BLAYDES

LOUITAMER

R. R. GORDON
R. D. FREELAND
S. S. HUMPHRET
R. H. DAVIS
C. E. TAFT
R. T. WAREHAM
H. T. SCOFIELD
T. W. BERTZ

COLLEGE OF AGRICULTURE

JOHN F. CUNNINGHAM, Dean

COLUMBUS

November 1, 1937

Ray C. Friesner, Ph. D. Professor of Botany Butler University Indianapolis

Dear Doctor Friesner:

It was very kind of you to send me the last of your copies of Papers #1, 2 and 3 of Butler University Botenical Studies. Later I received two reprints from the Proceedings of the Indiana Academy of Science for 1937, one being your Presidential Address. Thanks for all of them.

Apparently you have observed in quadrat studies where a forest was dominated by oaks and tulip trees, that a lower story of beech or maple or even hemlock appears to be succeeding the present dominants. I have noted this a number of times in our Sugar Grove Region. However, we have hesitated to assume that character of reproduction really means that the species in the lower layer will eventually succeed the species in the layer of dominants. Sometimes the community is in a state of equilibrium brought about by deficient soil moisture for the more mesophytic species to attain dominance. At first glance what may look like perfect evidence for forest succession may be a case of "stagnation" in forest development. I do not know how such situations can be correctly interpreted except by long continued studies on permanent quadrats in virgin forest areas.

I shall be much interested in your reaction to the above suggestion and am looking forward eagerly to seeing you in Indianapolis at the A. A. A. S. meetings.

Very sincerely yours,

Mohan Bondon

Robert B. Gordon

RBG:M

Kiel d. 11. I. 37.

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

Dear Sir:

We thank you very much for your letter dated 9.th December.

We request you to send us the seeds of the three plants you have mentioned, as per your convenience.

Thanking you in anticipation
we remain
very truly yours

A. L. Poly.

#### THE UNIVERSITY OF TENNESSEE KNOXVILLE

DEPARTMENT OF BOTANY

November 1. 1937

Dr. Ray C. Friesner Department of Botany Indianapolis, Indiana

Dear Pete:

There is some likelihood that I may have to teach a one-quarter course in anatomy and micro-technique. It has been several years since I have done any of this work and I will have to brush up a whole lot on methods. I wonder if you could let me have a copy of your laboratory manual for your course in micro-technique at Butler.

The program for the Indiana Academy of Science came today. I notice that Butler, as usual, is leading the field in Botany.

Thanks for the reprint of your presidential address which arrived a few days ago.

With best wishes to the Department.

I am

Sincerely yours.

Stanley A. Cain Associate Professor of Botany

add the droyane method.



Der Wiesne, Michaelie Kudianapolis

Distributed the instance of ment of the total policies of the first part of ment of the first part of ment of the following policies of the following policies of the policies of ment of the form of the following with the first of ment of the following with some of ment of the surface of the following with some of the surface of the surface of the surface of the following with a form of the surface of the following with the surface of the following with the surface of the following with the surface of the surfac

BOWLING GREEN STATE UNIVERSITY NOV. 2 1937, REMARKS WESTERN STATE WAS A STATE OF THE PROPERTY OF THE PROPERTY

R. C. Friesner or J. E. Potzger, Butter University, Dear Sir; - I have been interested in The bulletims you have aint me regarding annular Ring Growth in Quercus, Hembock Reproduction, Fossil Pollen Analysis, etc. at Shortidge High School There is a section from an old oak in allen County, Ind. I wonder if there are any sections of old trees as Butter University, News Jasper there is an De gromous stremp of Live doudson nearly signi feet across at the present level, which we to very low. I was told that some univisity took a section of it, but so far have not learned what university. I am on the program at Indianapolis Wed morning Dec. 29 for a proper on Stumpe before The Cim. Nature Study Society. This might not neterest anyone in your depastment. I prepared an article of 3300 words

Hunt Institute for Botanical Documentation

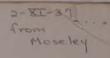
sunt it to Indianapolis as well as other papers. It was published in abridged form at Pittsburgh, Circinnato, Louisville and probably elsewhere.

The enclosed statement has
just been prepared to send to
large sawmills, bumber journals,
and others, I hope it will interest
you.

yours truly, E. L. Moseley.

