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5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Contact: Archives
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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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.

Antigua, Guatemala, 16 October 1957

Dr C A Schroeder
College of Agriculture, UCLA
Los Angeles 24, California.

Dear Art:

The boys over in Salvador are really making some progress on their program of fruit improvement and distribution; they are tied up on Citrus however, until they can get some Cleopatra seed from the States next month, and we are afraid we may not really get going on Diospyros kaki this season. We have been seeing some really fine fruits of Hachiya at El Pintado here in Antigua and can get budwood, but our problem is rootstocks. I wrote to Knowles Ryerson asking him to get us some from the Velfskill place but I am not sure he will have a chance. Could you scare up at least 1000 seeds - maybe 2000? Jorge Benitez says the seeds from Pintado which he planted, did not germinate; and they were from an old seedling tree at that. We would like to try D. lotus also, if we can get it. No D. virginiana; that species is not good for the tropics, so far as our experience goes.

Please do your best to line us up, and send the seed to Dr Mario Lewy van Severen, Centro Nacional de Agronomia, Santa Tecla, Rep. de El Salvador; it wont need any special papers covering. I suppose airmail will be the best route, and we will reimburse you for all costs.

Best regards always,

Wilson Popenoe

cc Dr Mario Lewy van Severen

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF SUBTROPICAL HORTICULTURE
405 HILGARD AVENUE
LOS ANGELES 24, CALIFORNIA

November 12, 1957

Dr. Wilson Popenoe
Antigua, Guatemala

Dear Wilson:

This is a slightly belated reply to your letter of October 16. We have collected the persimmon seed and will ship them to Santa Tecla within the next day or two. I understand Knowles is in Australia, hence I doubt whether he may be able to have the seed collected in the north this year.


All is well here except for the heavy traffic, the nonexistent parking places, and the general rush of the city. Sometimes I am tempted to return to C.A. permanently, especially when we have to pay to park on campus these days. Aside from these usual complaints, our student enrollment is low in common with all colleges of agriculture, but there are a sufficient number of interesting and interested students to make the task worth while.

There is not much of encouragement to report on avocado rootstocks. All the immune or resistant forms are incompatible, according to present observations. We need that "missing link" to form the sandwich for our tree of the future. Phytophthora is killing the trees in increasing numbers and it appears there is little we can do to combat it effectively at present.

I understand Carl Schmidt had an operation on his eyes in New York (?) recently, but have not learned of the outcome. We phoned him while passing through Mexico City in August. Our trip home was pleasant. The entire journey to Costa Rica and return was a wonderful experience.

With best regards to all, I am

Sincerely yours,


C. A. Schroeder
Associate Professor of
Subtropical Horticulture

CAS:mcm

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF SUBTROPICAL HORTICULTURE
405 HILGARD AVENUE
LOS ANGELES 24, CALIFORNIA

March 26, 1958

Dr. Wilson Popenoe
c/o Martha Sussman
American Embassy
Madrid, Spain

Dear Wilson:

Indeed we are happy to receive your good letter of March 23 and to learn of your exciting prospects in Spain. We do want to assist in any manner, so do not hesitate to send the requests. We will fulfill as much as possible. Be sure to indicate the time (season) element and any customs or official business which must be considered and avoided if possible. Certainly we would like to have a look at Europe and plan to accomplish this some day. Just now we are still recovering financially from our most wonderful visit to Central America, but we dream of the future. You know that accomplishments are derived from dreams followed by efforts. We are working on the latter phase now.

Everyone is well hereabouts. Dr. W. H. Chandler will celebrate his 80th birthday on July 31st. We are reminding all his friends to wish him well at the time. We are fortunate to have his pleasant company at the University frequently during the week and we seek his wise counsel on many problems.

There is one of the largest avocado crops in California this season and we are in the middle of the harvest. Prices are not too good for the grower, but the consumer is growing fat. I have had several inquiries concerning the feasibility of freezing the fruit for storage. I have not seen an acceptable frozen product as yet.

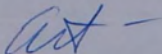
The root-rot fungus is still extending its area and we have not attained a workable solution. Some of Dr. Zentmyer's Duke seedlings are promising, however, so there is hope that the resistant stock may be forthcoming. A few trials of Hass and Fuerte on P. schiedeana have resulted in trees with a sickly look and poor growth, though the reverse combination, P. schiedeana on Mexican root, is quite satisfactory. We had one coyo fruit last year - the first and only fruit produced in California to my knowledge. Our efforts at Los Angeles are now directed toward interspecific crosses. We have P. americana x P. floccosa hybrids which are quite interesting. We believe we have a P. borbonica x P. floccosa which, if true, is most encouraging for it should lead to some compatible forms with Phytophthora resistance.

The macadamia enthusiasts are still going strong. Some of the seedling trees and a few of the introduced varieties set fruits last year and have an outstanding bloom now. We look forward to some good readings or evaluations this coming season.

Cherimoya interest is at a low ebb in California. Indeed I would like to see this stimulated. Perhaps we could get some ideas from your observations and perhaps introduce some of the Spanish later. I would want to know the season of fruiting and leaf fall in your area.

With best personal regards to both of you, I am

Sincerely yours,



C. A. Schroeder

CAS:mcm

Dean Hodgson sends his regards -

Rancho California, Almuñecar (Granada)
26 April 1958

Dr C A Schroeder,
Dept of Subtropical Horticulture, UCLA
Los Angeles 24, California.

Dear Art:

I have waited to answer your letter of 26 March until we were ready to start action, which time has now arrived, so we are going to make our first request, and remember that we shall be glad to reimburse you for any expenses involved. Here is what we want:

Five to ten scions each of Zutano, Rincon, and Bacon, and if you know of a specially good Fuerte tree which likes a seacoast climate, we want that too. The only Fuertes here - and you can count them on the fingers of one hand - came from the Canaries, and while I am sure they are Fuertes, they not be a very good strain.

Scions should be the diameter of a lead pencil or slightly larger, all of them terminals, and of rather mature wood as they will be used for veneer grafting on rather large stocks. I have had fine results shipping this sort of material from Honduras in Vinyl, without any added moisture of course, and in the present case what should be done is this: Make small packages, or put each variety separately in a strong Manila envelop, and send by first class air mail - just as though it were a letter - to Sr don Lwis Sarasola, Rancho California, Almuñecar (Granada) Spain. We would like to get this material just as soon as possible as the weather has now taken a favorable turn and we should commence grafting in May by all means. No documentation of any kind needed, any more than you would use for an airmail letter, which is nil.

