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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.

1722 N W 2nd Avenue  
Gainesville, Florida 32601  
3 April 1968

Dr Harold B. Tukey  
In care of the Dept of Horticulture  
Michigan State University  
East Lansing.

Dear Doctor Tukey

Our good friend Ernesto Casselas wrote me ~~regarding~~  
~~wrote me~~ regarding the interesting talk he had with you about the  
problem of woolly aphid control in tropical America (more especially  
Guatemala) and what we ought to do with the Malling Mertons. The  
question arose about two years ago, because this pest is so serious  
with us, and we had been carried away, really, by the idea that the  
Malling Mertons would solve our problem. A tendency developed to shift  
over to 104, 106, 109 and 111, though not <sup>although</sup> of them could be obtained to  
meet all local needs. The first importation was made about six years  
ago, some 10,000 rootstocks, most of which were grafted with Winter  
Banana, which as you know is definitely the leader in Guatemala. We  
do not have good records, but the opinion of the nurserymen who have  
been working with these grafts seems to be that the Malling Mertons  
are definitely resistant.

Then we got word through friends here in the States that reports  
from Australia indicated that these rootstocks were not proving as  
resistant as had been expected. This worried us a bit, and we began  
to hunt for more information. Finally I got hold of your excellent  
book "Dwarfed Fruit Trees" (a masterpiece if there ever was one) and  
it began to occur to me that <sup>not</sup> only must we pay attention to woolly aphid  
resistance, but also that dwarfing business. We had better Stop, Look  
and Listen!

Very definitely I have the feeling that apple trees at 10 years of age in the tropical American highlands are not nearly so large as they are in Virginia or Michigan or elsewhere in this country. And it seems to me trees 50 years and older, of which I have observed a good many in Guatemala, are by no means as large as mature trees are in the States. How much is due to climate and how much to bad cultural conditions I do not know, but climate is suspect. Another thing: it seems to me that we do not get as large crops on our trees as you do in Michigan, though the small orchard of Wealthy at Chichicastenango (the only orchard of this variety in Guatemala) gives a very good account of itself. When we took John Bragger there last year he was well impressed.

All this brings up the question, Do we want dwarfing rootstocks? From reading your book I gather that several of the factors which have developed the growing interest in dwarfed trees in the U S are not so important with us. Labor costs, in particular. Of course we like the idea of early and heavy production. But all in all, I gather that dwarf trees need considerably more cultural attention than standard trees, - in fact a little "petting", and if this is the case, then we had better be careful in Guatemala for our horticulturists will be a long time adopting good cultural practices. If we want to help the average grower we've got to have trees that are as fool-proof as possible. It will be a long, long time before you will see orchards all over tropical America which look like even average groves in the States.

Now, when I get back in the harness this summer - working with Guatemalan horticulturists who are interested in planting, or who already have small orchards (they are mighty few as yet) they are



going to ask me a lot of questions. I will tell you the sort of advice I now have in mind to give, and I wish you would tell me whether you think I am right in what I propose to say:

I think we should plant experimentally a goodly number of Malling Mertons, but not any numbers which produce very dwarf trees. We should not switch over to Malling Mertons exclusively for at least ten years yet, if we ever do (and in your conversation with Casseres I believe *you* intimated that you are losing faith in the Malling Mertons, just a bit; you think the tendency is back toward the East Mallings. This latter point is not of much interest to Guatemala since what our people want is woolly-aphid resistance.

And as to the latter point, I am inclined to feel that we may do better with chemical control <sup>than</sup> ~~and in~~ depending in resistant rootstocks. I don't believe we can do anything with the older orchards, some of which are infested down to a depth of a foot or more; but how about starting off with chemical control and keeping it up as long as necessary?