#### BOWLING GREEN STATE UNIVERSITY

Bowling Green, Ohio



Professor Edwin L. Moseley, curator of the museum at Bowling Green State University, has examined the annual rings on large logs in many mill yards, and on hundreds of stumps. He finds on many of them single rings, or groups of rings, which are outstanding for their width, indicating that the trees were getting more moisture at the time these rings of wood were formed. One such period began in 1846 another 90 years earlier, 1756. At several places in Ohio p ecipitation records were made as early as 1846; they show heavy rainfall 1846-1852. The same is true of one or more places in Kentucky, Wisconsin. Iowa, Missouri Kansas Texas, Louisiana, and Mississippi. At Cincinnati in 1847 was the greatest rainfall in the entire record of over a hundred years, 65.18 inches. This was 90 years prior to the present wet year. In the seven years beginning with 1846 there were six floods recorded at Pittsburgh which is as many as the record shows for more than half a century prior to that. A 11 of the eight floods recorded there, 1762-1840, were followed by floods approximately ninety years later.

The reason for the 90 year precipitation cycle is believed to be the sun's influence on climate. Ninety is a simple multiple of the sun-spot period. Moseley finds evidence of it not only in tree rings, river floods, and precipitation records but also in Great Lake levels. He has used it as a basis for predicting heavy rains in the next few years and forseveral years beginning about 1848.

In order that he may continue this study and have tangible evidence that will convince other scientists. our university would like to obtain sections from large logs or stumps of any species if they show plainly as many as 300 rings. The section may go entirely across or only to the center. It need be only thick enough to hold together. In squaring the out tend of a log enough could be saved without lessening the number of board feet it will make.

Specimens should be marked <u>Sample</u>, <u>Collect</u>, and sent by express to the <u>University Museum</u>, <u>Bowling Green</u>, Ohio.

November 3, 1937

Dr. Clark W. Horton, Research Assistant Hayes Hall, Ohio State University Columbus, Ohio

Dear Dr. Horton:

I am sending you the write-up of the significant features of our botany course at Butler University in accordance with your request of October 27.

It is kind of you to give us consideration in this way in your report, and whatever use you may make of this will be entirely satisfactory to us. If there is any way in which you wish to change it, please feel free to do so.

Very truly yours,

Ray C. Friesner

RCF:VC

Wisconsin sheet followed the path of its predecessor though not quite equalling its southermost extension. Then the Late Wisconsin sheet followed the recession of the Early Wisconsin, extending into Indiana as far south as Benton County on the west and Randolph County on the east, cutting through Cass County and the north-east corners of Howard and Madison Counties in the center of the state. These extensions can be seen in Figure L.

Thus, Indiana was at one time pretty well covered by ice and traces of these various ice sheets are to be found in the deposits of drift which vary from almost nothing in some localities (result other of erosion), to over a hundred feet in exhteparts. Other evidences of glaciation are scattered boulders and the extensive valleys of streams which now occupy only a very small portion of what was evidently their former river bed.

the is thought, that with the advance of the various ice sheets, vegetation
the vet of the northern regions migrated southward beofre the ice and so were foreed far mouth out of their former range. The, with the climatic changes and the recession of the glaciers, this boreal vegetation followed the receding ice, leaving a few patches here and there which were surrounded by the invading southern species.

Study
So far as the present sutty is concerned, only the coniferous species of the relic colonies are considered. But not all of these remaining patches of conifers were crowded out by the southern species, as they

November 3, 1937

Dr. Stanley A. Cain The University of Tennessee Knoxville, Tennessee

Dear Dr. Cain:

I have your letter of November 1 regarding the possibility of teaching a course in microtechnique at Tennessee for the next quarter. I am glad to send you under separate cover a copy of our nameal which was just run off in a new edition this past September. As you go over it. you will note that there have been many changes as compared to the methods in use when you took the course here. Also, you will find that there are many changes as compared to the schedules given in Chamberlain, 5th edition. The most striking differences are in the Haydenhain's iron alum technique wherein you will find that the present methods in our manual have cut the preparation time of the stain from about six weeks to two days by merely dissolving the haematoxylin in hot water. Also, you will find the time for allowing slides to remain in both mordant and stain is very much reduced. Also, we are mordanting in two per cent iron alum instead of four, and we are destaining in saturated aqueous solutes of priorio acid instead of two per cent iron alum. These changes have been used in our laboratory for the past two years and give beautiful results. as well as save an enormous amount of time. The next outstanding difference you will find in the use of butyl alcohol in the dehydrating process. We are not giving up the alcohol method by any means, but we are also using the Butyl alcohol method.

