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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.

September 27, 1963

Mr. J. Morningstar  
Morningstar-Paisley, Inc.  
630 West 51st Street  
New York 19, New York

Dear Mr. Morningstar:

I was pleased to have your letter indicating your understandable interest in tapioca. I enclose a reprint of a paper recently published which may give some indications of the same sort of thing that was indicated in The Times.

Naturally, the scientific information that I accumulated during my recent trip to Yucatan and other parts of Mexico will have to await incorporation into a larger piece of work. As indicated, I have been working on the classification of the tremendous numbers of varieties that occur in manioc and have concentrated my efforts in the Western Hemisphere, inasmuch as the crop apparently is native in the tropics of the New World. I have not had an opportunity to visit the growing regions in any of the Old World tropics.

I am also quite interested in the various aspects of the use of the crop and would be pleased to receive any kinds of literature which you may have concerning the uses of tapioca and any other historical type of work that may have been initiated by you. I shall keep your name and address; and when I have completed my scientific monograph, will be happy to send one to you.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF  
Enclosure

*Morningstar-Paisley, Inc.*  
*630 West 51st Street*  
*New York 19, N. Y.*

EXECUTIVE OFFICES

25 September 1963

Dr. David J. Rogers  
New York Botanical Gardens  
Bronx  
New York

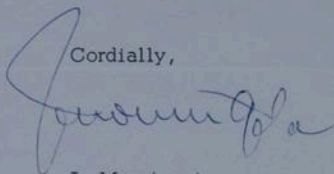
Dear Dr. Rogers:

I have read with a great deal of interest a report of recent discoveries in connection with tapioca or manioc plant.

We believe that our company was the first in this country to import the tapioca products from, then, Java. It would be very interesting for us if we could receive more details as to your discoveries. Have you published anything on this subject? We are now importing many thousands of tons a year from Thailand.

We hope that this is not presuming too much on your patience, and await your reply with interest.

Cordially,



J. Morningstar

JM:nem

*Morningstar-Paisley, Inc.*

*630 West 51st Street  
New York 19, N.Y.*

EXECUTIVE OFFICES

3 October 1963

Mr. David J. Rogers  
Curator of Quantitative Taxonomy  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

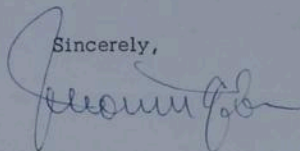
Dear Mr. Rogers:

Thank you for answering my letter so promptly, and I shall read your pamphlet with a great deal of interest.

When I was in Thailand, I had a moving picture made of the planting and harvesting of tapioca, and the manufacture of it into starch. It was primarily intended as a sales tool for our company, but I think you would find it rather interesting. I would be happy to show it to you sometime at your convenience, and then if you thought well of it, you might want to use it on other occasions.

Kindest greetings.

Sincerely,



J. Morningstar

JM:nem

*Call Monday*

*Seminar Thurs Dec 12  
3 P.M.*

October 21, 1963

Mr. J. Morningstar  
Morningstar-Paisley, Inc.  
630 West 51st Street  
New York 19, New York

Dear Mr. Morningstar:

It was a pleasure to have viewed the film on tapioca production in Thailand. I would like to invite you or one of your technical men to speak to our staff members at a regularly scheduled meeting on Thursday, December 12, at 3 P.M.

We would like to see the film and to have a few comments from you (or perhaps, as you suggested, from one of your technical assistants) on the utilization of tapioca. I am sure that this would be a fascinating discussion for our group, and we look forward to your acceptance of our invitation.

We have available a 16 mm. sound projector. If the date of December 12 is not agreeable to you, would you please let me know so that we may make some arrangements for an appropriate time.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

December 19, 1963

Mr. Joseph Morningstar  
Morningstar-Paisley, Inc.  
630 West 51 Street  
New York 19, New York

Dear Mr. Morningstar:

Let me express the feelings of the whole group that your film and discussion was very interesting to us all. I have had very favorable comments about the seminar from several people. Thank you so much for taking up your time to come up on such a miserable day. We all appreciate it.

Let me re-emphasize my invitation to you to visit at your convenience when I can give you a summary of my studies of Manihot. I would be pleased if you care to bring with you any of your staff members who might be interested.

Season's Greetings!

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

CC FOR DR. David Rogers

November 4, 1963.

Mr. Joseph Morningstar  
Morningstar-Paisley, Inc.  
630 West 51 st Street  
New York 19, New York

Dear Mr. Morningstar:

Dr. Rogers tells me that you have accepted his invitation to appear at our Staff Seminar on Thursday, December 12, 1963. About 25 or so people usually attend. We have tea or coffee at around 3 o'clock and the lecture usually starts at 3:30. The time will vary from one half to three quarters of an hour.

We have a 16 mm. projector available. Normally we meet in the Seminar Room of the Research Laboratory. Because the projector is not allowed to leave the Museum Building we may have to hold your talk and pictures in the Museum Building classroom or auditorium. I will advise you a bit later as to the exact meeting place.

We look forward to hearing you and seeing your pictures on the story of tapioca.

Sincerely yours,

P. P. Pirone  
Senior Plant Pathologist

PPP/eh

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

October 28, 1963

Dr. David Rogers  
New York Botanical Garden  
Bronx, New York

Dear Dave:

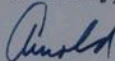
I just had a chance to read your article on protein in cassava leaves and found it most interesting. If in the future you should need more leaves for analyses we would be glad to send them on to you. We do have jet service direct to New York during the winter with flight time of about 3 1/2 hours.

Harvesting is approaching for the current crop with the problem of starch analyses for well over 60 varieties and several agronomic practices; an expansion to about 25 acres of cassava is planned to provide ample cuttings if a decision is made to go into this commercially.

At the rate we are collecting data and information it will take a book to publish all of it.

I would appreciate a few reprints of the article in the June-September Economic Botany, as well as any in the future.

Cordially,



Arnold Krochmal  
Horticulturist



# CARIBBEAN FOOD CROPS SOCIETY

SECRETARY:

MR. HUGH C. MILLER  
P. O. BOX 1068  
HATO REY, PUERTO RICO

TEL. 767-0280

OUR REFERENCE: .....



TREASURER

DR. A. KROCHMAL  
P.O. BOX 98,  
KINGS HILL,  
ST. CROIX, U.S.V.I.

TEL. 773-1312

October 28th

Dear Dave;

As a personal note- I am looking for a campus to spend next summer, working on papers on cassava, wheat in Afghanistan and if time permits medicinal plants of Yugoslavia. I would like to teach a course in tropical economic botany etc, which would give us the income to live. I have over 3 months vacation due me, but we do have to pay rent on our home here on the station while we are gone.

If you hear of anything, or can think of anything, I would like to know of it.

Sincerely,

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

October 24, 1963

Dr. David Rogers  
Curator of Quantitative Taxonomy  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

I have delayed answering your letter whilst working on a plan to send you \$15 for the reproduction of your bibliography of cassava. The government is permitted to pay for items after receipt, but I am sending you a non-government check. This material will be of great value to us.

I have in my file on the work at Campinas their results on a 1 year yield of cassava as compared to a 2 year yield from the same plantings, and the figures do show under their conditions an increase when the crop remains in the field for what they call 2 vegetative cycles. At the moment I am waiting for word on the exact dimensions of a Brazilian Alquiere which is the unit the station at Campinas has reported its results.

There are marked soil differences between Brazil and us, as well as climatic differences. Our soils are generally very heavy clays, on the neutral or slightly alkaline side, with high lime content. The Sao Paulo soils I saw with cassava plantations are on sandy, acid droughty soils of poor fertility. They do have a low temperature period in the "winter" when the plants defoliate- we do not have that here.

Their agronomic methods actually are reasonably well advanced, as are their processing methods. The place I visited, Holambra, is a Dutch co-op that plants mechanically, using mule or tractor, and fertilizes as recommended by the Instituto Agronomico. They use no sprays as there are no real insect pests, and only one disease that may sometime become serious, a virus apparently, resulting in what they call "brotamiente", the appears of leaves in small clusters rather like symptoms of a mosaic, which it may well be.



Growth Through Agricultural Progress

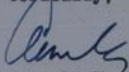
October 24, 1963

Our trial plots are being grown on soil that in one instance had sugar cane 2 years ago, and in another instance have been under vegetable cultivation for several years. Our rainfall runs about 40"-45 inches, and no irrigation is used. The principal variety we are using at present comes from Jamaica. However the results of our starch and yield analyses may suggest another variety when correlated with the Jamaica data.

I am translating the tables I have into English and after the report has gone through channels will send it on to you for possible use in Economic Botany.

In Brazil the processing of crude cassava to starch at Standard Brands mill takes 48 hours- the Brazilians tell me there is a new factory in southern Mexico working with American assistance which completes the same process in 2 hours. These people have set out 600 hectares of cassava for dextrin production. The folks at Campinas tell me there are about 100 planters in use in that province, manufactured locally. I have photographs of a mule drawn affair that looks reasonably practical, and a tractor operated one in use in southern Mexico. I will include these for your examination later on.

Cordially,



Arnold Krichmal  
Horticulturist

Enclosure

October 7, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Virgin Island Agricultural Program  
Kingshill St. Croix  
U. S. Virgin Islands

Dear Arnold:

We are going through my bibliography now to organize it a little better and will shortly be ready to Zerox it. The Zeroxing is done by library staff, and they request that the \$15 be made available to them before the thing is done. So if you could send a check payable to The New York Botanical Garden to me, I will then take it to the library and should have the thing run off shortly.