Like yourself (as mentioned in your talk with Casseres) I do not like the idea of Northern Spy blood in our rootstocks. The apples that do best with us are those with the very lowest chilling requirements. You doubtless read my recent paper in the Am Pomological Soc journal. Winter Banana and Wealthy are today our two best bets. But there are a great many varieties we have not yet tested in tropical America! And for rootstocks, I am going to get busy on some of the so-called perotes or camusas which we have - small apples introduced in Colonial times from Spain, with what genetic background I do not know. George Darrow called them "Spanish Cider Grabs".

I shall greatly appreciate your wise counsel.

Cordially yours,

Antigua, Guatemala 26 January 1970

Dr H B Tukey  
Dept of Horticulture  
Michigan State University  
East Lansing.

Dear Doctor Tukey:

It is quite some time since I have come to you with any of our problems, and this letter is not so much to ask you to solve any of them for us, as to tell you how things are going down here. Ernie Casseres would call this "cambiando impresiones" - exchanging impressions. The Spaniards are so much more diplomatic in telling their troubles than we are.

In the first place, I want to mention that I tried to "strike a blow in freedom's cause" up at the meeting of the Florida States Horticultural Society (Miami, November) by giving a paper on the subject of Systematic Pomology. I thought I was trying to point out that those who are working professionally with tropical fruits need all the information we can get, and we can (and should) have it in organised form, i.e., systematic pomology, which means the history, classification and description of fruit varieties. But the boys got the idea that I was trying to make systematic pomologists out <sup>of</sup> them, and systematic pomology is not a career. Well, you and I know that isn't our ideal at all. Systematic pomology is a tool which all of us should use. Don't you agree with that? I am sure you do. When the report of the Fla State Hort Soc comes out, I hope you will read my paper, which may not have been the right approach. Some folks said I seemed apologetic. I didn't mean it that way. Knowing that there were several horticulturists in the audience who have told me time and again to forget about systematic pomology, that it is as



dead as the dodo, and should be deader. Maybe they don't need it as much in the U.S. as we do here in the tropics, because we are 50 years behind in pomology. I think maybe we should tone down a bit on the emphasis on formal variety descriptions; they say a description of one specimen won't hold for all. We know that, but how I have profited these past ten years from formal descriptions in trying to identify fruits which I have collected here in Guatemala and elsewhere!

The Old Guard dies but the Old Guard never retreats. I am going to hammer away on the value of history, especially the value of classification based on natural groups (as I tried to without much success in the case of mangoes, but with real success in the case of avocados, off my article on avocados in the original edition of Bailey's cyclopedia, you know when that was), and even on the formal description of tree and fruit of a variety. Pray for me.

Now as to current events. The boys here are losing interest in the Mallin Mertons. They say they are too slow-growing, and as for the woolly aphids, they can control that chemically. You have pointed out that the Mallin Mertons require the very best cultural attention if they are to be wholly successful. I have told you that mighty few fruit growers here know what good cultural attention means. This past week I have been going over the government nurseries in the highlands. They are not propagating any Mallin Merton stocks. They are using what they call a "criollo" apple from Tejutla, north of Quezaltenango. I suspect this is an old seedling strain. They say it is the most vigorous.

As for varieties, I am recommending that they use more Winter Banana and Wealthy than any others. They are also using quite a lot of what they think is Jonathan, but last season I examined carefully, and with other horticulturists, the trees in the government collection

at Quezaltenango, which they are calling Jonathan, and I cant for the life of me see any difference between the fruit and that of Juarez, which we are now satisfied is Wealthy. They are also propagating a lot of Red Delicious from the same collection, and here again I cant for the life of me see any difference between this and Juarez which is Wealthy. You know I might be wrong, but for three years now I have been trying to convince myself that Juarez and Jonathan and Red Delicious from the Juarez orchard at Chichicastenago are anything but Wealthy, every last tree of them. The consoling feature is that if I am wrong, it doesnt matter very much because their Juarez and Jonathan and Red Delicious are so closely alike and grow and bear equally well and the fruit looks exactly alike and sells equally well. So why worry?