In the back of the manual you will find exercises, each exercise having only as much as can be completed at any one laboratory period, and the exercises are so arranged that the next laboratory period will pick up the work in each case where it was left of the last time. There is one precaution I would call to your attention if you use the method of imbedding and infiltrating which calls for paraffin oil, and that is be sure to keep the paraffin oil - paraffin mixture in a plainly labelled beaker so that it will not be confused with pure paraffin.

There are two new methods which we are using but which are not mentioned at all in the manual. The first one is to use the rubber paraffin for imbedding instead of ordinary paraffin. This rubber paraffin is prepared as follows: Heat ordinary paraffin, even grocery-store paraffin will do, to 175° C. with a piece of pure Grude Rubber about the size of a quarter and a little thicker for about two or three hours. Then add an ounce of becamax for each 500 or 600 cubic centimeters of melted paraffin, also about 18 or 20 drops of analize oil to the same amount of paraffin; then filter. For use, mix this rubber paraffin in the proposition of one of rubber paraffin to three of ordinary paraffin.

#### GRIFFIN. AGATHA

- \*\*1935. The effect of interrupted translocation upon loss of chlorophyll in leaves during autumn. Butler Univ. Bot. Studies 3:129-137.
  - Some notes on anthocyanin formation in leaves with cut veins.
     Butler Univ. Bot. Studies. 3:139-140.

#### HIGINBOTHAM, NOE L.

\*1936. The chromosome relations of solidago rigida and a giant mutation. Butler University Bot. Studies. 3:172-176.

#### HOOPER, FLORENCE

- 1930. A Microscopic Study of wallboard structure. Paper Trade Jour. Aug. 14. p. 59-61
- \*1931. A microscopic study of cellulose pulps prepared from parenchymatous and vascular tissues of the cornstalk. Iowa State College Jour. of Sci. 5(4):237-241.
- Studies on Parenchymatous and vascular plant tissues. Some analytical and Specific gravity data. Plant Physiology 6:531-539.
- \*1932. A study of chemical changes accompanying the growth of Tuberele Bacilli (H 37) on Lang's synthetic medium. The Amer. Review of Tuberoulosis 26:(2) Aug. 1932. (With Alice G. Renfrey and Treat Johnson)
  - \*1934. The chemical study of bacteria. Studies on the complex carbohydrates isolated from the growth of tubercle bacilli. Amer. Rev. of Tuberculosis 29:66-72. (With lice Renfrew, and Trust B. Johnson)
  - The Polymerization of 2- Methyl -4 -chloromethylthiazole. XII Jour. Amer. Chem Soc. 56:470. (With Treat B. Johnson)

The synthsis of thiazole barbituric acids XIII. Jour. Amer. Chem. Soc. 56:484.

#### KENOYER. E. FAY

\*1936. Modification of vascular tissue in midvein of Querous alba leaves induced by Gall development by Cynips Pesomachoides Erinacos.

Butler Univ. Bot. Studies. 3:177-189.

#### KIEINE, ARNOLD

1936. The effect of precipitation and temperature on annular-ring growth species of Quercus. Butler Univ. Bot. Studies. 3:142-205. (With John E. Potzger and Ray C. Friesner)

## LINDSBY, ALVA

- \*1932. Preliminary fossil pollen analysis of the Merrillville White Pine bog. Butler Univ. Sot. Stud. 2:179-182.
  - The Merrillville White Pine (Pinus Strobus) bog, Lake County, Indiana.
     Butler Univ. Bot. Stud. 2:167-178.

# Hunt Institute for Botanical Documentation

All other procedures are the same as for ordinary paraffin. You will find that this will give you a very hard paraffin that will out beautifully even in hot weather, and will give much better results than ordinary paraffin.

The second new procedure that we are using is one that we have not fully tried out, but which gives promise of being a very great time saver. This is the use of diomane as a dehydrating and infiltrating agent. The method is described in Stain Technology, Vol. 11, No. 1. The method we are using is as follows:

- Kill and fix in any of the conventional killing media.
   Wash in water or other washing material as needed, depending upon the killing solution used.
- (3) Transfer from Wash water or other wash medium to pure dioxans 4 - 6 hrs.
- (4) Transfer to mixture of paraffin and dioxane 1:1. 12 hours at 30°C. Indefinitely will not hurt.
- (5) Transfer to pure paraffin about three changes. 1 hour each.(6) Imbed. Rubber paraffin is better than pure paraffin.