We received from Dick Hamilton in Hawaii last week a fine lot of Macadamia seeds, and from my nephew John in Florida seeds of the so-called Key lime which I very much want to see established here - I am surprised it is not commonly cultivated in this region - the climate is allright; few frosts than in south Florida, in fact I think they very rarely get a frost in this valley which will hurt lemon trees.

They tell me the cherimoya in this valley will commence to flower in May - and I think they are right because I can see plenty of small buds already. When we arrived here about March first the trees were going dormant or seemed to be, leaves turning yellow to brown and some dropping. They havent gone much further. Right now the upper branchlets have dropped all their leaves but on the main body of the trees leaves are still hanging though pretty brown in most instances.

We shall greatly appreciate it, Art, if you will help us get this avocado introduction work under way; and if there are varieties which I havent mentioned and which you believe should be in this collection, so much the better. I may add that Hassis established here on a small scale, so I guess we can ignore that one.

Ever yours,

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF SUBTROPICAL HORTICULTURE
405 HILGARD AVENUE
LOS ANGELES 24, CALIFORNIA

May 8, 1958

Dr. Wilson Popence
c/o Martha Sussman
American Embassy
Madrid, Spain

Dear Wilson:

We have your request for the avocado materials. Unfortunately we cannot supply mature terminals at this time for the trees have just finished their bloom and the terminals are soft. In order not to delay for another season, we are sending under separate cover and as a second choice subterminals in the hope they may be useful. Good terminal material will not be available until next winter. We will be happy to try another shipment of terminals later if these do not become established.

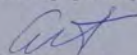
We are happy to learn more of the cherimoya situation in your area. Have you ever seen a seedless cherimoya? Archie Shamel once told me of a "seedless" clone he encountered in Mexico. Indeed such a clone would be a major discovery if its behavior would be repeated in California.

All is fairly well here. We are concerned because the Regents are taking one half of our very limited orchard area for a parking lot within six months. We may be able to rescue some of the clonal material and re-establish it elsewhere, either on cooperators' properties or possibly on a new land area which has been discussed. The latter is located in one of the nearby canyons. Such is progress.

I have been invited to attend the Inter-American Cacao Conference in Palmira, Colombia, in July to present the results of my studies on the growth of the cacao fruit. Politically the area is still not quiet, but I do hope to get into the field a little en route. I must await word from "higher powers" in the University concerning my request to make the trip. Word on this will not be forthcoming for a month at least. This is an age of speed except for the paper work and routine when it applies to any transactions within the University.

With personal regards, I am

Sincerely yours,


C. A. Schroeder
Associate Professor of
Subtropical Horticulture

CAS:mcm

Rancho California, Almuñecar (Granada)
13 May 1958

Prof. C.A.Schroeder
Univ of California at Los Angeles
California.

Dear Art:

Cherimoya trees in this valley have, since about May 1st, shed a lot more leaves, many of them having gone quite bare, but they are all breaking into new leaf rapidly and flowers are beginning to open - and such an abundance of flowers, especially on the young branches where fruit can not be carried. We got some small brushes and Luis Sarasola will start some hand pollinations before long. He is pretty bush right now grafting a lot of Hass scions from Chile, as well as some others from there, and four varieties from Florida which John Popenoe sent. We are daily expecting a shipment of 8 varieties which Dr Coit has sent. All material so far has come through in fine shape, no delays at this end.

Which reminds me to say that we particularly interested in getting from you scions of a strain of Puerte which you think well adapted to this maritime climate. The few Fuertes Sarasola has here dont have much background - we dont know just what they are except that they are Fuertes, from Honduras and from the Canary Islands. You are the guy most likely to know if there is a strain which may prove particularly valuable here - dont worry about cold resistance because do not need it, but we do need something likely to be productive in a mild and relatively moist climate, so far as humidity of the atmosphere is concerned. I dont have figures yet, during the hot months, but we are so close to the Mediterranean (half a mile) that this place is not going to be another Riverside. As I wrote you, scions packed in Vinyl or other plastic wrapped up tight and sent by first class air mail, just like a letter, with no documentation of any kind - any more than would go with an air mail letter - are the thing. They come right through and I am sure we are going to get magnificent results because Sarasola has a green hand when it comes to grafting.

Another point for later action: He has here two fine young trees of Suebelle and Wilson white zapotes from Armstrong, both about 8 ft high, beautiful specimens, producing their first few fruits this year. When you have seeds available later, we ought to get about 100 to grow some seedlings which can be budded later to these two varieties, because I believe the white sapote is going to meet with favor with these people who like sweet fruits much better than Doyyalis gardneri. I do myself.

I shall try to write my congratulations to our good friend Professor Chandler on the occasion of his 80th birthday. He has done a grand job. Dr Coit hopes that we can send you some good cherimoya varieties from here. Sarasola and I will try to do this when we can check on the fruits about October and pick out from the many trees here - I now find there must be 250 acres- some of the best. They dont really have named varieties but they know the good ones.

Ever yours,

Wilson Popenoe

Rancho California, Almuñecar (Granada)
14 May 1958

Prof. C.A. Schroeder
University of California at Los Angeles
California.

Dear Art:

Just about an hour after I had mailed a letter to you yesterday four envelopes of scions, Newman Fuerte, Rincon, Bacon and Cutano, arrived in fine condition. Very many thanks. I note the total postage amounted to \$4.80. If this came out of your personal pocket, please tell me so I can reimburse you.

We will use some of these scions to topwork some trees of the Mexican race which are about 4 inches in diameter; the rest on the young seedlings about 1 inch in diameter. This material should enable us to get these four varieties established here; we are particularly glad to have the Newman Fuerte because as I told you yesterday the Fuertes here - and I am sure they are Fuertes - may not be of a very good strain.

I mentioned the cherimoyas yesterday. Sarasola tells me there are three varieties here which he thinks you should have. We may pick out some others later in the year when the fruits are mature and can be examined for quality. It is not a good time to cut budwood, but if you have seedlings ready and want material in a month or so we can begin to send you some. Let me know about this - perhaps you are not interested but I think it would be worth while to have a few varieties in California from this region.

There is another interesting thing here - a seedling avocado which so far looks awfully good. I don't know where the seed came from, but the variety does not appear to be a straight Mexican altho there is some anise odor in the leaves. The tree is about 20 feet high and bearing a heavy crop - they say it does so every year. Fruit is not yet fully mature but we have sampled a few. The ripening season is certainly not Mexican. Fruit obovoid, not necked; about 6 or 7 ozs in weight and would probably go a little higher with good culture; skin about as thick as that of Fuerte, slightly pebbled, dark purple in the mature fruit. Flesh remarkably yellow, free from fiber, of very rich flavor and I would suspect of high oil content. Seed rather large - proportionately larger than in Fuerte but not as large as in many Mexicans. The tree is breaking into spring growth and we could not get good scions when we saw it last week, in fact it is not in very healthy condition and it will not be possible to get really good material later, but I think we ought to send it to you when we can. What do you say? Better send us some shipping tags, 3 or 4 of them, anyway, for any material we may ultimately want to send you.