In your letter of the 27th you comment on the differences in harvesting between Brazil and the Virgin Islands and the differences in starch percentages. I suggest that there are many factors at work to account for the differences between the two places. I am not sure but what the 24 month period in Brazil has evolved on the basis of use locally and that they have paid very little attention to the crop as an export crop, therefore have not really endeavored to improve it nor have they spent much time in considerations of the factors that would almost automatically come to mind if one were more commercially minded than they are.

Further, their agricultural system is very primitive, one with very rotation, very little attention to any conservation measures of the soil, and very little endeavor to really get a firm scientific basis to their cassava agriculture. I suspect that the Virgin Islands have not been in cassava cultivation as a commercial crop very long and that any yields that you might be looking at are on soils that have not been so badly used as they have been in Brazil. I suspect also that the history of agriculture there in the Virgin Islands is such that it was in the hands of people more generally oriented toward a high-yielding output than in Brazil agriculture and this might very well have played a background role in the productivity you now achieve. In other words, I think that the differences that you noticed tend to be more directly related to the social factors in the two countries than to the capacity of the place to yield. I know that I have seen a few places in Brazil, particularly on experimental farms, where the yield would be much better than the 12 tons per acre at the end of 24 months, but not on a commercial scale.

Dr. Arnold Krochmal

-2-

October 7, 1963

I would be interested, though, to see what your own thinking along these lines is. I am not trying to discount the data. I am just interested in further experimentation along these lines.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

September 27, 1963

Dr. David Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

It was good hearing from you- in Campinas Dr. Nermanha sends his regards. I brought back 3 of their cassava varieties- "Branca de Santa Caterinha" and 2 selections of that one, as well as a rather complete series of photos of processing, field observations and their graphs and charts. When this gets ready it might be of use to "Economic Botany".

I would very much welcome the opportunity of getting a copy of your bibliography of cassava and appreciate the offer. We will be glad to pay the costs involved.

One of the interesting observations is that at the end of 24 months in Brazil they harvest about (12) tons per acre, analysing 20% starch, 4 or 2%; here we harvest between 8 and 9 tons at about 9 to 10 months, some of which has analysed over 30% starch.

Best regards,

*Arnold*  
Arnold Krochmal  
Horticulturist



December 26, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Virgin Islands Agricultural Program  
Kingshill St. Croix  
U. S. Virgin Islands

Dear Arnold:

We are sending herewith the Zeroxed copy of my bibliography. We did not separate the cards because we felt that this would be something you could get done there. I am sorry for the long delay; it took us more time to organize the bibliography than we had expected.

What we have sent you is the subject index broken down into about 4 or 5 categories which may or may not be adequate. They are listed as: Taxonomy; Technical (which means some sort of botanical endeavor either anatomical, morphological, genetic, or physiological); Cultivation (which covers the whole range of agricultural activities); Ethnology which is a difficult subject to define because of the fact that I have another category called Uses. Uses deal more specifically with the every day problems of what you do with this material, how you cook it etc. whereas Ethnology refers to its relationships to man. Then there is a category called General for those citations which I couldn't put in another category. In this category the references may range the whole way across the other categories. In some cases the citation may refer to only a part of the paper, and I put the citation in more than one place. This frequently happens under Distribution and Geography and under Diseases where there will be such things as breeding for virus resistance which falls under both the category of Disease and that called Technical. Unfortunately, we have not been 100% consistent.

We thought that we might as well give you the benefit of our thinking on this rather than give you an alphabetical listing by authors. I would like to make one reservation as far as this is concerned. I am planning eventually to publish this bibliography, and these cards will be part of it. Therefore, I hope that you will consider this as merely a personal favor and will not duplicate them except for your own use. I hope that this information will be a benefit to you. Best wishes for the New Year.

Sincerely

David J. Rogers

September 19, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Kingshill St. Croix  
U.S. Virgin Islands

Dear Arnold:

You didn't hear anything from me from Mexico for the simple reason that I didn't think that any of the cultivars that they had there were of sufficient interest to forward them to you. Therefore, there is nothing in the way of fresh material from Mexico for your collection.

We have just installed a new Zerox machine in our library, and I have an estimate of the cost for the reproduction on Zerox of the cards of my bibliography. It will run to about \$15. Would you be interested in this bibliography for that price?

What we will do is to lay all the cards down and make copies of them about six cards at one time. Therefore, the information will come to you in alphabetical order, but the individual references will not be separated out on cards. You can either cut the individual references and paste them on 3 x 5 cards or you can leave them on the sheets. I have the bibliography roughly categorized as to subject headings such as taxonomy, culture and agriculture, use, ethnology, etc. If you want these, let me know and we will have them run off for you.

Sincerely

DJR:MDF

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

July 1, 1963

Dr. David Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

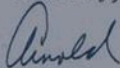
Thanks a lot for your offer to send us cassava material. We would be pleased to get a few sticks each of any outstanding starch and /or "sweet" varieties you may find. I am enclosing a Government Bill of Lading for shipment by air cargo, via P.A.A. If the shipment is very small it might be cheaper to send it via air parcel post. We will reimburse you for any costs of packing or getting to the airport for shipment.

We will be in the United States next summer, and in New York to see the World's Fair, so I will hope to be able to spend some time with you going over your cassava bibliography.

Casseres was formerly at Turialba, and his present address is 40 Londres, Mexico City. This may be the same building the Rockefeller Foundation has its offices and labs in.

Have a good trip and let me hear from you when you return.

Cordially,



Arnold Krochmal  
Horticulturist

Enclosure



June 26, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Kingshill, St. Croix  
U. S. Virgin Islands

Dear Arnold:

I have your letter of the 24th. Do you want me to send viable cuttings of cultivars? If so, would you please let me have some of your introduction tickets which will allow the material to pass through plant quarantine? I am sure you must have to have such tickets, and I don't know that the quarantine labels that we have here at the Garden would be satisfactory for your material.

I should at least have some sort of commitment or statement to say that it is okay to send by air mail or air parcel post something of this nature. I would suggest that it go by air rather than by any other technique; otherwise, you may never see the stuff.

As far as Brazilian material is concerned, I would be very pleased to see whatever you are growing in the Virgin Islands; but as far as cultivars themselves are concerned, I am afraid that it would be too much of a bother to ask you to prepare herbarium materials as I have to have them to make any sense from them. It is quite an involved process and one that I am not willing to wish off on anybody else.

In your paragraph on people in Mexico, you mentioned Dr. Ernest Casseres. Is he the same one who formerly was at the American Institute at Turrialba? If so, I have met him. Also, where in Mexico is his office? You said that he is with O.A.S. Is this address known to one and all at the Rockefeller place?

On the bibliography I am sorry that I have no thoughts about photostating, and we have such a poor set up for it here that I wouldn't even think about getting started on it. We are expecting to get a Xerox machine, but as yet nothing has arrived. When and if that does come, it might be possible to run off the bibliography, and I will let you know if such a situation arises.

Sincerely

P.S. I am leaving New York on July 9.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

June 24, 1963

Dr. David Rogers  
Curator of Quantitative Taxonomy  
The New York Botanical Garden  
Brooklyn Park  
New York 58, New York

Dear Dave:

I was pleased to hear of your trip to Mexico for cassava, and wonder if we can work out a trade on material. We are essentially interested in high starch varieties, as our project is primarily involved in that phase. If you can send some material, please let me know and I will see about arranging shipment of small samples. I would be glad to do the same for you with whatever material I get in Brazil.

Dr. Bond, the Officer in Charge, met Normanha last year, and I have written him.

If you go to Mexico soon, you will run into a goodly number of friends of mine - Dr. George Zentmyer of California University who will be doing some work, I think, with the Rockefeller group, and who is very much absorbed in avocado research; Dr. Ernest Cassares with O.A.S., a Cornell classmate of mine and a horticulturist; Miss Hilda Mendoza, also a horticulturist at O.A.S., both of whom may be helpful to you.

Have you an idea about the possibility of photostating or otherwise reproducing your card bibliography, and the approximate cost of doing this? I shall get whatever needed material Morton Collectanea may have, and will gladly send you a copy of what I accumulate.

Have a good trip and let me hear from you.

Cordially,

*Arnold*  
Arnold Krochmal  
Horticulturist



Growth Through Agricultural Progress

June 20, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Kingshill, St. Croix  
U. S. Virgin Islands

Dear Arnold:

In reply to your letter requesting a copy of my bibliography, unfortunately it is all on cards, and I have never really made a copy of it. It would take an awful lot of time for me to reproduce it. In the event that you want to use it, you are welcome to do so, but I had thought that you were coming this way and would have an opportunity to make use of it as you needed it here. I am sorry that I can't really offer any more than this.

As far as who works on what in Sao Paulo, you should very definitely get in touch with Dr. Edgard S. Normanha who is the chief in charge of root crop section at the State Agricultural Experiment Station at Campinas. He is a fine guy and a very helpful citizen and speaks good English. You should have no problems in getting along well with him.

There are others working at the College at Piracicaba who are no longer particularly concerned with the crop but have done things with it in the past. On the cyto-genetics aspect of it, Dr. Edgard A. Graner is one man there at Piracicaba.

I am off to Mexico to make collections of Manihot there. I am in contact with the Rockefeller Foundation in Mexico and will probably work through them. If you have any contacts there, I would like to hear about them.

Sincerely

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

June 19, 1963

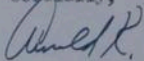
Dr. David Rogers  
New Botanical Garden  
Bronx Park  
New York, New York

Dear Dave:

I would be very pleased to get a copy of your cassava bibliography if it is available and know it would be a most substantial help in the work we are doing.