Now let us talk about pears, which are to me of the greatest interest right now, because we are not nearly so well lined up as we are on apples. Four years ago they got rootstocks from California, some say seeds, some say young plants. But they all say French pear, almost certainly Bartlett. The nursery near here where they have grown several thousand trees are at 5900 feet. Bartlett has not been successful here below 7500 feet or even higher. It depends somewhat on the "microclimate" I guess. Now, communis pears grafted on these Bartlett roots at 5900 feet grow off well the first season, and have not moved since. Six months ago we went over the nursery and found at least half the Bartlett rootstocks dead or in bad shape - the roots rotten in many cases. Where oriental hybrids such as Hood were grafted on Bartlett roots some of them have continued to grow well enough. Where communis varieties are on Bartlett roots they have not moved forward in two seasons. Of course they shouldnt in that climate, 5900 feet.



It has got me guessing, but I am advising that we dont try to use Bartlett rootstocks any more at elevations below 7500 feet. Last year we got a big quantity of *P. calleryana* seeds. After refrigeration we got good germination. We have some 10,000 seedlings growing at 4900 feet and 3000 at 5900 feet. They are coming along beautifully. I feel very hopeful about these, because of our experience with oriental hybrids from Florida growing of calleryana, here and in Honduras.

Everybody is continuing to use *Crataegus pubescens* (*Castipulosa*) to a certain extent. But they cant produce nursery stock with it. They transplant the seedlings to the orchard site after a year and when they are two inches in diameter at 6 inches or a foot from the ground they cleft- or crown-graft them to communis varieties, all of which must be grown above 6500 feet. They dont like the slow growth of *Crataegus*, but it is drought resistant and not at all particular regarding poor soils.

There will be some 15 or 20 thousand calleryana seedlings to be grafted toward the latter part of this year. I am recommending that the following varieties be used, in the main: Clapp Favorite, which does from 7000 ft or thereabouts, to the higher limit of pear culture; Clairgeau, if we have identified that variety correctly here - it is growing commercially at Quezaltenango 7500 feet, is a productive tree and the fruit has met with a strong demand in the local market at 25 cents a pound. Hood, which is good from 6000 ft upward, a strong grower and bears fine crops, fruit better than the other oriental hybrids we have so far, but is handicapped by unattractive appearance. And based upon recent behavior at 7800 to 8500 feet, not lower than 7800, Bartlett, which I believe may have a future at the higher elevations. There is much interest in



Central America right now in fruit processing. Del Monte (Cal Pac) is in Costa Rica; W.R. Grace has taken over Kern's and Pucal here in Guatemala. A good canning cling peach would prove very useful; we have made some 30 selections of local seedlings which when canned as halves are pretty nearly as good as those we get from Del Monte in California. I think you know that the cling peaches they grow in California have been wholly unsuccessful in Central America but we have these local seedlings of what I call Spanish blood, some of them quite good though they do not seem to bear as heavily as the melting-flesh peaches of smaller size. A few small orchards of these clings are being developed but it will take some time to develop by trial and error the best varieties.

We had a nematode scare last year and imported 10,000 Nemaguard seeds from Georgia. In addition, six or seven years ago I got five Okinawa trees from Ralph Sharpe in Florida and they have been in production for three years. We will have all the Okinawa seed we want in two or three years more; one man has 100 seedling trees which will be in bearing. We can not yet be sure that nematodes are a real hazard here but as soon as we have nematode-resistant rootstock we will use them.

Do you think we could get you down here at the next fruiting season - say July or August - to look things over. Dr Chandler was with us in Honduras some 15 years ago and gave us a lot of pointers.

With all good wishes,

Ever faithfully yours

Wilson Popenoe



## The Fairchild Tropical Garden

10901 OLD CUTLER ROAD  
MIAMI, FLORIDA 33156



January 27, 1969

Dear Dr. Popenoe:

I have been discussing with others the problem that Eduardo A. Mathew is facing. Everyone agrees that the solution is not easy. The big Universities are science-oriented, as you know, and an advance degree means biophysics, biochemistry, statistics, and all the rest. If a first-rate M.S. and PH.D. are desired, then this is the course that must be followed; and it is not easy.