Ever yours,

Wilson Popenoe

Rancho California, Almuñecar (Granada)
14 May 1958

Prof. C.A. Schroeder
University of California at Los Angeles
California.

Dear Art:

Just about an hour after I had mailed a letter to you yesterday four envelopes of scions, Newman Fuerte, Rincon, Bacon and Zutano, arrived in fine condition. Very many thanks. I note the total postage amounted to \$4.80. If this came out of your personal pocket, please tell me so I can reimburse you.

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Ever yours,

Wilson Popenoe

Rancho California, Almuñecar (Granada)
19 May 1958

Prof. C. A. Schroeder
UCLA, Los Angeles, Calif.

Dear Art:

Yours of the 8th has just showed up here as they say in Florida; which reminds me of the little verse which the daughters of P.H. Rolfs taught me: "The spring has come, the snow has went, it was not did by accident. The Birds have flew, as you have saw, back North again by Nature's law."

As I wrote you, the scions arrived in good condition and I believe we will grow them. Our problem now is to force them into growth after they have took. I am in a new environment and cannot go on Honduran experience too much. Which makes it more interesting. Before we leave this part of the world I want to know a lot about avocado culture in Spain. I wont bother those boys over in Israel; most of them have been too Davis, in the first place, and in the second, any Jew who de votes himself to horticulture learns more in 5 years than I have learned in 50.

You talk about seedless cherimoyas. No one has mentioned them here and I dont believe they have any seedless varieties. If so, they will probably be like that seedless watermelon about which we are receiving advertisements right now. Didnt sound good to me until I read the story, which sounds allright if you want to pay 5 cents per seed; which reminds me of the numerous offers of seedless avocados we have had in past years. I always say: "I dont want a seedless avocado. Where am I going to put the vinegar?"

If this avocado we have here on the coast is really Benik as I think it is, I want to tell you it sure eats well. We are just lapping up the last of some 25 fruits we brought from Motril last week.

This cherimoya business is getting me down. The trees at Rancho California 15 yrs old or perhaps more, are loaded with flowers, most of them on the upper branchlets, not more than 1/2 inch in diameter, which will not carry any fruits. How shall we move these flowers down to the larger, fruit-producing branches? Maybe we better leave them where they are, hoping that the bugs will take some of the pollen down to the lower branches; or is pruning the problem? You better come over here in May next year and figure it out. I am too busy getting this avocado variety collection established.

I am glad to hear you may go to Colombia in July. Dont be afraid of political situations. Our good friend Alberto Lleras Camargo is a grand person and I think we will get things lined up. At the Exp Station in Palmira you may still find some avocados. They had some when I was last there, but they were on heavy, badly drained soil and were pretty sick. Tell George Zentmyer. I am looking for avocados with root disease over here but so far have not found any. I shall keep on looking, and we are not bringing in any nursery stock from California to introduce it.

Ever yours,

Rancho California, Almuñecar (Granada)
12 August 1958

Dr G A Schroeder,
College of Agriculture, UCLA
Los Angeles 24, California.

Dear Art:

Just back from the Grand Tour of the eastern Mediterranean, and I want to tell you about a few of the things we saw in Israel; but first you will be interested in the cherimoya situation here in this valley. You never saw anything like it, nor have I before. Beautiful crop hanging, and very few malformed fruits. We don't need any hand pollination here. I am inclined to think it is a matter of the moist climate. Right now, for example, we are in the dry season. The temperatures at mid-day are not high, only 85 to 90, but the humidity runs between 70 and 75%. I have been looking at some of the cherimoya flowers (there are still quite a few opening) and I believe the pistils don't dry out so fast as in California. The question may be, how does the pollen get transferred to the stigmas? I don't see any insects hanging around the flowers.

The avocado grafts are coming along beautifully. So far only Nimlich definitely lost, but two or three others, which were put on rather weak rootstocks, may have to be replaced later. About thirty varieties in the collection here now. Also a nice stock of little macadamia seedlings from Dick Hamilton's Hawaiian seeds; some 20 seedling Mexican limes, and the Puerto Rico sweet potato. We are hoping to get the lychees and grafted guavas from Florida, but ran up against one of those regulations; Johnny Lynch found he had to receive a permit from the Spanish govt before they could be shipped.

Now as to Israel. Those boys, bless their hearts, are really going to town. And it is a labor of love; for example, one of their best horticulturists gets \$2500 a year when he could easily get three times that salary with FAO. They have an avocado country, no doubt about that. Not all the way up to Lebanon, but pretty nearly up to Haifa. Quite a few small orchards coming into bearing. They have leaned pretty heavily upon California for their varieties, and are using commercially mainly those they brought in first and therefore know best. They will be able to make some changes advantageous within ten years, when some of their experimental varieties have shown up satisfactorily. They have a good collection including quite a number of West Indians and hybrids from Florida. I asked Chanan Oppenheimer, who has devoted about 25 years to the experimental work, what he would now recommend for a commercial planting, and he said about 50% would be Ettinger and Fuerte; the other 50% would be divided among Nabal (30%), Benik (10%) and Hass (10%). Ettinger originated locally as a seedling of Fuerte; it is entirely different in habit of growth, being tall and slender; it is said to be somewhat more regular in production; the fruit looks like Fuerte but they say is inferior in quality but 4 to 6 weeks earlier than Fuerte. They are still a bit gun-shy of Hass because fruit sizes are running so small - 5 to 6 ozs. The trees look very well - all varieties I mean - with exception of one orchard I saw which was on heavy soil, low and wet. Incidentally, I saw nothing which looked like root rot, the Phytophthora variety. Their soils generally are pretty heavy.

Mangos are doing pretty well south of Tel Aviv. Oppenheimer is very enthusiastic about the future of mangos in Israel. The climate seems to favor productivity. So far Haden is their best bet, but shows a peculiar trait: many small fruits as well as a goodly number of large

Pairi is doing well - production much better than in Florida, but for the market they dont like it because it is now a showy fruit - the color is poor. They have a local seedling named Maya which looks very good; believed to have Haden as the pollen parent and it looks it. No doubt they will grow quite a lot of mangos in the southern part of the country eventually.