In August I am going to Sao Paulo, Brazil to visit the Institute of Agronomy which is very much engaged in cassava research, in the midst of a large cassava producing area. Do you know any of the people there?

Cordially,



Arnold Krochmal  
Horticulturist



June 3, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Virgin Islands Agricultural Program  
Kingshill, St. Croix  
U. S. Virgin Islands

Dear Arnold:

Thank you for your two letters of May 28 and 29. I was glad to hear of your program concerning the cassava. You asked if there is anyone in New York who can do starch analyses. The only suggestion that I have is that the National Starch and Chemical Corporation, 750 Third Avenue, New York, New York, might have some assistance in that direction.

You also asked how strong the Botanical Garden Library is on cassava materials. The Library itself is not too well organized for anything other than taxonomic literature concerning cassava, but in my own personal file I have gathered together a number of reprints and have put together a fairly extensive bibliography which would probably be of some use to you. I would certainly advise that you examine the collections at the Morton Collectanea as they probably have a considerable number of extracted materials themselves.

I am sorry that I cannot participate in the newly formed Caribbean Food Crop Society but feel that I must decline your invitation to join at this time. I wish you success with the program and with the new organization.

Sincerely

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

May 29, 1963

Dr. David Rogers  
The New York Botanical Garden  
Bronx Park, New York

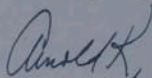
Dear Dave:

Thanks a lot for the reprint of your paper on cassava which will be of great use to me. If you have any other such material I would like very much to get copies.

We are just getting into studies of the relationship of soil type and pH to plant growth, particularly the appearance of lime induced chlorosis, and the relationship between such chlorotic condition and percent starch and total root yield.

How strong is the Botanical Garden library on cassava material? I hope to get to the Morton Collectanea at the University of Miami to go through their reference materials.

Best regards,



Arnold Krochmal  
Horticulturist



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

Personal postage paid

May 16, 1963

29

Dr. David Rogers  
The New York Botanical Garden  
New York 58, New York

Dear Dave;

Please pardon the long delay in writing. I have been up to my ears in projects, ranging from the organization of a new journal, CARIBBEAN AGRICULTURE, to the formation of a new society, The Caribbean Food Crops Society, which will hold its first meeting here October 6-10.

Since last writing you I have been to Jamaica where I came down with a slipped disc which kept me in bed for the 10 days I was there; fortunately Donald Webster who you know, was most helpful and I returned with 51 cultivars of cassava as well as our own. You may have heard of Donald's untimely death recently after an operation on Canada.

We are going full blast on a tropical starch crops research program, in cooperation with Harvey Alumina, using cassava and Dioscorea alata so far, and planning on going into a special sweet potato later on. We are in a slight bind in not having any lab set-up for starch analyses here, and not being able to get it done with any ease in Puerto Rico. Can you think of anyone in New York who might be able to do this for us? We have funds for such analyses if we can get it done.

This letter was begun over a week ago, but a stream of visitors from HQ and neighboring islands has kept me awfully busy.

Cordially,

*Amelia*



January 21, 1963

Dr. Arnold Krochmal  
U.S.D.A., A.R.S.  
Virgin Islands Agricultural Program  
Kingshill St. Croix  
U. S. Virgin Islands

Dear Arnold:

I am glad to hear of your initiation of a research program on Manihot. When you go to Jamaica, I would suggest that you get in touch with Mr. D. C. Webster. I think he is still working for the Crop Agronomy Division of the Department of Agriculture with headquarters at Hope Gardens near Kingston.

In the event that Mr. Webster is not there, then you would have to get in touch with the man in charge of that section because that is the group that has responsibility for the cassava studies. They should have propagating materials in the Bodles Experiment Station near Old Harbor.

When you go, I would suggest that you ask them if they still have available either in their own files or in the files of the agricultural chemist the analysis made by them of the various cultivars. These should give you some clues as to the most appropriate cultivars for this work. Unfortunately, I am not familiar with the soil type which you have in the Virgin Islands and can not make any recommendations as to the success of the cultivars that the Jamaicans have. The soils where these specimens are growing are pretty heavy and are generally classified as plastic marine clays. This may or may not effect your choice of cultivars from Jamaica. Certainly the soil type has a role to play in it.

A private individual in Jamaica with whom you may wish to get in touch as the biggest grower of cassava for starch is a man by the name of Henry Sargood. Mr. Sargood is well

Dr. Arnold Krochmal

-2-

January 21, 1963

known to the Department of Agriculture people and is usually very cooperative. I think if you get in touch with him and tell him that I gave you his name he would be very helpful to you. He had about 200 acres in cultivation and had selected several cultivars for his own starch productivity. Mr. Sargood has a farm near Old Harbor and his office is in Kingston. I suspect that you can find his address under his name in the Kingston telephone directory.

The enclosed letter is self-explanatory. I hope that you have success with getting your reprints that were sent to you in Honduras.

Sincerely

DJR:MDF  
Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

January 17, 1963

Dr. David Rogers, Managing Editor  
ECONOMIC BOTANY  
New York Botanical Garden  
Bronx, New York

Dear Dave:

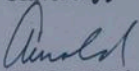
I have gone through my files and find no bill for reprints (nor reprints either), but am enclosing a check made out to you personally. If you will fill in the amount the matter can be taken care of.

We are about to initiate a research program with *Manihot* for starch production, in cooperation with an aluminum company which is building an alumina plant on St. Croix. Our own previous work was concerned primarily with edible varieties, one of which has given about 9 tons per acre total yield. Building on that we hope to work on problems affecting total starch yield per acre, cultural practices aimed at reducing labor and so on. We will also have additional starch sources such as *Dioscorea alata*. Do you have any information on starch percentage of *dioscorea* or pertinent articles on this crop?

I am planning to go to Jamaica in the middle of February to talk with the people in cassava work, and production over there, and to get propagating material. Do you know anyone over there I should see?

If you can track down any reprints of the "History of Grape Growing" I would be pleased.

Sincerely,

  
Arnold Krochmal  
Horticulturist

Encl.



Growth Through Agricultural Progress

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

October 23, 1962

Dr. David Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park, New York 58, New York

Dear Dr. Rogers:

My reply to your letter about cassava has been delayed by my absence from the Islands.

I am somewhat at a loss as to suggestions as to how to get you here, as budgetary limitations are a fairly universal ailment with all research operations, as I suspect you know.

At the moment we have material from St. Croix, Jamaica, Puerto Rico, Honduras and Venezuela. I hope to get new material from the British Virgins and other parts of this area.

I have some pressed material, unmounted. As soon as the herbarium glue arrives I can, if you think it useful, send you pressed material of what we have, and add to it from time to time.

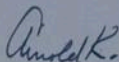
For the Caribbean Islands themselves, some clarification of varieties is most desirable. We find 'Black Stick' and 'Antigua Black' - are they the same with local names or are they different varieties?

We are running yield trials at the moment, to measure the performance of local cultivars. Knowing the taxonomic relationship of the Island materials would of course be of interest to growers.

The cytogenetic approach sounds most interesting; however, we don't have the tools for that sort of investigation. There is an excellent cyt-taxonomist at our station in Puerto Rico, Dr. Franklin Martin, who might be able to provide some ideas.

I suspect that as we correspond we can work out some program that we each can contribute to. I shall look forward to hearing from you.

Cordially,



Arnold Krochmal  
Horticulturist



Nov. 5, 1962

Dear Dr. Krochmal:

I more-or-less anticipated your situation with respect to cassava studies. It has been ever thus for this group of plants. I've run into difficulties from the start in getting enough funds to do anything with the crop, particularly so since I wanted to do such an impractical thing as the taxonomy of the species. However, enough of such sour grapes.

May I make the following suggestions that may help you out in your work. I suspect that you have a fairly large number of "varieties", which I shall hereafter call cultivars with such a diversity of names that you can't really tell whether they are different or not. Evidently, to sort this out, you would like some sort of description. I followed a procedure in Jamaica that will probably be more valueable than written descriptions. First, I got all the varieties--cultivars--growing in one varietal collection area, with about ten plants of each cultivar. After the plants had reached about one year of growth, I went through the collection, sorting them out by their stem colors, using some rather arbitrary divisions, as follows: reds, yellows, or combinations of these two went into one group, brown and dark brown as another group, silver, or light gray as another, and then a sort of "dump" for those where I couldn't make up my mind called "intermediate silver-brown". Then I went through the collections and made pictograms, or ideograms of the branching patterns, using graph paper to set an arbitrary standard for comparison. Since branching can be either di-, tri- or sometimes quadri-chotomous, I ignored this variation, and only concerned myself with the high above ground level that branching occurs, and the frequency of branching, best shown by a demonstration:



After making diagrams of the branching, I made groupings according to the color of the young foliage. You probably have cultivars with such common names as "blue top", "blue-bud", etc., obviously referring to the darker pigmentation of the foliage near the apex. The groups I used were just two, though there are grades, as you might expect--blue, or green.

Another category I used, after making the above, was the shape of the lobes of the mature vegetative leaves, with three divisions--obovate, pandurate, or linear.

With these, I then put the like plants together, and replanted them, with 15 plants of each cultivar, keeping every one of the first set even though I thought there might be duplicates. The end of the second year gave me a pretty good idea of the number of duplicates, and the synonymy of the common names. On the third replanting, we had reduced the number of plants by about 50 percent, although I think I was a bit drastic in this, not taking into account variations in starch content, HCN content, etc.

I tried to convince the Jamaican authorities that they should keep their cultivar collection in the same order, no matter how frequently they replanted, nor how few cultivars they finally settled upon as being best for their work. I think it is the only sensible thing to do, though I know that it is very difficult to maintain such collections in a particular way over a period of years. However, I am sure that they gained materially from having such a collection set up the way I did, in many different ways. Certainly it would be much easier to check any new

introductions that may come in, and decide whether you already have it or not.