The other choice might be to secure an assistantship just for the experience and the training, with somebody who knows and understands plants. Stanley Johnston at South Haven, Michigan, would have been a good man but he is retiring in July of this year.

Having said all of this and pointing out the two aspects of the problem (advance degree vs training period), I have not given up hope that the two could be combined. I suggest that you write to Dr. Fred Hough, Dept of Hort., Rutgers University, New Brunswick, N.J. He is a good man, and he is interested in helping promising students. You probably know him from his fruit breeding work. I am also going to suggest Dr. George Oberle, Dept of Hort, V.P.I., Blacksburg, Va. You probably know Dr. Oberle also. He is a plant breeder of fruit crops and just might be interested in trying to help Mr. Mathew. You might write him also.

Finally, Dr. John Carew, my successor at MSU has written me that the Gerber Baby Food Foundation of Gerber Food Products has established an 18-month M.S. program with the Department of Horticulture at MSU which provides \$3600 a year to a person from Central or South America to attain his M.S. in either fruit or vegetable production. He says "We now have one young man on the program and are screening applications for another. To help us evaluate prospective candidates, we are soliciting the cooperation of the Interamerican Institute of Agricultural Sciences and are having everything go through Dr. Ernesto Casseres in Mexico City. However, I know that Dr. Louis Montoya is Chief Horticulturist of the northern zone of IICA located in Guatemala City, and I think it would be appropriate to discuss Mr. Mathew with Dr. Montoya. I think, however, we should have to be realistic and wonder if his academic record would get him admitted to our graduate program."

Now, does this help?  
With all good wishes, I am  
Sincerely,

H.B. Tukey



THE MAPLES  
TUKEY-DAVENPORT FARM  
WOODLAND, MICHIGAN 48897

H. B. TUKEY,  
*Professor Emeritus*  
*Michigan State University*

March 8, 1969

Dear Dr. Popence:

Back home again, to be greeted by your letter of January 17, the reprint, and the book. I am delighted to have this material, and to read it.

I have been trying to think what to do with some of the material you sent. It occurs to me that what might be done is to have a little article from you on the importance of Systematic Pomology--especially in the tropics--something along the lines of your letter to me.

I am going to turn the material over to George Kessler of Fruit Varieties, for him to follow up if he thinks well of the idea.

With warm personal regards, I am

Sincerely,

H. B. Tukey



November 11, 1970

Dr. Wilson Popenoe  
Director Emeritus  
Escuela Agricola Panamericana  
Antigua, Guatemala

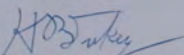
Dear Professor Popenoe:

Your previous letter has gone unanswered because about the time it arrived I had a little illness that has held me up until now. Slowly, I am recovering.

Of course, I enjoyed reading your reprint on "The Value of Systematic Pomology in Tropical Fruit Culture." I could not agree more. There will be some who do not agree with you but they are in the minority and do not see the entire picture. After all, horticulture deals with horticultural plants and unless we know what they are and something about them, we are not horticulturists. You and I will agree that the experts working in very narrow lines have made very great contributions towards our scientific advancement. But, it is all applied to horticulture and horticultural plants or it is not horticulture. I think we are seeing a blending of horticulture and science once again. The British have done it better than have we. We have been so enamored by the success of basic research that we have overlooked the plant and the environment. Now, we are returning, I am sure. I am sending you shortly a reprint of a little article that I wrote for the Journal of the Royal Horticultural Society, which I think brings this out somewhat. Also, you must remember that the American Horticultural Society and the American Society for Horticultural Science met jointly in Miami this fall. This is real progress.

It is always a pleasure to hear from you. With warm personal regards, I am,

Sincerely,

  
Harold B. Tukey, Sr.  
Professor Emeritus