There are quite a few small commercial plantings of guavas, the large white thick-fleshed variety which we call Peruvian in Central America. There seems to be a good market for the fruit. There are also several commercial plantings of what appears to be a cross between Annona cherimola and A. squamosa - a natural hybrid. Cherimoyas have not been successful and this fruit is superior to squamosa. There are two or three good lychee trees at the experiment station, one of them producing (irregularly) fine large fruits of excellent flavor, but Oppenheimer is not enthusiastic about the lychee, nor about the macadamia of which there is a good bearing tree in the experiment station. They dont esteem the white sapote at all - maybe they havent had any good ones.

I didnt go into the citrus situation - it is not my line. But it appeared to me the or/hards in general are not as well cared-for as they might be. A good many dead twigs showing up almost everywhere. I doubt that cultural attention is as good as it should be.

I went into their banana business pretty t roughly. They have more than 4000 acres in Cavendish and have made a very careful study of cultural problems. Main trouble is the cold weather, not so much regarding damage done by frost as effect upon production - quality of fruit as a result of cold weather during the winter months. I told them all that we learned in Jamaica about bananas on heavy soil and with cool winter weather.

Now Helen and I are getting ready to leave for the Canary Islands, where I want to see what they do with avocados, and if possible bring back up to 1000 West Indian seeds for use here as rootstocks. Luis Sarasola and I are becoming convinced that Mexicans are not the thing for us here as rootstocks. I hope we are not wrong. After a week or so in the Canaries we plan to come back here for a short stay, then take a turn around a few other parts of Spain before we head for Stuttgart where we are to pick up a Volkswagen on 15 October and ramble around a bit before pputting it on a banana boat at Rotterdam, headed for Guatemala. Originally we hadplanned to stay in this part of the world until next spring, but I am being urged to come back to tropical America to help on several problems and believe, anyway, that anything I can do here will be done in the next couple of months.

We did a lot of sightseeing in Italy and Greece and clear up to Istanbul; very interesting but mighty hot work at this time of the year. I dont think I will need to do much more a ghtseeing during the rest of my life. I do think you should make a real effort to come to southern Spain and Israel just as soon as you can; you would get a lot of information out of such a trip.

Ever yours,

Wilson Popenoe

Do try to send Luis Sarasola 50 to 100 white sapote seeds for rootstocks when you can. Fruits on Suebelle and Wilson here look fine.

Rancho California, Almuñecar (Granada) SPAIN
20 October 1958

Dr C A Schroeder
College of Agriculture UCLA
Los Angeles 24, California.

Dear Art:

I think I have mentioned, in my letters to you, that we have in connection with avocados here a problem of chlorosis. This has killed off many young seedlings in the nurseries; it has killed more than a few young grafted trees in permanent outside locations.

Everyone has made suggestions and recommendations. Minor elements have been tried. Recently calcium has been blamed. I have blamed the trouble on the poor qualities of drainage which ^{pre}exhibited all over the place. Water will stand in irrigation laterals 24 to 36 hours without going into the soil.

You fellows are interested in avocado culture, so I am sending herewith some analyses which have been made at the government labs in Madrid. I don't understand these very well, first because I am not a chemist, and second because I wonder if their analytical methods are the same as ours, in every case. It occurs to me that you might be quite interested in sending these analyses to the boys over at Riverside - or wherever you think best - and get their comments, and pass them along to us.

I will explain that the word "haza" would be "vega" in Central America; it is the alluvial flood plain; and where it is ~~closest~~ ^{closest} to the river it is called "tasquiva". The depths at which the samples were taken are shown in cms, for the "haza". Just "upper" and "lower" for the tasquiva. The "tierra roja" is a red soil which was brought from across the valley and applied around the young trees, on the basis that the local soil might be low in iron and this red soil might fix things up. It has not done so.

The textures assigned to the samples do not agree with my field classification which is of course a rough one but which is based on examination of a good many tropical soils. I call the soils of the haza silt loams, and the tierra roja, which is coarser as shown by its drainage as well as by touch, a sandy loam at best - or maybe a sandy clay loam. I do not believe the textural classifications could have been made in the laboratory using the standards we employ for mechanical classification of soils.

So let's see what you chaps can tell us. Where do these soils get their high pH. Is there enough lime in them to be a problem? Why is drainage so deficient - it is not a question of runoff.

I wouldn't send these analyses were not that I feel they may be of some interest to you folks. I realize that samples would be better, and if it seems worth your trouble we could send them. I sent a batch to Hugh at Gainesville some months ago.

Sincerely,

Wilson Popenoe

Antigua, Guatemala, 17 Jan 1959

Dr C A Schroeder
College of Agr, UCLA, Los Angeles 24, Calif.

Dear Art:

I am assuming that you are at home by this time, wearing a fez but not a green one because you could not go to Mecca and become a true hajji. We are on our part, are back at the old stand and eating frijoles negros once more. Not a bad life.

Before settling down here (you will probably snort and say, When will that guy ever settle down?) we are coming up to California, for my last visit was in 1950, if I recall correctly, and I would like to look over the old stamping ground once more before I go on to the Great Reward. So we have booked for Mexico City on the 24th instant. I want to have a talk with Ralph Richardson and Ernest Casseres and a few others, not to mention the stone crabs I want to eat because they are much cheaper there than in Habana and I dont think the climate in Habana is just right for stone crabs right now anyway.

But here is the point. We are supposed to reach L A about the 28th. We will stop a couple of days to see Helen's mother and Paul and all the rest of the familiares, then we will go up to San Francisco for a few days. Kowles is on the warpath and my old pal Jim Kempton is up there living quietly in retirement as I should be doing but aint, and then we will come down to the land of Sunshine Fruit and Flowers and I would very much like to spend a couple of days with you, looking and talking things over. So if you are back on the job, and not too busy to talk about things other than budgets, let's get together about the 5th of Feb. Paul will know where I am at, as we used to say in Kansas, and my program.

Ever yours,

Wilson Popenoe

Antigua G, 3 March 1959

Dr C A Schroeder
UCLA, Los Angeles 24, California.

Dear Art:

We had a quiet day in Mexico City, talking only with Ralph Richardson and Ernesto Casseres. They blew on down here and reached Guatemala City to find the people in the Aduana as nice as usual and the car from Antigua waiting for us.

I mentioned to you, in one of several very interesting talks, the report I made on fruit improvement in Salvador and you said you had not seen it. I have dug out just about the last spare copy I have and enclose it herewith. Last week Ernest Mortensen dropped in from Salvador, along with Jorge Benitez. Ernest says they are making fair progress with the program; they got rid of the two guys who were in charge of propagation and he thinks they now have two better ones, Jorge was delighted to have news of you folks; he is doing very well with his nurseries here but the problem seems to be what are they going to do with all the trees he is propagating?