A slower method in which one or two water dioxene mixtures may be used in step 3. This may be better for some tissues. Dioxene will soften hard lignified tissues. Woody tissues may be cut in paraffin.

If there is any way in which I can be of help in the course don't hesitate to let me know.

Sincerely yours,

Ray C. Friesner

RCF : VC

Wisconsin sheet followed the path of its predecessor though not quite equalling its southermost extension. Then the Late Wisconsin sheet followed the recession of the Early Wisconsin, extending into Indiana as far south as Benton County on the west and Bandolph County on the east, cutting through Case County and the north-east corners of Howard and Madison Counties in the center of the state. These extensions can be seen in Cifugre L.

This, Indiana was at one time protty well covered by ice and traces of these various ice on ets are to be found in the deposite or fdrif thathe varys from almong at nothing in some localities (retult of erosion), to over a hundred feet in teerh p art.s Other evidences of glaciation are scattered byona diba small portion of what was evneid their former river bod.

It is though what with the advance of the various see cheett the getetation fo the norther regions embrationed sethward before the time so were forced for south out of the diffrener range. the with themiclante changes the recession of the glaciers, the is binerla weetation followed the reced ice, leaving a fe patchence and

November 9, 1937

Mr. George F. Tapy 6 Mills Place Crawfordsville, Indiana

Dear Mr. Tapy:

In accordance with my agreement made to you at the Academy of Science meetings recently, I am sending you a copy of the schedule for iron haematoxylin stain.

This was given to me in a personal communication by Dr. Masheware from the Agra College, Agra, Indiana

We have found that it works very satisfactorily and certainly saves a lot of time as compared with the old schedule.

Sincerely yours,

Ray C. Friesner

RCF:VC

# REPORT OF COMMITTEE ON IMPROVEMENT OF ACADEMY PROGRAMS

The Committee on Improvement Programs of the Indiana Academy of Science meet at the Lincoln Hotel, Indianapolis, Sunday afternoon, May 9, 1936. The following members were present: Dr. R. C. Davis, Dr. F. J. Allen, Dr. W. F. Allyn, Dr. E. R. Smith, Dr. J. B. Dutcher, Dr. Glenn Black, President W. E. Edington and Dr. R. C. Friesner.

The committee offers the following report and recommendations for consideration by the Academy:

l. The committee feels that two actions taken at the Danville meetings of the Academy will be libely to result in improvement of the program, viz. (a) no paper will be accepted on the Academy program to be "read by title"; (b) abstracts of papers must be sent to the chairman of the section before a paper will be placed on the program.

2. The committee recommends that abstracts of all papers appearing on the program be published in the Proceedings regardless of where

the paper itself is published.

- 3. We recommend that a cash award of \$50.00, as an aid to research, be granted for the best paper presented before the meetings and submitted for publication in the Proceedings. The recipient shall be determined by the Research Committee who shall make a preliminary selection from the abstracts of papers submitted for the program. Final selection shall be made by the committee after the paper is presented before a general or sectional meeting of the Academy and after careful consideration of the manuscript. Announcement of the winner shall be made at the annual meetings next following the meetings at which the paper was read. Honorable mention may be given to others whom the committee may deem worthy. If in any year quality is insufficient to warrant award, no award will be made. Press Secretary shall be given confidential advance information of the decision of the committee in order to obtain proper publicity immediately after announcement of award.
- 4. We recommend that the Divisional Chairmen be required to present a divisional chairman's address, not to exceed 30 minutes, before the forencon meetings of the section over which he presides.
- 5. Round-table discussion or symposia on topics of interest to particular sections is offered as a suggestion to be considered by individual sections.

#### INDIANA UNIVERSITY

BLOOMINGTON, INDIANA

#### DEPARTMENT OF GEOLOGY AND GEOGRAPHY

E.R. CUMINGS J. E. SWITZER
C.A. MALOTT R. E. ESAREY
J. J. GALLOWAY W. D. THORNBURY
B. B. VISHER W. T. BUCKLEY

November 10, 1937

Professor R. C. Friesner Butler University Indianapolis, Indiana

Dear Dr. Friesner:

The enclosed carbon copy will interest you. I believe that you will not agree with Dr. Weatherwax on this point.