On a separate subject, that of making collections of the plants as herbarium material. I would be very pleased to have collections from the Virgin Islands to compare with the material I have from Jamaica, Cuba and Trinidad. However, the process of making herbarium samples of cassava is quite a bit more complicated than for wild plant material, if you follow the same methods I have used, and evolved, over the years. Frankly, an ordinary herbarium specimen, with the usual type of specimen is not worth the paper it is attached to. You can decide whether it is worth it to you to follow my procedure, but I am sure that you will see the merit of the procedure, once you've been working with cassava variation. Many of the plants will not produce flowers, except under adverse conditions, and you can't wait until the flowers are produced, so you have to work the vegetative plants alone, sometimes. At any rate, I always include in my herbarium specimen a vegetative stem apex (about 6 inches long), with the young leaves attached, and preferably one leaf a bit more mature. Then, one mature vegetative leaf from farther down the stem, cutting off a section of the stem with the leaf for the specimen. Here, I always make a count of the numbers of lobes per leaf, and if there be variation on the same plant, but with one predominant number, I pick the most common representative. Then I make a long section of mature stem, about 1 foot long. I always take a long section of the root, cutting away both sides and leaving about 1/2 inch thick section of the most "typical" root, from point of attachment to the opposite end, through the center of the root. I usually tie the root section to the stem section to prevent the root from breaking, and then tag them with the same field number as the above-ground parts (the leaf, and the flower and fruit, if the latter are present). I have found it necessary to immerse the root and stem section in about 5-10 percent formaldehyde for a couple of hours to prevent mold growth and to hasten drying.

You can see from the enclosed herbarium label the type of information I collect in the field. For color, I use the Nickerson Color Fan, put out by the Am. Hort. Council. This color fan sells for \$6.00, and is really worth the money. This is the best way I know to standardize color designations though I will admit that any color comparison is liable to all sorts of interpretations. However, there may be a bit more objectivity in this technique.

I always made a black and white photograph of each cultivar that I make a specimen of--against a three-meter high backboard divided into thirds, and with a portion of the board marked off in subdivisions of meters 0.5 m., 0.1 m., etc. This is to reinforce the other information, and is quite helpful when examining the herbarium specimen. This may be eliminated if you are willing to record height, and branching pattern in detail as part of your field notes. I have found the photograph very useful, however, and invariably make an exposure to accompany any and all specimens of my own. Enclosed is a photo of one of my earlier photo-backboards. I modified this later, but don't have a spare photo to send you.

The herbarium specimen is also the document I used to keep information together concerning whatever analyses are made of the roots, or the leaves. This is, I find, an excellent way to keep your knowledge current. For example, I recently had analyses of 20 cultivars made for the amino acid content of the foliage. This work was done in hopes that the foliage may become significant as a protein-producing adjunct in tropical diets. The analysis of each of the cultivars is recorded on the specimen, as well as being the subject of paper we are at work on at the moment. I may place one reprint of this paper with the specimens, when the paper appears.

I would like to record on the specimens the time of maturation, cultural requirements where these are known, etc., but have never been able to work at a station long enough to get this type of agronomic, or horticultural, information. That's one reason why I hoped we might get together for a continuing project there in the Virgin Islands--under the aegis of the USDA, it might be possible to hold a set of experiments together long enough to gather yield data, fertilizer requirements, disease susceptibility, etc., etc.

At the moment, I have perhaps the most complete herbarium of Manihot cultivars and wild species that has ever been assembled. This will eventually be the base of a rather thorough-going classification of the genus, and of the cultivars. The field work for this monograph was supposed to have been completed last year, with my trip to Bolivia and Peru, but I have found that a very significant area that is very poorly known is Mexico, and I plan to make collections of cultivars, and wild species there next summer, if possible.

One of the difficulties in making an adequate classification is the fact that these plants can apparently hybridize with facility, and do so with frequency. For this reason, I cannot make a very satisfactory classification of the cultivars unless I also include a study of the related wild species that have contributed genes in various parts of the range. The range extends from Mexico south to northern Argentina, and of course, includes the West Indies. Fortunately the genus is confined, as natives, to the New World tropics and I can ignore, for the time being, the variations that are to be found in all of the Old World tropics. Strange as it may seem there are no wild species of the genus found in the West Indies, excluding Trinidad and Tobago. There is only one doubtfully wild species found in a restricted area in the Dominican Republic, and there found only on the Samaná peninsula. This is M. domingensis, and it has many resemblances to the cultivars, though apparently native. It might fall into the category of a "feral" species.

In answer to one of your questions--sending herbarium material in loose, or mounted, condition, I would think that it would be better to send it loose, but well-packed for the dried material is very fragile. We have people here to do the mounting, and I can instruct them as to the best methods. I hope that your material will have vegetative, as well as reproductive ~~material~~ parts included. When the plants reach reproductive stages, they achieve a remarkable uniformity from one cultivar to the next. The leaves associated with the inflorescence are most frequently reduced in numbers of lobes, and even unlobed leaves are frequent subtending the inflorescence. Unless the mature vegetative leaf is attached to the same specimen, it is difficult to see much variation. Unfortunately, at the cultivar level, floral morphology is of little taxonomic significance.

Concerning cytogenetic and plant breeding work, I do not think that it would be profitable to get into a study of this phase unless there was adequate money to do a first-class job. I am in contact with a young man in the Dept. of Agric. in Trinidad who wants to work on these aspects of cassava. I have told him my opinions on the needed methods to successfully achieve results, but in spite of the large task, he seems willing to tackle it. We might get some help from him and his station, though I am not too hopeful.

This letter has gone on much too long. I think you can see that I am vitally interested in work with cassava, and want to see it furthered. If you have made any plans for work there, I would like to hear what you have planned. I might be able to make some suggestions that would be helpful. Thanks again for your letter. Let me hear from you again soon.

Sincerely,

David J. Rogers

October 1, 1962

Dr. Arnold Krochmal  
Virgin Islands Agricultural Program, USDA  
Kingshill St. Croix  
U.S. Virgin Islands

Dear Dr. Krochmal:

When I saw Howard Pfeifer in Oregon for the AIBS meetings we talked of your interest in cassava, and mentioned that he would write you. I'm glad that he did so with so much dispatch.

I have been interested in the cultivars of Manihot esculenta for some time, with the primary concern for the classification of the complex. To this end, I have made collections in many parts of the range of the species, and am still in the process of working up a classification. I have felt that a classification that did not endeavor to relate the cultivated species to the wild species would not have great value, and am, therefore, doing a monograph of the whole genus. There are many problems in this work because of the high percentage of natural hybridization at work among the species, and because many of the so-called species now in the literature are nothing more than hybrids.

The cultivars apparently have also been involved in this hybridization process at various points in the distribution, thus adding to the confusion. With such a situation, I have felt that it is useless to make hard and fast categories for the cultivated variations, inasmuch as this type of classification would indicate a rather stable situation in the species, which is far from the truth. About the best that we will be able to do is to describe the various gene combinations that stick together, giving the morphological equivalents of these, and let it go at that. Very obviously, we need some solid genetic work with the group to really know about these combinations.

Several years ago I set up a classification scheme for the locally occurring cultivars on the island of Jamaica based on obvious morphological characteristics. I worked with the Dept. of Agriculture there, and over a period of several years we established a practical way to group the cultivars that seems to work. We actually grew the cultivars in about 15 duplications of each cultivar, and lined these out according to our scheme. I am not sure that they have maintained the collection according to our scheme, but you can probably determine this by writing to Mr. D.C. Webster, Crop Agronomy Division, Department of Agriculture, Hope Garden, Kingston, Jamaica. Mr. Webster worked with me on cassava, and is continuing with variety trials on a scientific basis.

I write at this length because I am quite excited to learn that you have an interest in cassava, and that there is a fair collection of the cultivars there in the Virgin Islands. I have tried to get the USDA interested in my work for some time, but never succeeded in getting up much enthusiasm in Washington. For some reason, it never occurred to me that there would be any activity in this direction in the Virgin Islands, though certainly there is, and should be.

I would be pleased to work with you on cassava, and would like to see your collection. I think that I could set up a scheme for you to classify the local variations in a fairly short time. This could only be done if there were some way for me to spend a couple of weeks there with you, actually going over the work. If you think that there is some merit in this, I would be pleased to have your ideas about how such a trip could be arranged. Unfortunately, my own budget will not permit an extra trip, nor could I justify the expenditure from general funds of The Garden.

Please let me hear from you if you have any ideas on this type of project.

Sincerely yours,

David J. Rogers  
Curator of Economic Botany

P.S. I realize that I did not answer your primary query as to a classification scheme for cassava. Frankly, there are none worth the effort. The latest endeavor in this direction was done by Ciferri, R. "Saggio di classificazione delle razze di Manioca" in *Relazioni E Monografie Agrario-Coloniali* 44: 1-58. 1938. This is a publication from the *Istituto Agricolo Coloniale Italiano*, in Firenze.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
VIRGIN ISLANDS AGRICULTURAL PROGRAM  
KINGSHILL ST. CROIX  
U. S. VIRGIN ISLANDS

September 25, 1962

Dr. David Rogers  
New York Botanical Garden  
Bronx, New York

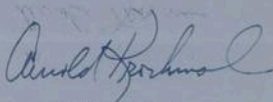
Dear Dr. Rogers:

Our mutual friend, Howard Pfeifer of the Missouri Botanical Garden, has written me that you did some work on Cassava some time ago.