I havent been able to get anything definite yet about the proposed Interamerican Congress of Agriculture scheduled for May. I will keep an ear to the ground, as you Frenchmen say, and let you know when anything definite is announced. I dont see how they can possibly pull it off in May, when nothing definite has been planned or announced as yet. Maybe they will postpone it for a few months or more. I believe Guatemala was selected as the site for this one so will have it eventually.

Ernest Casseres says everything is moving along well so far as the ASHS meeting at San José is concerned. Ernest gets things done, and done well.

We thought we were going to settle down here, now, but what do I find? Urgent request to go to Venezuela for a few weeks and help the Fundacion Eugenio Mendoza develop a fruit program. I have told them I will come the first of April, but not for long. I know the coastal part of Venezuela pretty well and believe something can be done there, and the good Lord knows that any country where Navel oranges sell for \$2.50 a dozen is ripe for a fruit program.

It sure was good to be with you folks after all these yrs out of California and I enjoyed meeting that international group at the college on our last day. That group is an inspiration: you have an opportunity to do something of the kind we did at Zamorano but our group was Latin American and you have all the world. I have just recd a letter from a guy in Egypt who wants avocado budwood; he could, but the Lord knows he cant, get all the varieties right next door, in Rehovot. I guess we will have to send him some from Calif and Fla; I am telling him to write again when he has 500 to 1000 good strong seedlings ready for veneer grafting.

Ever yours,

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

DEPARTMENT OF HORTICULTURAL SCIENCE
405 HILGARD AVENUE
LOS ANGELES 24, CALIFORNIA

November 15, 1960

Dr. Wilson Popenoe
Antigua, Guatemala

Dear Wilson:

I have your good letter of October 20, which arrived on time but obviously was not answered with dispatch. Dr. Chandler stopped by the other day so I discussed the apple situation with him. He reminds me that we have the Palestine and the Winter Banana both with low chilling requirement and both of equally poor quality in general. The Transcendent crab is a small but tart apple which probably should be tried in the tropics. I am unaware of its trial under your conditions. I would suspect some breeding would be the answer to the problem. Could you get some breeder in the states to make the crosses and send the seed to be fruited under your environment? Crosses involving Palestine and Golden Delicious as one parent would appear a reasonable first trial. We can send the Palestine and Winter Banana if you do not already have these. Prof. Chandler indicates that the Siberian crabs again may have too high chilling requirements for your area. I wish we could offer more suggestions, or better yet more materials, but we are limited in the latter while overflowing with the former.

Incidentally, as of January 1961 I shall no longer have the title Professor of Subtropical Horticulture but will simply be tagged Professor of Botany. You may be aware that the Regents decided to close down the entire program in agriculture at Los Angeles and initiate a comparable program at Riverside. This has been contemplated for the past twenty years but only upon the retirement of Dean Hodgson have they been able to produce convincing arguments for the change. It is now announced that the transfer of personnel and program to Riverside will be made during the next four years. I shall change my department to that of botany, where my teaching assignment will be in the field of economic botany and my research will continue in plant morphology. In actual practice I will continue to follow my present interests in plant morphology and will slightly modify my teaching to include a broader treatment of plant materials and topics - all to my advantage and desire.

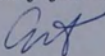
My interest in the morphological problems of subtropical fruits will continue and hence I hope to make further contributions in this field, more than I have made in the past. Under the new setup I will be allowed to remain at Los Angeles.

Just a bit of news. Hodgson is about ready to return from a two month FAO assignment in Cyprus. Dr. J. E. Coit has just undergone an operation on his one remaining eye to remove a cataract. The report is satisfactory as of one week following the operation. Dr. Chandler comes to the campus twice a week. His wife has been quite ill but is recovering. I saw Harlan Griswold last Friday. His avocado ranch - approximately 100 acres - is a beautiful sight to see. It produced over one million pounds of fruit last season.

Mary, the children and I think of both of you often and hope that all is well for you. Indeed we would like to drive down your way again and will do so at the earliest opportunity.

With personal regards, I am

Sincerely yours,



C. A. Schroeder
Professor of Subtropical Horticulture

CAS:mcm

March 19, 1969

Dr. C. A. Schroeder
Professor of Botany
Botanical Sciences
University of California
Los Angeles, California 90024

Dear Art:

Your letter to Bob Armour has just come. Bob is in Scotland on a brief but much needed vacation and invited me to stay here during his absence. Naturally I am delighted to jump out of bed again, like an old fire horse when the gong rings at 5:30 a.m.

We are all glad to hear that you are planning another hegrira for this summer. I expect to be in Guatemala during May and June. Chico's address is:

Mr. Francisco de Sola
H. de Sola é Hijos, Sucs.
Apartado No. 53
San Salvador, El Salvador

As to hotels, I know you do not want the \$14 (room only) kind. I think you would do well to write Chico explaining what you have in mind. There are some good pensiones in San Salvador. Casa Clark is favored by gringos. If I were you, I would try to plan things so as to sleep at the Hotel Florida in Santa Ana instead of in the capital. In Managua the Gran Hotel is the best but it seems to me I have heard the Roosevelt is good enough and much more reasonable.

I will leave your letter for Bob if he has anything more to add. I look forward to seeing you in Antigua.

Best regards to all of you.

Faithfully yours,

Wilson Popenoe
Acting Director

March 19, 1969

Dr. C. A. Schroeder
Professor of Botany
Botanical Sciences
University of California
Los Angeles, California 90024

Dear Art:

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Best regards to all of you.

Faithfully yours,

Wilson Popenoe
Acting Director

Antigua, GUATEMALA 25 February 1971

Dr C A Schroeder
University of California at Los Angeles
California.

Dear Art:

Early last year I received a letter from D. Maggs in Victoria, Australia, in which he said:

"My purpose in writing this letter is to ask whether you still regard P. americana as a single comprehensive species, and how far you consider introgressions from fringe species (e.g. P. schiedeana) from various localities as the main cause of the great variation found in P. americana."

Presently I am trying to work up a paper on wild avocados and the background of some of our cultivars. Personally I have never seen any cultivars which I thought had "blood" of any other species than what I call americana. For this purpose I am not considering the botanical varieties of the latter. Somewhere in one of the Yearbooks I saw a note to the effect that George Zentmyer and a colleague had reported what they thought was introgression of schiedeana and possibly liebmanni. I have written George about this. What I would like to ask you is this: "In your extensive travels, have you seen anything of the sort?" I confess that I have never been on the lookout for avocados of mixed specific background, and probably wouldn't recognize them if I saw them.

