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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.

Program Planning Division

August 30, 1936.

Dr. R. P. Wodehouse,
Director Mayfever Laboratory,
The Arlington Chemical Co.,
Yonkers, New York.

Dear Dr. Wodehouse:

I have just had the pleasure of scanning your recent book on pollen grains and of reading parts that especially interested me, especially those concerned with willows and poplars.

I can well appreciate the immense amount of work which has gone into a research of this kind and congratulate on its successful completion. The following comments are not made by way of criticism but for use in case a revised edition should be called for later.

(P. 349). There are nearly 150 species of willows in North America alone. There are nearly as many more in Europe, and probably more nearly 300 species in Asia, beside some in Africa. These are not the species of the extreme splitters but of the middle-ground men.

(Pp. 131, 350). *Salix fragilis* is known in Europe and America as the Crack Willow, because of the fragility of the twigs at the base. I have no record of the name "Crackle Willow" having been applied to it.

(P. 350). *Salix "sericea"* should be *S. sericea*.

(P. 350). Lewis and Coke should be Lewis and Cocke, as on p. 553.

(P. 350). Docturowsky here but Doctorowsky on p. 550. I do not know which is correct.

Cordially Yours,

Carleton R. Ball
Chief Agriculturist.

Program Planning Bridge Drive
YONKERS, NEW YORK

ROGER P. WODEHOUSE

BRIDGE DRIVE
YONKERS, NEW YORK

Sept. 14 1936

Dr. Carlton R. Ball
U. S. Dept. Agriculture
Agric. Adjustment Administration
Washington, D. C.

Dear Dr. Ball:

Many thanks for your kind letter of Aug. 30, and especially for drawing attention to the errors among the willows and poplars. I sincerely hope that the rest of the book is not so liberally sprinkled with errors as this. A few have turned up in various places, but the willows and poplars seem to have got more than their share. I have entered these all in the desk copy of my book in case there is a second edition.

I regret that I am not familiar with your work on the Salicaceae. If you have reprints of any of your papers which you would care to spare I would like very much to receive one or two. The willows have interested me greatly ever since I proved to my own satisfaction that they are both wind and insect pollinated. I have thought about the question much since, and I now believe that a great many other plants are in the same category. It would seem that when such plants grow few and far between insects serve as pollinators, but when they grow massed together wind is the primary pollinating agent. Plants which are entirely insect pollinated are seldom massed together because, it seems to me, there are not generally enough of the right kind of insects to go around. On the other hand, plants which are entirely wind pollinated must grow in masses, or produce enormous quantities of pollen. If they grow close enough together relatively little pollen is required in order to be effective in wind pollination; most grasses produce only very little pollen though they are all wind pollinated. The willows seem to enjoy the benefits of both methods of pollination and the disadvantages of neither. They are quite sure to secure adequate pollination whether they grow in masses too numerous to be served by insects, or if they grow in regions where appropriate insects do not occur, or if they grow singly a mile or more from their nearest neighbor. This probably has something to do with their wide-spread distribution and large number of species, and for their enormous abundance in the Tertiary Green River formation.

Under separate cover I am sending you reprints of a few of my papers in which you may be interested, including one on the pollen of the oil shales of the Green River Formation.

Sincerely yours

R. P. Wodehouse
R. P. Wodehouse

ROBERT A. WOODWARD
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C.



Dr. William B. Ball
U. S. Dept. Agriculture
Forest Management Administration
Washington, D. C.

Dear Dr. Ball:

Many thanks for your kind letter of Aug. 30, 1996, regarding attention to the errors among the various editions. I am sorry to hear that the book is not as liberally supplied with errors as I had hoped. I have turned up in various places, but with errors as listed. A few have turned up in various places, but with errors as listed. I have turned up in various places, but with errors as listed.

I regret that I am not familiar with your work on the... If you have reported any of your papers which you would like to have I would like very much to receive one or two. The will have been... I would like very much to receive one or two. The will have been... I would like very much to receive one or two. The will have been...

Under separate cover I am sending you reports of a few of my papers in which you may be interested, including one on the pollen of the all species of the genus *Antennaria*.

Sincerely yours,
R. A. Woodward
R. A. Woodward

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Program Planning Div.

ROGER P. WODEHOUSE
75 RIDGE DRIVE
YONKERS, NEW YORK

Oct. 2 1936

Dr. Carlton R. Ball
U. S. Dept. Agric
Agricultural Adjustment Administration
Washington, D. C.

Dear Dr. Ball:

Thank you very much for your kind letter of Sept. 22 and the reprints of your willow papers. I can see that these are going to be of great service to me if I have the opportunity of rewriting "Pollen Grains." I will also take advantage of your kind offer of assistance.