I am interested in tracking down any key to varieties or study along that line, as we have a fair collection here from the Caribbean area as well as Central and South America.

If you have a reprint of your work, I would appreciate receiving a copy.

Sincerely,



Arnold Kroehmal  
Horticulturist



Growth Through Agricultural Progress

PURDUE UNIVERSITY  
DEPARTMENT OF BIOLOGICAL SCIENCES  
LAFAYETTE, INDIANA

November 18, 1963

Dr. David J. Rogers  
Curator of Quantitative Taxonomy  
The New York Botanical Garden  
Bronx Park, New York 58, N. Y.

Dear Dave:

At last I am replying to your letter of nearly a month ago, though as you will see there's nothing you need have held your breath for. With regard to the Manihot pollen, Kim Miller and I have discussed this and agreed that we have not run into this problem in the acute form you apparently have. That is, we occasionally find giant pollen grains, but never two distinct size-classes. It sounds as though such irregularities may be connected with hybridization; possibly large grains are due to non-disjunction of chromosomes and/or polyploidy (you didn't say whether they take up the stain as well as the smaller ones). In Phyllanthus I have found that where giant grains occurred, the total % of pollen stainability was lowered, and that the giant grains themselves were often more or less non-viable, to judge from the staining reaction. In some, but by no means all, of such cases there was a strong possibility of hybridization.

By now you should have received Milstead's punched cards on Prenanthes. Kim Miller is still measuring Tragia and apparently will not have any cards ready until some time next year. This also goes for Margaritaria, which I still hope to start on around Christmas after finishing a preliminary study on Meineckia (as obscure a euphorb as you'll ever find).

Incidentally, Miller and Milstead are both finishing their dissertations this school year and will be looking for positions beginning in the summer or fall. If you should happen to hear of any likely vacancies, I would certainly appreciate hearing about them, as we are so off the main line of the jungle telegraph ~~that~~ we usually don't hear of something until it's two or three months too late.

Sincerely,

*Grady*  
Grady L. Webster  
Associate Professor  
Biological Sciences

GLW/HW

October 25, 1963

Dr. Grady Webster  
Department of Biological Sciences  
Purdue University  
Lafayette, Indiana

Dear Grady:

I have a problem with pollen grain in *Manihot*, and I wonder if you have any answers for me.

In many of my pollen slides (mounted in lacto-phenol), there seem to be different sizes of grains in each preparation. In most cases the grain size is clearly divided into two classes, the smaller a little bit more than half the size of the larger grains. This is something that I don't know quite how to explain, and I wonder if you have encountered this with the other *Euphorbs*.

Also in the grains there occurs in some of the subjects a dark staining spot in the protoplasm. This spot is of varying sizes, sometimes occupying as much as 50% of the contents, with others greater and others less than 50%. These might be artifacts caused by drying of the protoplasms, but I am not sure about this, and I wonder if you have encountered the same thing and can shed any light on these problems.

How goes it with the data recording? We should be very shortly ready for a run, and we hope to have your data as a part of the first tests. We think the program is now doing what it ought to. Let me know if you or Milstead run into any problems.

Sincerely

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

June 11, 1963

Dr. Grady L. Webster  
Department of Biological Sciences  
Purdue University  
Lafayette, Indiana

Dear Grady:

Glad to hear about the Brazilian Manihot. Was particularly happy to hear about the Mexican materials. I am planning to make a trip down there next month; and if you have any suggestions as to the best locality for Manihot-hunting, I would appreciate whatever details you can give me as to localities and how to get there.

Was glad to hear of your forthcoming work with the Port-a-punch and look forward to some punched cards from you.

With regard to your projected Hyannis-sporting, good luck. I am not sure I will be at the Garden before the AIBS meeting because I have more or less promised the family a two-week camping trip into Maine just before the meetings and may run you down in Massachusetts where we can get together for a discussion of the advanced science of Euphorbiology.

With reference to Phyllanthus from the Guianas, I have checked with Bassett who says that he will be happy to send you Phyllanthus materials and is very pleased at the idea of an exchange of Mexican and Central American materials. I don't know whether there will be any chance of getting this material right away because Bassett will take off Wednesday for about four months again in the Guianas. I will ask him if he can arrange this through the regular channels so that he won't have to oversee its actual selection. In this case, we may be able to get some faster results for you.

Sincerely

DJR:MDP

PURDUE UNIVERSITY  
DEPARTMENT OF BIOLOGICAL SCIENCES  
LAFAYETTE, INDIANA

June 4, 1963

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park  
New York, N. Y.

Dear Dave:

This week we are sending off to you a parcel containing a number of mounted specimens of Brazilian Manihot plus some unmounted duplicate sheets of our Mexican collections of the genus from last summer. The mounted sheets may be considered an indefinite loan: you can take as long as you like with them, as we certainly do not need them urgently here. Incidentally, the botanic garden at Rio also sent a large set of Manihot unicates which are unmounted but which they want returned. When you get to the point where you would like to see them, they could be shipped along too, but might have to be returned more quickly. The Mexican sheets you can of course keep for yourself, and we would be happy to have the determinations. Eventually some real labels will be made up and I'll try to remember to send you a set.

Activity with the port-a-unch has been at a minimum around here as I have had several other more urgent problems at hand. During the summer, though, hope to make some progress.

We are driving east after summer school & may spend a week or two on the Cape hob-nobbing with touch football addicts around Hyannis. (I'm presuming it's the in sport) Then I ought to be along to the Garden the week before the AIBS meetings, so may see you there to talk over latest developments in euphorbiology.

Sincerely,

*Grady*  
Grady L. Webster

PS. Re what to ask B. McG. about Phyllanthus, what we would like is a duplicate set of the Guiana collections. I understand Jablonski may be working on them now, but we would certainly not try to forestall him in publishing any new taxa. It would be a marvelous boost to our anatomical studies if we could get a duplicate set of all the Guiana documents (over)

euphorb genera. In exchange, we could send a  
good set of our Mex. & C. Amer. colls.

November 6, 1963

Dr. William Van Royen  
The Old Manse  
Church Road  
Ellicott City, Maryland

Dear Dr. Van Royen:

Thank you kindly for your letter of November 3. There are many comments upon which I will have to spend some time thinking, and I appreciate your interest in this whole area. I also appreciate your comments which are refreshing and give me some new points to consider.

May I have a little time before discussing some of the things that you are concerned with? In the meantime, I am sending to you a reprint of a recent article on cassava leaf protein. This may be of side interest to you.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDP

WILLIAM VAN ROYEN

The Old Manse

Church Road

Ellicott City, Md.

Sunday, November 3, 1963

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
New York, 58, New York:

Dear Dr. Rogers:

The last stages of getting the ms for a new edition of one of my books to the publishers have kept me so busy that until now I have not had a chance to thank you for your letter of September 25 and for the reprint of your article on Manihot.

I also much appreciate your observations on the distribution of yuca in Mexico, which I shall put to good use when the time comes to remake my map.

I have enjoyed reading your article. It is always pleasant to read something that sets one thinking. Besides, the subject of the origin of cultivated plants is a particularly difficult one, and therefore especially interesting.

Harlan's hypothesis -I have had no chance to read the article- apparently is more or less the opposite of part of de Candolle's approach, unless it should be possible to define sharply -morphologically?- what is a "weedy" aspect. If such could be done it would be possible to separate "real" wild ones and "fake" wild ones, which would be a big step ahead. Vavilov, if I remember well, depends more on the degree of variability shown by the domesticated form or forms.

In South America it seems difficult to believe that de Candolle's approach could be correct. The area with ten or more species of Manihot is also that of the old Ges group of Indians who were largely hunters, and who, if I am not mistaken, did not even make pottery. Although they undoubtedly dug roots, it is not reasonable to assume that they would have had a hand in the domestication of Manihot. Of course, population distribution in the remoter past may have been different from what it was in immediate post-Columbian time, and archaeological research in Brazil, of which I do not believe there has been very much, could modify the ideas of eastern Brazil as a center of plant domestication, but I do not think the chances are very great.

Is, therefore, the large number of wild species in that part of South America a reflection of the fact that in post-Columbian time the area, or at least a fairly broad belt near and back of the coast, became a major region of production of yuca? In that case, Harlan would be right. But, then, of course, a similar large number of "wild" species should be found in association with the African manioc regions. Whether such is the case or not, I do not know.

I have never been convinced that items of material culture always must have been invented in one spot, and then have spread from that spot, the leitmotiv of the old Viennese school of ethnology. I rate human intelligence higher than that. Besides, also the historical record of invention is against that concept.

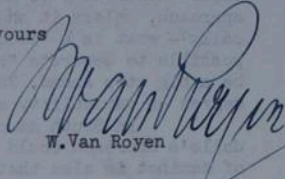
For plants, however, the problem is more difficult. If, for the sake of argument, domestication of *Manihot* took place in the Rio de Janeiro area, and also in the Maya area, then how could more or less equivalent forms, called *M. esculenta* in toto, have developed? As you say, there is a morphological continuum.

An item which struck me in your article was what you say about the Maya terminology. If camote means enlarged root, and is commonly applied to the sweet potato, then it looks as though the word "qua-camote" for yuca indicates that yuca is a later immigrant. A parallel case is cited by Georges Contenau in "La Vie quotidienne à Babylone et en Assyrie". The donkey and wild ass or onager were known in the area, but the horse, a late-comer, was referred to as "the ass of the northeast" or "the ass of the mountains". However, I do not know any Maya, and maybe the "qua" is not intended to distinguish it from the ordinary camote.