Another question: I believe you did some travelling in Mexico with Carl Crawford and perhaps Harlan Griswold, looking ^{for} the wild form of the Mexican avocado, P. americana var. drymifolia. What did you find and where? Based upon information I had from that good botanist Dr C A Purpus of Huatusco, many years ago, and upon observations of Louis Williams and myself on the slopes of the volcano Orizaba, I am satisfied that drymifolia is native somewhere in that region. It seems to me you found it in other places. Is that right?

And it seems to me that you reported somewhere, that you saw in the Orizaba region avocados which appeared to be of the Mexican race as we know it in horticulture, but which lacked the anise odor? This is an interesting point, particularly because we have that interesting wild avocado of Costa Rica and Honduras which looks just like a Guatemalan - large round hard-shelled fruits - but has strong anise-odor in bark, leaves and fruits. I think we may have to give up anise-odor as a botanical character.

Incidentally, I have seen in several places here in the American tropics avocado trees from Hawaii and the South Pacific which have foliage so distinct from most of the avocados we know in the Americas that they are baffling. But I feel that this just means that we can't do much botanically with leaf characteristics. I am afraid the herbarium botanists have gone too far in using these. The same is true of pubescence. Sidney Blake found this out when he named Trapp P. ledogyna because of the almost glabrous floral parts, which appeared to be nothing ^{but} an extreme, with plenty of intergradations between this and the heavily pubescent forms such as some of the Mexicans.

You go along with Paul Allen, don't you, in believing that what he collected on the Pacific side of Costa Rica is the wild form of the West Indian race. I feel pretty sure this extended down into South America. I feel inclined to say of P. americana, "native from Mexico to Costa Rica and Panama, and possibly into northern South America. Not native in the West Indies, nor on the South American mainland East of the Orinoco. Can I say like Archie Chanel, "this is my story and I'll stick to it."

Do let me have your thoughts. I'll be very grateful.

Faithfully yours,

copy to George Zentmyer - I hope he will tell me what he thinks.



LOS ANGELES, CALIFORNIA 90024

Dept. of Botanical Sciences
April 13, 1971

Dr. Wilson Popenoe
Antigua, Guatemala

Dear Wilson:

Your letter of February 25 was temporarily put in a "to file" pile without an answer -- hence the delay.

The problem of "pure blood" in the avocado has always bothered me and I am still uneasy about a strong conviction on your most useful division of the forms based on the anise odor of the leaf. I haven't seen enough of the P. sheideana group to draw conclusions or suggest any unusual observation. We did observe plants of the typical Mexican race -- small fruit, thin skin, apparently hardy, etc. -- but with no detectable anise odor in the leaf. Likewise in some progeny plantings which I had many years ago there were among those of Mexican parentage -- Mexicola x other Mexican variety -- some which had little or no anise odor. While I would continue to use the anise odor character as a first approximation toward the classification, I can agree with you in part that it has some limitations in light of our present knowledge.

Again, I believe your observation on the hard-shelled avocado with anise in leaf can be verified in the aguacate-de-piedra which I recall having seen in Comitan along the Guatemalan border. Just off hand I can't locate my notes on this particular visit, but will continue to look for these. The above statement is merely a recollection. I recall vividly the hard shell of the fruit.

Frankly I have not seen many specimens of the West Indian race during my visits to Central and South America as my attention was generally focused on the apparently more hardy types of Mexican plants for our particular purpose. I did see some specimens apparently wild in Ecuador near Baños and certainly cultivated in that area. I have never been in eastern South America but am desirous of having a look at the area.

April 14, 1971

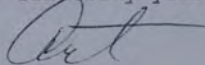
Your comments about the use of pubescence as a specific characteristic for avocado by some botanists must be tempered by the fact that it's their privilege to make this distinction regardless of its more practical application in the field. We find, of course, wide ranges of all these characters -- pubescence, anise odor, oil content (depending upon the climatic condition under which it is grown) and possibly skin character -- in nearly all suspected species, such that I in an attempt to make some sense of the entire problem merely refer to the avocado as P. americana.

Would it be possible to utilize the detailed structure of the avocado rind (number of layers, morphology of tissues, etc. such as is used by Whitaker to distinguish some of the cucurbits? This approach was an objective of mine a few years ago but with the breaking up of our collections and the general discouragement for agricultural research on this campus, I was unable to give but a thought to the idea.

There is a slight possibility that Mary, our daughter Gail, and I may attempt a drive to Panama this summer. Certainly you can expect a brief visit if this idea comes to pass. I want to look at some polyembryonic forms of tropical Eugenias, the Mangosteen, the sea bean (Entada scandens) with its extremely large fruit, the woe vine (Cassytha filiformis) and the jicama (Pachyrrhizus erosus). Have you ever seen the Cassytha filiformis (Lauraceae) parasitizing on avocado or other Lauraceae species?

With the hope that all is well for you and that I may have an opportunity to return to beautiful and interesting Central America again before this beauty is lost or contaminated, I am

Very sincerely yours,



C. A. Schroeder
Professor of Botany

CAS:ch

Antigua, Guatemala 8 May 1971

Dr C A Schroeder
University of California at Los Angeles.

Dear Art:

Mighty glad to have your good letter of 13 April. We hope that you and Mary and Gail will carry out your plan to drive down to Panama this coming summer. Unless we are over in Honduras when you come through, we would be delighted to have you stop over with us, and if we are in Honduras, then you should include Escuela Agricola Panamericana in your itinerary; there is always plenty of room in the guest house and maybe we could arrange a trip over to the region where grows that confounded avocado which is half ~~West Indian~~ ^{Mexican} and half Guatemalan - you know I don't mean exactly that; what I mean is that wild avocado with big round hard shelled fruits and so much anise odor in leaves and fruits that it beats the Mexicans in that respect. This is the only wild avocado known to me of which we do not have good herbarium material. When we were in Costa Rica last February Oton Jimenez and I tried to get someone to bring us some flowers and foliage from the region where it grows, but failed to do so, and both Oton and I are too old to go and climb the mountain ourselves.

Now as to some of the points covered in your letter. I think we can continue to use our classification, in which anise odor is a factor, but we must stress the fact that it is purely horticultural, and based on the avocados which were in cultivation at the time we really started to work on avocados, i.e., fifty years ago. It seems to me the major factors of importance, horticulturally, are (1) cold resistance of the three races, (2) the anise odor in the leaves

of the Mexicans, and (3) the length of time which elapses between flowering and the maturing of the fruits. This latter point varies, of course, with climate, but it seems to me that there is a real difference in this respect between the Guatemalans, especially, and the other two.