Of my several papers in the Proceedings, last year's was the only one that included any appreciable amount of dator published subsequently elsewhere.

Cordially yours,

All john

Hunt Institute for Botanical Documentation

November 10, 1937

Prof. C. A. Behrens W. Lafayette, Indiana Dear Dr. Behrens:

The Editor of the Proceedings of the Indiana academy of Science has informed me that one member of the editorial committee considers that I was unethical with respect to publication of two papers dealing with regional contrasts in soil erosion in Indiana. The Proceedings for last year contained an article on certain phases of this large subject. Soil erosion contrasts were later discussed from a geological point of view in an article published in the Bulletin of the Geological Society of America. (This article commenced the July issue, and thus a new volume.)

The two articles dealt with the same general subject and necessarily there was some duplication. However, the articles were by no means duplicates. The G.S.A. article is 54 pages long while the Proceedings article is 17. The type size is the same; the G.S.A. article has a larger page. Whole sections are entirely different. The later article has numerous data and some conclusions not found in the earlier, shorter articles horeover, the shorter, Proceeding's article discussed a number of topics appropriate in the Proceedings but not in the other.

The paper published in the Proceedings was presented in abstract before the General Session of the Academy at Danville, was submitted promptly to the editor, and was published practically without change.

Until after I had presented on Dec. 29 before the Geological Society of America an abstract of my geological paper, I had little more than hope that it would be published. I was encouraged, however, after oral presentation, to submit it. One of the editorial censors was slow about reading the manuscript, and final acceptance was not received until May, long after the Proceedings paper was in type.

I have been informed by Editor Weatherwax that because of the publication of the above-mentioned two papers, that he presumably can not publish in the Proceedings for this year my paper presented in abstract at North Manchester unless I promise never to publish anything further on intensity of rainfall of Indiana which includes any data or conclusions to be presented in the proposed Proceedings article. Since I expect to continue to work on this significant subject for some time, and may in the future wish to use in some other connection some of the data which I presented in brief at North Manchester, I can of course not make the requested promise.

I am writing this letter to point out that I have not been unethical in the way accused. Of course, the Academy can decide against publishing a scientific paper of interest to scientists of Indiana merely because the author will not promise never to use any of these data again. But I hope that a majority of the committee will not so decide. At any rate, I trust that this letter will remove any thought that I did anything that could fairly be called unethical so far as the academy is concerned.

Sincerely yours,

Slather Stoler Professor of Geography

Hunt Institute for Botanical Documentation

GEORGE FRANCIS TAPY 6 MILLS PLACE CRAWFORDSVILLE, IND. November 11, 1937

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

Dear Dr. Friesner:

I received the copy of the iron--haematoxylin stain schedule, which you so kindly sent to me.

At the present time the College Library has neither Biological Stains nor Stain Technology. Please send me the address of the publishing house through which I may obtain these.

To which grade of Dioxvane did you have reference, aso in what state of rawness did you obtain your rubber. 100% Eastman 2144 X

Thanking you again for the kindness and courtesy you have extended me, I remain.

Very sincerely yours,

Commission on Brotogical Stains, Geneva N.y. Ed 3. Stain Tach. 2.25 per year Brok = 2.50 or might be 300

November 12, 1937

Mr. George Francis Tapy 6 Mills Place Crawfordsville, Indiana

Dear Mr. Tapy:

In reply to your inquiry of the 11th instant I may say that both Stain Technology and Biological Stains may be purchased from the Commission on Biological Stains, Geneva, New York. The Stain Technology appears quarterly and costs \$2.25 per year. Biological Stains is now in its third edition and will probably cost between \$2.50 and \$3.00.

The dioxane necessary is 100% Eastman 2144X. There may be other makes of dioxane available, but in any case it should be 100%.

I do not know how to answer you with regard to the rubber, except merely to say that it is crude untreated rubber. I am enclosing a sample which will be enough to treat about 500 cubic centimeters of paraffin. Ours was secured from the Goodyear Rubber Company at Akron, Ohio.

If there is any other way in which we can be of service to you we shall be glad.