You see, I thoroughly enjoyed your article. And I would appreciate any reprints of related articles which might become available. As I told your colleague Dansereau a few weeks ago, I am really a "botaniste manqué". Started out toward botany many years ago in Holland, but found out that I had to make a living, too. And at the time, there was precious little available in that field! So I deserted for geology and geography.

Thanking you again,

Sincerely yours



W. Van Royen

WILLIAM VAN ROYEN  
The Old Manse  
Church Road  
Ellicott City, Md.

630.V 355

September 22, 1963

Dr. D.J. Rogers  
New York Botanical Garden  
New York, New York

Dear Dr. Rogers:

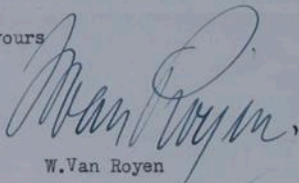
I just read with much interest a brief item about  
your work on Manihot in the New York Times.

In my Atlas of the World's Agricultural Resources I place,  
as most people have done so far, the origin of the cultivation of  
yuca in Brazil.

I hope that in due time you will publish on your work,  
at which time I should very much appreciate receiving a reprint.  
I know that is asking for a piece of the skin of the bear maybe  
quite long before it has been shot, but maybe you will be so kind  
to keep my request on file.

Thanking you in anticipation,

Sincerely yours

  
W. Van Royen

answered 5 9/25/63  
DJR

September 27, 1963

Dr. Donald W. Lathrap  
Department of Anthropology  
137 Davenport Hall  
University of Illinois  
Urbana, Illinois

Dear Dr. Lathrap:

I hasten to reread the statement in The New York Times (which I did for the first time after your letter came) and find that I am not in disagreement with the way The Times put it. There was not any really "flat" statement that manioc was first domesticated in Yucatan. I would be most foolish to make such a statement. I do have more basis for the feeling that Manihot could have been first cultivated in Yucatan (or in those areas within the influence of Mayan agriculture) after working in that area last July and August. This then does give me a bit more evidence botanically than I had when the paper you mentioned was published. The evidence is as follows:

Today yuca culture does not extend outside of the areas of Mayan development. From southern Vera Cruz southward through Yucatan and staying generally to the east of the cordillera which is the continental divide in Mexico and eventually reaching the west coast of Mexico in southern Chiapas. Aside from one small area of culture in the southwest corner of the state of Mexico where the plants supply the roots for the markets of Mexico City, manioc is not cultivated by any other group of Indians in Mexico.

Secondly, the method of culture of manioc by the Mayan farmers whom I visited indicated a beautifully integrated system of interplanting maize and manioc. I further found that almost all of the Mayans used both the bitter and the sweet varieties. The sweet varieties were usually interplanted with the maize, but the bitter varieties were usually kept separately from the maize plantings.

A third piece of botanical evidence is that the Manihot culture seems to fall into the same geographic areas as the cultivation of three very primitive maize races. The distribution of the maize races is much more accurately measured than is the distribution of manioc.

My feeling is in all this that we have all been a bit blind in the examination of other crops than maize when we look at Mesoamerican cultures. Had we studied some of the other plants that the Mayans cultivate we would not be quite so impressed, I think, with the fact that the Mexican and Central American areas were the originators of a seed culture alone. I believe that the Indians of the Mesoamerican cultures were much better general agriculturists than we have given them credit for being.

Going back to the original statement--I will never flatly say that yuca grew first in Yucatan. I point to this area as a very likely place of the earliest cultures. I would be pleased to examine your dissertation and would like to know from whom at Harvard I may obtain the microfilm copy.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNIVERSITY OF ILLINOIS

DEPARTMENT OF ANTHROPOLOGY

137 Davenport Hall, Urbana

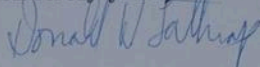
September 24, 1963

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
Bronx 58, New York

Dear Dr. Rogers:

Earlier this year I received a copy of your paper, "Studies of *Manihot Esculenta* Crantz and Related Species." Since I have been very interested in the archaeological background of manioc cultivation, I found your paper most stimulating and I was very interested in your suggestion of the possibility of a Mesoamerican origin for at least some varieties of cultivated manioc. In this week's Sunday Times I came across an article which attributed to you the flat statement that manioc was first domesticated in Yucatan. I am well aware that the New York Times frequently exaggerates in its scientific reporting. I would be very interested to know if this was a reference to your opinions in the article or whether you have further evidence. At present I am preparing a paper on the rise of civilization in Peru, and if it is absolutely certain that manioc was first domesticated in Mesoamerica I would be forced to modify some of my conclusions. My own thinking on these problems is contained in my Ph.D. dissertation, "Yarinacocha: Stratigraphic Excavations in the Peruvian Montana," Harvard University, 1962. I have hopes that the manuscript may some day appear as an anthropological paper of the American Museum of Natural History. In the meantime, a microfilm copy can be obtained from Harvard.

Sincerely yours,



Donald W. Lathrap

DWL:ms

December 10, 1963

Dr. N. W. Pirie  
Department of Biochemistry  
Rothamsted Experimental Station  
Harpenden, Herts, England

Dear Bill:

Please forgive me for the long delay in answering yours of the 13th of November. Unfortunately, I have been so involved with other work that I have not kept track at all of what is happening either internally in Special Funds nor with the project that they sponsored at Turrialba. I don't know what has been happening. If you can suggest ways in which I may be of help to you in furthering the project, I will be most willing to do so.

I am hoping that I will have an opportunity to visit with you next July or August either just before or perhaps even during the meetings of the IBC in Edinburgh. Do you anticipate being in residence from the last week in July through the first week in August? I can not be specific as to dates yet because I have to spend a little time in Paris a little time in Utrecht, and a little time at the British Museum. I don't know whether this will permit fitting a visit to Rothamsted into the schedule. You may be assured, however, that I am definitely intending to pay you a visit if it is at all possible.

Sincerely

DJR:MDF

Telephone | Harpenden 4671  
Telegrams |

Railway Station: Harpenden (Central)

ROTHAMSTED EXPERIMENTAL STATION  
(LAWES AGRICULTURAL TRUST)

Director: F. C. BAWDEN, M.A., F.R.S.

Head of Biochemistry Department:  
N. W. PIRIE

HARPENDEN  
HERTS.

PLEASE ADDRESS YOUR REPLY  
TO THE WRITER BY NAME.

13th November 1963

Dear David,

As you will see from the enclosed carbon copy of a letter, I was in USA recently but it was all very hurried and I had no opportunity to try to get to see you.

The enclosures are, I think, self explanatory and I would value to your opinion on the most suitable next move. What do you know of the present position at Turrialba ? It is just possible that I will be invited to a meeting there in February. This is in connection with planning the International Biological Program and if Dr Ed. Graham of the USDA ( who you probably know) cannot go, I may be asked to stand in for him.

Hoping all goes well with you. When are you going to visit us here ?

Yours sincerely

*P. C. Bawden*

## ROTHAMSTED EXPERIMENTAL STATION

(LAWES AGRICULTURAL TRUST)

Director: F. C. BAWDEN, M.A., F.R.S.

Head of Biochemistry Department  
N. W. PIRIE

PLEASE ADDRESS YOUR REPLY  
TO THE WRITER BY NAME

HARPENDEN  
HERTS.

11th November, 1963

Dear

Ten days ago I was introduced to Paul Hoffman and explained briefly our ideas about the proper development of research, in wet tropical areas, on food. He was sympathetic and passed me on to two associate directors of the Special Fund, Messrs. Heurtematte and Henry. I explained that the Special Fund was already aware of our ideas because I had explained them to Mr. Navajas more than a year ago, but they said that circumstances change and that the time might well be ripe for another request.

You will remember the paper we wrote and rewrote in the spring. Would it be in order for me to send a copy of that now to the Special Fund? I would explain the background of the document and explain also that I am aware that the Special Fund can act only as the result of a request from a government or from a U.N. agency.

The paper we wrote was sent to Mr. Pawley at F.A.O. Did anyone hear of any reaction on the part of F.A.O.? I am on good terms with Dr. Bruce Nicol in the Nutrition Division; would it be a good idea to send him a copy and ask for advice and help in getting F.A.O. to take the matter up with the Special Fund?

One of the suggestions made by the people I spoke to in New York was that a beginning could be made by trying to include work of this sort in the program of the laboratory at Turrialba (Costa Rica) which was largely set up with Special Fund money. This proposal was made to me three years ago by G. E. Nicholson, then on the Special Fund and now with UNESCO. I was introduced to him by David Rogers of the New York Botanical Gardens. They wrote respectively to Drs. Samper and Havord at Turrialba, and I wrote to Sir Joseph Hutchinson who had recently visited the institute. In essence there was concurrence in the replies - Turrialba needed reorganisation before it could take on more work. That was three years ago so it may by now have been reorganised. Would you let me know whether you know anything about the present position there and what you think of it as a site for work on food technology.

I am sending similar letters to the others who were involved in writing our "Note on food research".

Yours sincerely,

April 6, 1964

Dr. N. W. Pirie  
Rothamsted Experimental Station  
Harpenden, Herts, England

Dear Bill:

I have your letter of the 24th with the enclosed "Note on Food Research." I agree in general with the comments therein. We should develop such an idea further and push it as hard as we can.

I probably will be in Paris in July on the dates that you folks will be meeting to establish a committee for IBP. If by chance you find it useful for me to be available, I could probably spare at least a half day during my stay in Paris. I will be there for about a week during the time you mention, and while I have lots of other activities to take care of during that time, I might be able to break off for half a day to meet with you if you find it useful. Let me know about this.