The last time I published this classification was in a revision of my little work "Fruticultura Centroamericana" which was originally published in CEIBA, 1950, and which has been slightly revised and re-issued three times, first by the press of the University of Guatemala, and twice by the government of the Dept of Antioquia in Colombia. The last edition was put out by the latter as Boletín Informativo No. 75, February 1969. In order to make it fit conditions in Colombia they changed the title to "Fruticultura" and added some footnotes here and there to make it fit Colombia.

In that edition I said that the Guatemalan race was characterized by "fruits of medium to large size, skin thick and hard, commonly rough." In contrast, I said that the West Indian race (Antillana, they call it) has "fruits of medium to large size, skin thick but soft, surface smooth." This is not so good. At Orizaba in Mexico I saw, way back in 1917, many trees which I felt sure were West Indians, but the fruits were no larger than some Mexicans, and the skin was not much thicker than that of some of the Mexicans. I have since wondered if these Orizaba West Indians were "pure blooded" but I still don't feel that there was any introgression of Mexican blood, and certainly none of shideans.

So I come back to my statement that it looks to me as though the classification of three horticultural is based mainly upon cultivated avocados as we knew them about fifty years ago, and while I still think it has some value, in horticulture, the abundance of

modern hybrids, such as those from Atlixco and those which have appeared in Florida, and those up in Tamaulipas (Mexico) and those which I saw (and collected) in the Chota Valley in Ecuador and some of those you have in California have pretty ^{well} killed the value of my original classification. George Ruchle pointed this out; I suspect others have done likewise.

Now as to your paragraph about specific characteristics, and what the taxonomic botanists do with what we call avocados. You are of course right. They themselves never agree, primarily, I think, because they have to work only with material they get out of the world's herbaria, and because they place different importance on such characters as pubescence and venation. I rather like the character which is sometimes mentioned: the perianth segments in the Mexican race are more or less persistent. And I think the length of fruit stem is interesting - so much longer in the Guatemalan race. (I don't think these two characters show up in most herbarium specimens). The range in oil content - so much lower in the West Indians than in the other two, and lower in the Guatemalans than in the Mexicans, can never be tied down as a botanical character, because in the first place the herbarium botanists can't see it on the sheets with which they are working, in the second it varies so much from variety to variety, and in the third, it depends on ripeness or maturity and probably to a certain extent on climate.

So I go along with you, and with our brethren over there in Australia, in feeling that the best thing for us horticulturists to do is to make some sense of the entire problem by referring to all avocados as Persea americana.

As to your question about utilizing the detailed structure of the avocado rind, - number of layers, morphology of tissues, etc.,

I dont see just how it would help the herbarium taxonomists. What I do wish is that some herbarium botanist could spend a year in the fields, all the way from Mexico to Ecuador, studying wild and cultivated avocados. Though I dont know that this would be of much help ^{to} us common or garden horticulturists. But here is an idea: If George Zentmyer could get a year off and a grant to do this job, it might result in the tail wagging the dog. I mean that he might turn up something which would help solve the Phytophthora problem. If George couldnt wangle the time and the money, he has a graduate student who *might* do it for his doctoral dissertation. Of course, you and he and one or two others have spent a lot of time and done a lot of travelling in connection with avocados, wild and cultivated, but I think you will agree that we havent exhausted the possibilities.

You ask about Cassvtha filiformis. I am sorry to say I do not know anything. I do like your idea of devoting some time this summer to the matter of polyembryony in the mangosteen and especially the eugenias. This genus has horticultural promise and the more attention given it the better. As for the mangosteen, for almost fifty years I have been keenly interested in its commercial possibilities, and we developed a fine planting at Lancetilla, as you know. This was sponsored by W. Cameron Forbes, a Director of United Fruit, who had been Governor General of the Philippines and was sure the Company could make money by shipping mangosteens north along with the bananas. As you know, we have made little progress. The tree isnt hard to grow, but it is erratic in bearing and awfully hard to put on the market in prime condition.

As a last word, I sure hope to see you down here this summer. With warm regards to all the family.

Faithfully yours,

Wilson Popeibe



LOS ANGELES, CALIFORNIA 90024

Dept. of Botanical Sciences
June 30, 1971

Dr. Wilson Popenoe
Antigua, Guatemala

Dear Wilson:

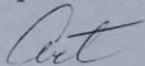
Our plans for the drive to Costa Rica are not quite complete but I would like to indicate our thinking at this point. Mary, Gail and I hope to leave California about July 10 via Mexico City and Oaxaca. We hope to spend some time in Nicaragua to attend the Tropical Section meetings A.S.H.S. July 21-28. This means we may stop in Antigua sometime between July 18-20.

I would like to talk with you at that time about collecting some avocado materials for George Zentmyer, particularly on the return trip from Costa Rica. We hope to spend three weeks in and around Turrialba following the Nicaragua meetings.

If we can bring anything for you from the United States, please indicate at once. We can be contacted in Mexico about July 15 c/o Dr. H. M. Mouat, FAO Apartado 10778, Mexico 1, D.F.

With the hope that we can get together for a short time at least, I am

Very sincerely yours,


C. A. Schroeder
Professor of Botany

CAS:ch

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

LOS ANGELES, CALIFORNIA 90024

Department of Biology

July 18, 1974

Dr. Wilson Popenoe
Casa Popenoe
Antigua, Guatemala

Dear Wilson:

Indeed it was good to have your letter of July 4. My thoughts have drifted toward Central America on several occasions recently as I have read some notes made last year regarding the introduction and development of avocado in Africa, Australia and New Zealand. Mary, Gail and I spent four months mostly in Africa and Australia. Our major objectives were East Africa, Malawi, South Africa and South Australia. I did acquire some data on the avocado en route and was giving thought to the development of an article on the introduction and movement of avocado in these countries. I was going to ask your advice and suggestions about such an article. I have found a statement that the Portuguese introduced the avocado into Africa in 1500. I am attempting to verify this and obtain the documentation. Could you agree with this date? It seems quite early to me.

While in South Africa I saw the rather spectacular orchard on coyo rootstock. Cookie Leon has sold the property and is presently in Australia starting anew. I thought this rather unusual experiment should be recorded for I am certain the new owners will have no idea of its value or even of the identity of the rootstock. Here we have a record of the event which can be checked from time to time to determine the longevity of the combinations.

I do miss my field work and would welcome an opportunity to become involved again. I attempt to make an occasional visit to Ventura, San Diego and Santa Barbara counties to keep abreast of some developments, but I am not active in field experiments. I have some tissue culture studies under way which could be of value if we can make the breakthrough. We are attempting apical meristem culture of avocado. We get roots but no bud elongation or bud elongation and no roots. I suspect eventually we will achieve both root and shoot elongation at the same time. Then we can reproduce some of our presently virus infected clones as virus-free specimens.