Sincerely yours,

Ray C. Friesner

RCF:VC

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The committee offers the following report and recommendations for consideration by the Academy:

1. The committee feels that two actions taken at the Danville meetings of the Academy will be likely to result in improvement of the program, viz. (a) no paper will be accepted on the Academy program to be "read by title"; (b) abstracts of papers must be sent to the chairman of the section before a paper will be placed on the program.

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- 3. We recommend that a cash award of \$50.00, as an aid to research, be granted for the best paper presented before the meetings and submitted for publication in the Proceedings. The recipient shall be determined by the Research Committee who shall make a preliminary selection from the abstracts of papers submitted for the program. Final selection shall be made by the committee after the paper is presented before a general or sectional meeting of the Academy and after careful consideration of the manuscript. Announcement of the winner shall be made at the annual meetings next following the meetings at which the paper was read. Honorable mention may be given to others whom the committee may deem worthy. If in any year quality is insufficient to warrant award, no award will be made. Press Secretary shall be given confidential advance information of the decision of the committee in order to obtain proper publicity immediately after announcement of award.
- 4. We recommend that the Divisional Chairmen be required to present a divisional chairman's address, not to exceed 30 minutes, before the forenoon meetings of the section over which he presides.
- 5. Round-table discussion or symposia on topics of interest to particular sections is offered as a suggestion to be considered by individual sections.

November 12, 1937

Dr. S. S. Visher Indiana University Bloomington, Indiana

Dear Dr. Visher:

I have your communication of the tenth instant regarding publication of papers in the Proceedings of the Indiana Academy of Science. Of course, we will all agree regarding the soundness of the principle that papers accepted for publication in one journal should not be submitted to another journal. Just how much of the same data could be used in a second paper and to what extent without violating the above principle may be a matter difficult to decide. I should be inclined to think that data once accepted for publication could not be used again as original data, i.e. it be used as much as necessary but only after due credit and reference are made to the original source of publication.

As to whether your paper in the Sulletin of the Geological Society of America violated the above principle, I am not in a position to express an opinion because I have not made a careful comparison. It does not seem to me to matter in so far as future action is concerned. I should think that you could easily come to agreeable terms in this matter.

Sincerely yours,

Ray C. Friesner

RCF: VO

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KOKOMO, INDIANA. NOV. 15, 1937, Dr. Ray & Firesner. Professor of Botany. Butler Minimerity My Dear Doctor: pleasure that I seed your letter and long list & species which you have to kindly accepted and used. That so many were four you learned long ogo. I was surprised that the number would leach 529 - one hosty Court I made mainder, ald ones, and those collected in 1937, and send you Hunt Institute for Botanical Documentation

the best specimens I have of those not in this long list Just guessing, beliebe it may be 600 in all - I hope more then next summer, if health permit and fin as good as past year, hope to add a goodly number mainly trees - possibly 700 or more Have over 800 species cheeked, Do I think, - News listed them - Ferres your specialty ( Do In Leard) and trees, I know less about thou grosses sedges - H. R. my late summer specimens, found a tall Evening Principal 1 mile E. of Plru, Sept 22-37. - Gaura biensis parvillora (four g. biennis E. lipton). Seems to be have or new to fud. beam forfest to tell me in my letter.

Hunt Institute for Botanical Documentation

The credit for all these belong to the Great Scientist - Chase Deans, the all awaits eagerly his Flora of Indiana, I wink & thout you or. Potzger and your Staff for making these specimens a part of your Herbarium. Moy be I Can weit Butter University some time next year. Hove about completed rough copy of my Flora - Am now Copying. a toilsome Job-Inled a typist! Will run ver 75,000 words. - Its value?

perhops nothing. 
With Best Wishes. Sincerely yours. Ek

Jorgot to thout you for ose 2 Parighlets Butle viverity Batanical Studies for Sept and Nov. 1937 Vry Sincerer, Ek.

Hunt Institute for Botanical Documentation

DEPARTMENT OF BOTANY

November 17, 1537

Dea Dr. Friener,

Thank you for your letter regarding rooms. I wrote to the Charles of Comme first, thinking that you would probably here enough or your mind. I supposed that the meeting would be of the University; of course if they are in the Launtaun district I would nother be near there. But since I shall go to my man only to sleep at night the location is not particularly important. I shall want a room with two single beds, or two single rooms, from Lee. 28 t Dec. 30. at Pittsburg we paid a dollar a night sech, which is the Castomany price at Tourist House. But place do not spend time hunting for what seems ideal, If you know of a place, preferably but not necessiry near the downtown district, where there is a "Townest' sign hung out, here then get in touch with me.