Sincerely

DJR:MDF

NOTE ON FOOD RESEARCH

1. The "population explosion" poses both immediate and long-term problems of food supply. Whatever contribution immediate action may make, long term problems will remain. Existing types of foodstuffs and methods can be extended and adapted to deal with immediate demand. The long term problem of dealing with growing demand requires a prompt start in fundamental research along both traditional and novel lines. Immediate and long term requirements are complementary; and the satisfaction of the one programme must not be allowed to interfere with others.
2. There is no need for further conferences, surveys, and resolutions. We know of many countries in which there is a food shortage, and we know that in most of them this shows most clearly as a protein shortage. In the better fed countries of the temperate zone, the protein deficiency that characterises bulk foodstuffs such as tubers and cereal grains is corrected by animal products, legume seeds and a few vegetables. Much has been done to promote the use of these products in tropical areas but temperate species often do not thrive when the days are short and there are extremes of humidity and dryness.
3. Tropical products research has mainly been concerned with the demands in temperate countries; and there has been little development of new varieties for use in the producing countries. What selective breeding can do is clearly shown by such plants and animals as have already been developed. Plants and animals indigenous to or suitable for given areas could equally well be developed quickly using modern accelerated techniques that depend on a knowledge of genetics and the use of colchicine, X-rays and other mutagenic agents.
4. In many tropical areas vegetables derived from Brassica oleracea do not thrive; but there are local "pot herbs" such as amaranths which deserve intensive study to develop productive and palatable varieties. There is no reason to think that animals such as buffalo, llama, eland, wildebeeste, guinea pig and guinea fowl are any less susceptible than the usual domestic animals to improvement by skilled breeding; though it has hitherto been generally assumed that they will be replaced by animals familiar in Europe and North America.

5. Within very broad limits any source of protein will be useful, and various ways of increasing production are under consideration. The primary aim is to increase the total quantity available but special attention must be given to those protein sources that, because of a favourable amino acid composition, are of good quality. Proteins in legume seeds tend to be of better quality than those in cereal seeds and those in immature flowers (such as broccoli) and edible leaves are better still.

6. Besides work on species of plants and animals that are adapted to the climates of the developing regions and that can be used as food in conventional ways, work is needed on unconventional protein sources. The most obvious are the residues left after expressing oil from coconut, groundnut and soya, leafy crops and by-product leaves, and fish and other aquatic fauna that are at present regarded as inedible. Foodstuffs made from these sources will be unfamiliar in appearance, texture and, possibly, flavour. There will therefore be initial prejudice against them that must be reckoned with at the outset. Although the people who will be doing the necessary research will probably be accustomed to the food standards of Europe and USA they must start with the assumption that their research is only needed because it will probably not be possible to feed the whole world adequately on food of that type, and the foods that are now being eaten in many parts of the world are demonstrably inadequate. Changes are therefore necessary in any event and the initial unfamiliarity of a potential food is not a decisive objection to it.

7. Within the limits set by climate and the proximity of sources of aquatic fauna, each of the institutes in which work on unconventional protein sources is being done should study as many of them as possible. In this way rivalry between the sources, based on factors other than their intrinsic merits, will be minimised. Furthermore, the problems of storage and the presentation of the novelties on the table should be studied by the same group that is responsible for their initial production.

8. Existing institutes should continue the work on plant and animal breeding that is being financed by developed and, to a limited extent, developing countries although it is mainly concerned with species of importance in the developed countries. It may be that this work needs

additional finance for its results bring useful amounts of foreign currency to the developing countries. Besides this there is need for a comprehensive plan for fundamental and applied research more specifically aimed at expanding the food resources of the developing countries for the benefit of their own undernourished populations. This approach to the problem is novel because the existing institutes pay little attention to indigenous species.

9. An indication has already been given as to the new approach necessary by the action of the Special Fund in providing the necessary resources to enable F.A.O. to establish Food Technology Institutes and similar institutions within the developing countries themselves. Amongst such projects the following are typical:-

|             |                                                    |
|-------------|----------------------------------------------------|
| Chile       | Fisheries Development Institute                    |
| Cuba        | Central Agricultural Experimental Station          |
| Cyprus      | Agricultural Research Institute                    |
| Ecuador     | Fisheries Institute                                |
| Iran        | Animal Health Institute                            |
| Lebanon     | Animal Health Institute                            |
| Liberia     | Agricultural Research and Training Institute       |
| Philippines | Dairy Training and Research Institute              |
| Poland      | Food Production, Processing and Utilization        |
| Sudan       | Animal Health Institute                            |
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| UAR (Egypt) | Animal Research Institute                          |
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For the establishment of these research institutes and stations the U.N. Special Fund is contributing over £12,000,000 and the Governments of the countries concerned nearly £17,000,000. All will be implemented through the instrumentality of F.A.O. In addition very substantial sums are being provided for surveys of food resources, the strengthening of relevant faculties of Universities, etc.

10. Whilst research and its application must obviously be untrammelled by excessive centralised control, it is important to ensure that all these new research institutes, as well as existing ones, are not duplicating each

other's activities or leaving important fields of activity untouched. To implement the policy outlined in the first part of this paper, some broad guidance is necessary. This could best come from international sources and F.A.O. is the obvious authority.

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12. The World Health Organization has accepted this responsibility in the medical field. It has its Research Department, originally financed by voluntary contributions, but now accepted as a charge against the regular budget, for the stimulation and co-ordination of medical research. It is advised by a comprehensive Advisory Committee, which in turn is served by a considerable number of scientific groups. The Advisory Committee makes recommendations to the Director General of WHO who, under instructions from the Assembly and Executive Board, takes decisions as to which particular fields of research are to be developed and subsidised.

13. The time has now come for similar action to be taken in the field of agriculture and food technology. This is particularly important, having regard to the establishment of so many national institutes, research stations, and training establishments being financed by the U.N. Special Fund and sponsored by F.A.O. It is therefore recommended that F.A.O. should establish within its organisation a new unit responsible for research. It should have sufficient resources to enable it not only to establish new research institutes but to finance particular items of research whether by institutions or individuals. It is for argument whether the necessary stimulation and co-ordination of research into agriculture and food technology could best be done by such an internal administrative unit or whether the end sought could best be served by creating, in association with such an internal unit, an International Food Technological Research Institute, of research workers themselves engaged in different activities and in liaison with all national

research institutes, where particular work was being carried out. If such International Food Technological Institutes were established by F.A.O., it is possible that it might be financed by the U.N. Special Fund. Its results would certainly pave the way for wider commercial development and so provide opportunities for long term investment. This work need not all be done in a single place; there would be advantages in having several institutes in different parts of the world wherever suitable research could be undertaken. With such resources as the U.N. Special Fund provided, F.A.O. would be able to organize a comprehensive research programme, create its own Research Unit, set up International Research Institutes, and finance specific pieces of research by various organizations or individuals. The work on which special emphasis should be laid would be the effective utilisation of the food resources of the developing countries for the direct nutritional benefit of their inhabitants. Some of this research into breeding selection and hybridising would obviously be long term.

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- (i) The adoption of a resolution accepting the policy suggested (the World Food Congress might be a suitable occasion for such a decision).
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15. Such a new approach should not interfere with any current research plans or programmes, although it would obviously have to take cognizance of them. It would require inter alia much education at the scientific, production and consumption levels. Whilst the present "Freedom from Hunger Campaign" could not provide the resources for such a continuing undertaking, such a new development might well be regarded as the culmination and abiding outcome of the educational effect of that Campaign.

10th May, 1963

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10th May, 1963

November 6, 1963

Dr. N. P. Badenhuizen, Chairman  
Department of Botany  
University of Toronto  
Toronto 5, Canada

Dear Dr. Badenhuizen:

Thank you for your letter of the 28th concerning the possibility of a student's working on the starch classification of *Manihot*. I am pleased that you do have an interest in this area and that you are willing to take up your time for this work.

As far as assistance that may help out in terms of paying fees or what have you, it would be helpful if you could tell me approximately what sort of help you are looking for. I may be able to find it here in New York.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

Telephone  
Telegrams | Harpenden 4671

Railway Station: Harpenden (Central)

# ROTHAMSTED EXPERIMENTAL STATION

(LAWES AGRICULTURAL TRUST)

Director: F. C. BAWDEN, M.A., F.R.S.

Head of Biochemistry Department:  
N. W. PIRIE

HARPENDEN  
HERTS

PLEASE ADDRESS YOUR REPLY  
TO THE WRITER BY NAME

25th March 1964

Dear David,

Here is the note I spoke of that we wrote primarily for submission to the Conference that FAO called in Washington last June. Sir William Slater took it there and showed it to various people but ~~at~~ there was no occasion for its formal presentation. It was however shown to various people and I sent it to FAO. As I think I told you there have been some repercussions - notably from the FAO liaison officer in Mexico. But, so far as I know, nothing concrete is happening anywhere. It seemed as if ~~our~~ ideas were in good agreement.

We had quite a useful meeting here last week with Ed Graham of the USDA Soils Conservation Division about the IBP. USA now seems to be committed to participation and some of the sections, notably fisheries and human adaptability, are well underway. But the section Graham and I are primarily interested in - Use and management of resources - still has no international committee and does not seem likely to be going to get one till the meeting in Paris in July.

We might meet then. Our dates are not fixed but I expect them to be about the 22nd to 25th.

Yours sincerely

B. J. P.

University of Toronto

TORONTO 5, CANADA

DEPARTMENT OF BOTANY

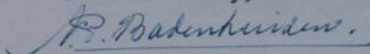
October 28, 1963

Dr. David J. Rogers,  
Curator of Economic Botany,  
New York Botanical Garden,  
Bronx Park,  
NEW YORK 58, N.Y.