Enclosed is the article by Smith which I believe is the one you want. Also enclosed are two notes on fossil "avocado" materials which I enjoyed tracking down and the coyo rootstock account which probably will be of interest.

Possibly I could plan a trip to Central America next summer. I must get some ideas into the mill and see what develops. In the meantime I trust all is well with you. We do think of Guatemala and you on many occasions as we look ahead with our plans.

Very sincerely yours,

C. A. Schroeder
Professor of Botany

CAS:mcm
Encs.

Handwritten notes in blue ink, written vertically on the left side of the page:
 11444
 The two packages
 received for me
 are for the
 books and papers
 I received from
 you in 1900
 I have a collection
 of papers from
 Schroeder's
 former assistant
 George A. ...
 which he sends me
 for reference to
 your book ...
 I have a ...
 to ...

Pedro Alvarez
Cabral, sailing to
India but steering
far Westward to
avoid the winds and
currents of the
Guinea coast,
reached Brazil
(1500) and claimed
it for his sovereign
Vicente Yañez
Pinzon had sailed
along the north
coast as far as
the Rio Amazonas
in 1499.

5 -
The name does not belong to this or any other
species. It is a name of a genus of plants
and is not a name of a species. It is a name
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a species. It is a name of a genus of
plants and is not a name of a species.

Very sincerely yours,

C. A. Schrebler
Professor of Botany

Antigua, Guatemala 12 Sept 1974

Dr C A Schroeder
University of California at Los Angeles
California.

Dear Art:

Pretty darn fine to have a letter from you about avocados, after all these years (or so it seems to me) that you either been sticking to avocados that grew 2,000,000 years ago or not sticking to them at all. I am delighted that have realised the error of your ways and are coming back into the fold. Of course you have already done so, with that extraordinary contribution about avocados on coyó rootstocks. I had never even dreamed that anything like thaty happened. I knew from experience at Zamorano that avocado buds put on schiedema seedlings seemed to stick allright, and the growth started off well. But when we put the grafted trees up on Uyuea the Fuerte tops hardly moved ahead at all and the coyó bottoms sent up sprouts which grew very fast and vigorously. Maybe we should have cut off the sprouts and given the Fuertes a chance. I guess we really didnt pay much attention to the experiment because it was way up on Uyuea (9000 ft) and we did not get up there very often and some other things werent doing well there so we just let things slide. Strangely enough, grafted avocados which we planted up there in orchard form, were killed out by Phytophthora and it wasnt cinnamonomi. George Zentmyer saw it. Seems to me it was Ph. palmivora but my memory is getting terribly rusty.

I hope you will go ahead and turn out something on progress in Africa and Australia. I have been working with S.N.Daves in Auckland - I have sent him budwood of several varieties, just a few days ago Collina which I wonder if we should give more attention

b cause it fills a blank, here in our ripening season, so far as the grafted commercial varieties are concerned.

Of course that statement about the Portuguese taking the avocado to Africa in 1500 is right down my alley. I haven't yet become quite clear as to when the Portuguese took the mango to Brazil, but I have never given a thought about their taking the avocado to Africa. In the first place, I think it is the Britannica which tells us that Pedro Alvarez de Cabral, sailing for India but sailing far westward to avoid the winds and currents of the Guinea coast, reached Brazil in 1500 and claimed it for his sovereign. In order to validate the statement that the Portuguese introduced the avocado into Africa in 1500 we will have to assume that Cabral when he gave anchor off the coast of Brazil went back to Africa instead of sailing to India, which was his original destination (I don't find this in the history) and he would have had to take some avocado seeds from Brazil, where we have no reason to believe they grew avocados at that time. For many years I have been trying to find how far East of the Orinoco basin avocados were grown before the arrival of the Spaniards, but I have never found any evidence that there were avocados in Brazil until they were taken there by Europeans. If you come across any evidence that this was not the case, we would sure like to know about it.

The article by Smith, for which I thank you, is highly interesting. I have been talking with Ed Shook about archeological material here in Guatemala. He says they found plenty of charred avocado seeds at Kaminal Juyu, right here at Guatemala City, which they date at about 800 B.C. I am wondering how far the Indians had gone in improving, by that time, the wild avocados which grew near on the Chicoy ridge. Have you seen the wild trees there? Most of our crown
has done so, and that same wild avocado, which Louis Williams called

Persea nubigena, expands way up into Chiapas and Oaxaca and I suppose got to Atlixco some centuries ago, where it got all mixed up with the little black Mexes and gave us Fuerte and others. I have a photo published in the Journal of the Explorers Club which shows a whole mountain top in Oaxaca (I believe it is) which is a solid forest of this nubigena avocadó, as I guess we are going to call it,

I am trying to get information from Colombia about wild avocados which ought to be there - avocados which I call Paul Allens for the present, as his discovery of that indigenous avocado almost at sea level in the Golfo Dulce region has tied up, to my satisfaction, the origin of the West Indian race. But I feel sure it must have been in Colombia too, and something derived from it was planted way down on the Peruvian coast, in those valleys clear down to Nazca.

Oh, it is all so fascinating, and we almost have the whole story. I wish I had known what to look for when I was traveling for the Department between 1916 and 1923. Next year we must get a man into the western part of Colombia, at low elevations (mighty little botanical work has been done in the Chocó, I'll bet) and I'll bet we can have the whole story complete. Incidentally, I may have written you that Gene Schieber has found so many drymifolias here in Guatemala that I am going to have to revise my idea of the distribution of this species - for species it sure is, and we are going to stick with Chamisso and Schlechtendahl on that point.

Steyermarki has turned out to be so close to americana var nubigena that I bet someone will eventually throw it into that group. The venation is the one big difference. You can't go on shape of leaves - you would have hundreds of species of avocados.

Well, Art, I will say in closing what I said at the start, that I am delighted that you are going to do some more field work. In spite of what Dr. Bohner said in Atlixco back in 1936, I still think there

are seedling here in tropical America which deserve commercial culture, especially if we can get some more that come as close to being annual bearers as Hass does. I wish I had enough years left to pick out 100 seedlings here in Guatemala which produce good fruit, and yet are not so strongly inclined to be "Un año si, un año no" as is my pet Nabal. But of course we would have to choose fruits smaller than Nabal, yet if had a Nabal which bears like a Hass we could afford to put them on the market at 25 cents each!

Best regards to all the family,

Faithfully yours,

Wilson Popenoe