Sincerely Mormon C. Farsett

November 17, 1937

Dr. T. G. Yuncker De Pauw University Greencastle, Indiana

Dear Dr. Tuncker:

Your package of herbarium specimens from Monduras reached us in good shape Monday. I am sorry to be so slow in acknowledging the receipt.

I have gone over a number of them and find them very interesting, especially the grasses and ferns. It was striking to me to note Osmunda cimmamomea from territories so far south as Honduras. I have always thought of this species as a northern one.

I am still in the act of going over our materials to sort out the main specimens for you. I hope to have this finished within the next few days. It appears now that we will not have a very large number of specimens to present, but I will send what we have and then collect additional species for your collection next summer in Maine.

I assure you that we are very grateful to you for these specimes, and you need not worry about the fact that you felt some were not as good as they might be. We are glad to get all of them.

Sincerely yours,

Ray C. Friesner

RCF: VC

November 17, 1937

Dr. L. A. Kengyer
Teachers' College
Kalamagoo, Michigan

Dear Dr. Kenoyer:

Dr. Potzger and I are preparing a paper for presentation before the ecological meetings in Indianapolis during the Christmas vacation. In this paper it is quite desirable for us to know the present southern limite of Abies and Picea. I am writing to ask whather you could give me some idea by counties just what the southern border of their present distribution is in Michigan.

I am sorry to bother you with this, but we have attempted to get the information from Dr. Ellers and got only such vague answers that it is of little value to us, and I do not know of anyone wise in Michigan who would be likely to be able to answer our question better than you.

Sincerely yours,

Ray C. Friesner

ROF: VC

November 17, 1937

Mr. Charles M. Ek 1812 F. Furdum Street Kokomo, Indiana

Dear Mr. Ek:

Thanks for your letter of the fifteenth. We have felt that you have conferred upon us a very distinct favor in depositing your herbarium specimens with us. We shall be glad to receive additional species from time to time as you may be able to collect them, and any publications which you may make can then be referred to the specimens on deposit here.

I note your discovery of Gaura parviflora in Miami County.

I have found it along the Monon failroad just outside of Indiam polis a couple of years ago. You are quite right when you say that this is a rare plant and probably also a newcomer into our state. I judge it is western in origin.

We will be very glad to have you visit butler University at your convenience and will be glad to talk over botanical matters of any sort that we are capable of discussing. We are glad to send you can Botanical Studies regularly, and have placed your name on our permanent mailing list. We are continuing our bog studies during the present year, and will probably have some more papers for publication in the near future.

Very truly yours.

Ray C. Friesner

RCF: VC

### BUTLER UNIVERSITY

CITY OFFICE 905-907 MAJESTIC BUILDING LINCOLN 1850 INDIANAPOLIS

November 23, 1937

Dr. Ray C. Friesner Butler University Indianapolis, Indiana

Dear Dr. Friesner:

Members of the Executive and Athletic Committees have accepted an invitation for an informal meeting at the home of Mr. J. I. Holcomb, a Member of the Board of Trustees, next Tuesday evening, November 30th, at 6:15 P. M. to discuss affairs related to the Athletic Department. Owing to your interest in this field of activities it has been suggested that you serve as a member of an advisory committee and join us on this occasion. I trust, therefore, that you will be able to accept.

President Putnam and several administrative officials have been asked to attend. A buffet supper will be served. We are desirous of promoting the academic work of athletes as a group and will welcome your counsel in working out a plan to meet this problem. Please notify me if you can attend.

Very truly yours,

Hilton U. Brown, Chairman of Board of Trustees, City Office, 905-908 Majestic Building, Telephone Lincoln 1850

P. S. Mr. Holcomb's residence is on the Cold Spring Road about a block or two west of the Michigan Road.



November 24, 1937

Mr. Wilton U. Brown, Chairman
Board of Trustees, City Office
905-908 Majestic Building
Indianapolis, Indiana

Dear Mr. Brown:

I have your letter of the twenty-third regarding a meeting of the Executive and Athletic Committees at the home of Mr. J. I. Holoomb. I am vory sorry that I shall not be able to attend this meeting, because I have a class on Tuesday evenings until 9 p.m., and undoubtedly your meeting will be so nearly over by that time that it would hardly be worth coming.