I first became interested in the willows when I found the great difference between their pollen grains and those of the poplars. Such a difference between two such closely related groups of plants could only be due to the one being insect and the other wind pollinated. Yet Gray's manual (7th. ed. p. 320) states "Species largely wind pollinated and very freely hybridizing." Ever since I read that statement about twenty years ago I have been observing the willows and poplars on every possible occasion, and am convinced that the poplars are entirely wind pollinated and that the willows are primarily insect pollinated but may become wind pollinated when many are growing close together.

The red and silver maples are in the same category. I catch the pollen of these maples and the willows on my pollen slides in the middle of Yonkers. The pollen is not heavy, much less than that of oak, birch or poplar, for example, but it would serve if the trees were growing close together.

The maples are most interesting in this respect; the Norway and sycamore maples are entirely insect pollinated, the silver and red both insect and wind with a strong leaning to the former, the sugar maple is both with a leaning to the wind, the Negundo maple is entirely wind pollinated, a nicely graded series, and the markings on the pollen grains are roughly correlated.

Sincerely yours

R. P. Wodehouse

(See over)

Program Planning Division

October 10, 1936

Dr. R., P. Wodehouse,
75 Ridge Drive,
Yonkers, N.Y.

Dear Dr. Wodehouse :

Your letter of October 2 was very interesting to me. I have never had the time or actual interest to speculate on these lines regarding the willows or other groups of trees.

It always is stimulating to find some one engaged in an original research which upsets some of our preconceived notions. The body of actual knowledge is so large that not even experts can know all that lies in their fields. Hence the repetition of errors or wrong assumptions.

Manuals of botany, being filled with so many thousands of detailed facts, are especially subjected to repeating early errors. I long have struggled with such errors regarding the willows. Some one recorded the facts that they hybridize readily and every botanist has repeated the statement without verification. From long field observation, I doubt if the percentage of hybrids is in excess of that found in many other groups of cross-pollinated plants.

Matters of range are another source of trouble. In the early days of American botany, quite different species were confused and the total of the ranges of two or more species assigned to the one recognized by that particular botanist. All other botanists since have gaily given the inaccurate range long after the species had been delimited.

I reviewed your book at the Bot. Society of Washington last month, and mentioned your conclusions regarding willows and maples at the meeting last Tuesday.

From now on I will observe the insect populations of the willow flowers with a more critical eye.

Cordially Yours,

Carleton R. Ball
Chief Agriculturalist



ROGER P. WODEHOUSE
75 RIDGE DRIVE
YONKERS, NEW YORK

Dec. 21 1936

Dr. Carlton R. Ball
U. S. Dept. Agriculture
Agriculture Adjustment Administration
Washington, D. C.

Dear Dr. Ball:

In going over my tree pictures I find that I have quite a number of willows. It occurred to me that you might like to have some of these so I take pleasure in sending you copies of each. Incidentally, if you are able to recognize any of these by their pictures I would like very much to have you let me know at your convenience, since I am using some of them in my book on the hayfever plants of North America.

If you should at any time want to have lantern slides made of any of the pictures I will be glad to lend you the negatives. Their numbers are indicated on the backs of the prints.

With the season's greetings and best wishes for a happy New Year,

Sincerely yours

R. P. Wodehouse

R. P. Wodehouse

(See over)

BIOLOGICAL DEPARTMENT
THE ARLINGTON CHEMICAL COMPANY
YONKERS, N. Y.

Jan 25 37

Dear Dr. Ball:

Thank you for your letter and information about Acer Negundo. It is the only truly wind pollinated maple (It is a maple as far as I am concerned); the other maples are either insect pollinated (e.g. A. Pseudoplatanus, A. platanoides) or 'amphimophiles' (e.g. A. saccharum, A. saccharinum). How do you like 'amphimophiles'? That is a new word I just thought of.

I have a report by Dr. J. Mercer Anderson (Calif. and Western Med. 33(4), 1930) in which he says "In group I [trees], the most important is box elder. Due to numerous trees throughout the state, haffever from this tree is rather common."

I trust you have a pleasant trip. If you should pass through New York I would like very much to have you stop in and see me

Yours very truly

R. P. Wadsworth

(over)

Agricultural Division

January 30, 1937

Dr. R. P. Wodehouse,
75 Ridge Drive,
Yonkers, N.Y.

My dear Dr. Wodehouse:

Your letter of January 25 has just reached me here. I am glad to have reference to the report by Anderson. I will look him up when I get home, and see what he has to say about willows.

"Amphimophilous" listens well to me, although I am no classical scholar and real dictionaries are scarce down here. Is the second "m" required by the regulations?

If the weather does not change we are going to have hay fever in February this year. The weeping willow was coming out as I rode down here a week ago but luckily it does not produce pollen in any quantity.

Cordially Yours,

Carleton R. Ball

P.S. I neglected to thank you for your invitation to stop. This I am likely to do when we are driving through. And when you get Washington way don't fail to let me know. We might get an evening together and swap lies.

YONKERS, N. Y.

THE ARLINGTON CHEMICAL COMPANY

BIOLOGICAL DEPARTMENT