I appreciate very much your invitation to attend this meeting because I am vitally interested in the matter of scholar-ship in all students and in the athletes as well as others. Perhaps at some future meeting, if any, I may not find such a conflict.

Very truly yours,

Ray C. Friesner

RCF:VC

## OHIO WESLEYAN UNIVERSITY

DELAWARE, OHIO

SEPARTMENT OF BOTANS 265 w. Fountain ave. Dec. 5, 1937 Dear Friesner: The most recent member of Science as well as a driving Inow reminds me that Christmas time is on the way and with it the opportunity for a visit with you had an applie. To say that I am looking forward to it would be fut ting it too rigidly. I am delighted with the prospect. The ressions of the association in which I am Interested Come on Tuesday, wednesday and Thursday: of expect to be there for them. negt plans for going and carning are not very definite. I want to row out to set very fether and mather some time during the vacation ferrial, aut an undecided as to whether of should go before or after the G.a.a.S. meetings. In any case, if yo invitation still holds of shall be glad to spend part of the period with you. There are tomany things that I would like to tack over with you. Sincerely yours Crandel E. G. Neal.

**Hunt Institute for Botanical Documentation** 



Dear Do Troener - Liabelines

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December 8, 1937

Dr. E. L. Moseley Sowling Green State University Bowling Green, Ohio

Dear Dr. Moseley:

I have your letter regarding sections of large trees. We do not have any large sections in our laboratory. All of our work has been done on trees young enough to fit into the known official weather data. I have heard that there is a large section at Shortridge High School, but have never seen it myself. There was a very large woods with unusually large trees in it near Jasper, but this woods has been out during the past two or three years. There is still standing near Warsaw in Mosciusko County a woods in which there are some very large trees. The largest that I recall is bur oak a little over seven feet in diameter.

I shall be interested in hearing your paper on tree growth before the American Nature Study Society during the meetings of the A.A.A.S., and also in meeting you during your stay in Indianapolis. I shall be glad, too, if you can find time to look over our laboratory at Butler.

Very truly yours,

Ray C. Friesner

RCF : VC

## American Association for the Advancement of Science

### INDIANA COMMITTEE ON ARRANGEMENTS FOR THE INDIANAPOLIS MEETINGS

December 27, 1937 to January 1, 1938

EXECUTIVE COMMITTEE

(STANLEY COULTER, CHAIRMAN
ELI LILLY

FRANK WALLACE

WINGIL STINEBAUDH
TOM HENDRICKS

FERMOR S. CANNON

WALTER G. GINGERY

FRANK B. WADE

S. E. PERKINS, III

HENRY T. DAVIS

RAY C. FRIESNER, SECRETARY

BUTLER UNIVERSITY

BUTLER UNIVERSITY

BUTLER UNIVERSITY

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PRINTING
JOSEPH J. CRIPE
1201 ROSCEVELT SULLDING

## THE UNIVERSITY OF WISCONSIN

DEPARTMENT OF BOTANY

Dec. 11, 1937

Der Dr. Friemer

Thank you very much for your less in the matter of the room. I shall write Min Riegger at once.

and he says you should have received volumes 29 and 30. He is checking the matter. Vol. 31 will be out soon.

your . netamets

Nokonio, Ludiana, Dec. 14, 1937, Franck 1812 No. Purdum St. / My Dear Dr. Fireisner: -I started the box of specimens to You Saturday, a cearding to instructions from Dr. Potyger, Hove not been on any pay roll since larly Sept - or would Love paid the Express. When you finish, I shall be glad to get the first accepted as you did with the others. Then next year, health permitting, hope to get some more - especially the trees, which I've neglected for 2 years. finishing Flore I ded - I hopes to hove it in oud hands by frime!

Hunt Institute for Botanical Documentation

That will be an event \$ look to in 1938. Wish again to thout you & Prof. Potyger for the fine Literature to each of you have sent me It is much appreciated. dafter pay to busy men as you and your facility. - N. A. P. No Answer Required. Se now, Dest Wishes & You - and Botany Department - Classes - Lectures The Lat. - Papers - Borks to.
The Lat. - Papers - Borks to.
The Lat. - Papers - Borks to.

Hunt Institute for Botanical Documentation