Dear Dr. Rogers:

Thank you for your letter of October 14th, from which I understand that you would like to have a description of the starches of the cultivars of Manihot esculenta for the purpose of classification. I don't know whether the differences between such cultivars would be sufficiently clear from the descriptive point of view to make such an investigation practically possible. Unless you have already seen for yourself that there is a wide enough variation, I would have to look at some samples before I could give an opinion on the feasibility of this project. It would not be possible for me to do the work personally since we are already working on many problems of starch biogenesis, and there is so little time. It is, however, possible that I might have a student next summer to do this work which might have to be extended to a determination of amylose content. At this moment, during the winter session, I don't think that I could find such a student. Do you think that there would be a possibility of assisting a student financially, and could you perhaps send me two small samples of different cultivars so that I could have a look at the starches? I don't know at the moment of anybody else who could undertake this work, which, of course, is of interest to me. In the meanwhile, I hope to hear what your reactions are.

Yours sincerely,



N. P. Badenhuizen,  
Chairman.

NPB/MGM

October 14, 1963

Professor N. P. Badenhuizen  
Department of Botany  
University of Toronto  
Toronto 5, Canada

Dear Professor Badenhuizen:

Through the good offices of Dr. John T. Goodwin, Jr., of the Corn Industries Research Foundation, Inc., I have been given your name. I had written to Dr. Goodwin in search of individuals interested in comparative studies of starches, particularly the starches to be found in Manihot esculenta (cassava or manioc).

For a number of years I have been interested in the classification of the cultivars of Manihot esculenta, and to this end I have made numerous collections of the plants in various parts of the distribution of the species in Latin America. I have incorporated in my collections root samples not only from the cultivated species but also from those that I consider to be allied wild species, the purpose being to provide as satisfactory classification of the group as is possible. I have known for some time that the comparative study of the starch of the cultivated and wild species would probably be of great significance to the studies of the classification, but have not been able to accomplish this work myself, not being appropriately trained in this technique.

If wonder if you or any of your students would be interested in making a comparative study of the starches in the specimens of Manihot that I have collected. If this possibility has any interest to you. I could supply the material to you or to your student. If this type of endeavor is not particularly suitable nor in line with your endeavors, would you be so kind as to suggest to me some individual who might be interested in such work. If further details are required, I should be glad to supply them.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

CORN INDUSTRIES RESEARCH FOUNDATION, INC.

1001 CONNECTICUT AVENUE, N. W., WASHINGTON 6, D. C.

JOHN T. GOODWIN, JR.  
VICE PRESIDENT FOR RESEARCH

October 8, 1963

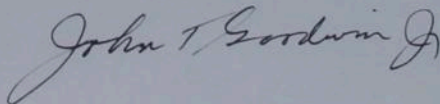
Mr. David J. Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Mr. Rogers:

Mr. Robert D. McMillen has given me your letter asking about starch from cassava to answer. I suggest that you correspond with the following people: Professor N. P. Badenhuisen, Department of Botany, University of Toronto, Toronto 5, Canada; Professor R. M. Sandstedt, Department of Biochemistry and Nutrition, University of Nebraska, Lincoln 3, Nebraska; and Dr. C. T. Greenwood, Department of Chemistry, University of Edinburgh, West Mains Road, Edinburgh 9, Scotland.

I am not sure how much new work these experts will be able to do for you but I am sure that they will have some ideas which should be helpful.

Very truly yours,



JTG/kp

November 12, 1963

Miss Roberta Woodson  
14 Scarsdale  
Richmond Heights 17, Missouri

Dear Miss Woodson:

May I offer my and my wife's deepest sympathy in your recent sorrow.

As a former student of Dr. Woodson and one who admired him and his work tremendously, I know what a loss it is to you. Anyone with any degree of sensitivity at all knows that we have lost not only a very fine scientist but also an extremely fine man.

Sincerely

David J. Rogers

DJR:MDF

WASHINGTON UNIVERSITY



ST. LOUIS 30, MISSOURI

THE HENRY SHAW SCHOOL  
OF BOTANY

I am writing this hurriedly to Bob Woodson's recent students and a few others who I thought would want to be informed.

It is with extreme regret that I inform you that Dr. Woodson passed away at noon today. As you probably know he is survived by his sister, Miss Roberta Woodson, 14 Scarsdale, Richmond Heights, 17, Missouri; I believe she would appreciate a note from you but I think it might be best to wait a week or so.

Sincerely,

A handwritten signature in blue ink, appearing to read "Henry N. Andrews".

Henry N. Andrews  
Chairman

HNA:bb

November 12, 1963

Dr. D. L. Jennings  
Scottish Horticultural Research Institute  
Invergowrie, Dundee  
Great Britain

Dear Dr. Jennings:

We have just recently subscribed to Euphytica, and I was very pleased to see your work in the first issue of Volume 12 on the "Variation in Pollen and Ovule Fertility in Varieties of Cassava, and the Effect of Interspecific Crossing on Fertility." Your endeavors are certainly well supported by observations that I have made in my classification studies of the genus Manihot with special reference to the classification of the cultivated species.

I am sending you a reprint of my latest paper on the subject of classification which, as you see, differs somewhat from the usual considerations of the geographic origins of the species. It is unfortunate that I did not know of your work in sufficient time to have included your conclusions in the paper. I can only beg that there is so much literature so widely scattered that I overlooked your paper.

I would like to respectfully request a copy of your paper, if you have one available. I would also like to have copies of your previous studies in cassava if these are available. May I also ask if you could suggest where I may find copies of the article by Greenway on "Origins of Some East African Food Plants"?

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

October 22, 1963

Dr. Ernest P. Inle  
1812 K Street, N.W.  
Washington 6, D. C.

Dear Erne:

At long last I have looked through my collection of Manihot slides with, I'm afraid, disappointing results. I enclose the only two pictures that might indicate some "disease" condition of the species.

The first, taken near Managua, is a physiological condition that is not at all common. In fact, I've seen only two or three plants like this one. The second, of leaf galls in Pernambuco is extremely common, throughout the range. It is not a serious problem at all, for the plants seem to live with the galls without much damage to their normal growth. All my other slides have been selected to show the "normal" leaf, and for this reason have avoided any such things as leaf spot disease which is quite common.

If you can use these, you are welcome to do so. I'd appreciate it if you could let me have a duplicate back when you have finished with the originals.

Sincerely

David J. Rogers

DJR:MDF  
Enclosures-2

October 9, 1963

Microfilm Division  
Library  
Harvard University  
Cambridge 38, Mass.

Gentlemen:

I understand that there is on file there  
a thesis by Donald W. Lathrap entitled "Yarina-  
coche: Stratigraphic Excavations in the Peru-  
vian Montana." Would you please let me know  
if copies of this microfilm are available and,  
if so, the cost?

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNIVERSITY OF ILLINOIS

DEPARTMENT OF ANTHROPOLOGY

137 Davenport Hall, Urbana

October 3, 1963

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park, New York

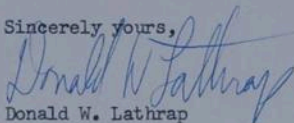
Dear Dr. Rogers:

Thank you very much for your prompt response to my letter. I was extremely interested in what you had to say, especially in the bit about the presence of bitter manioc in Yucatan. I would certainly agree with you that manioc has been in cultivation in lowland Mesoamerica for a very long time, since it spread to the northernmost limit of Mesoamerica by the time of Christ. I still have not seen any evidence which would suggest the cultivation of bitter manioc as early in Mesoamerica as the 2800 B.C. date on large comals presumably used for the preparation of bitter manioc. This, as you probably know, is for northern Venezuela. You did not say whether as yet you have any indication that the available wild species of manioc in Mesoamerica appear to be genetically more likely ancestors of cultivated manioc than those available in the lowlands of northern South America. It seems to me that until we have much more and better archaeological evidence, this kind of botanical evidence is likely to give the most certain answer.

I think my thesis can be obtained in microfilm just by writing the library at Harvard, since it is on file at the archives there.

I will send under separate cover a copy of a research proposal that I recently submitted which contains a few more recent ideas and bits of evidence on tropical forest-South American relationships.

Sincerely yours,

  
Donald W. Lathrap

DWL:ms

October 7, 1963

Mr. Robert D. McMillan  
Corn Industries Research Foundation  
1001 Connecticut Avenue, N.W.  
Washington, D. C.

Dear Mr. McMillan:

Miss Braach of the Chemurgic Council here in New York advised me to write to you with the following requests for information.

I am in search of a group of starch experts who might be interested in the starch yield from Manihot esculenta (tapioca, cassava). I have been interested in the classification of the varieties of cassava, and to accomplish this I have made collections of the plants in various parts of their range of cultivation. I also have collected some of the wild species that seem to be related to the cultivated ones. I have samples of the roots of about 300 varieties of cultivated species and perhaps 20 or 30 samples of the roots of wild species.

I would be interested to know if there are differences that could be detected in the starch among the varieties and between the varieties and the wild species. This would give me better evidence for the differentiation of the varieties and would also help in their classification.

I am not myself an expert in the studies of starch and would like to know if someone of your knowledge and acquaintance has an interest in such a study. If you can let me know if there is such an individual or group of individuals who might be interested, I would be pleased to hear of them.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

September 4, 1963

Dr. William O. Jones  
Food Research Institute  
Stanford University  
Stanford, California

Dear Dr. Jones:

I just have this opportunity to acknowledge with thanks your comments of July 12 concerning my paper on Manihot esculenta. I am sorry that the paper may have carried the implication that manioc is a significant culture in all parts of Mexico.

I know that it is insignificant over the majority of areas. However, I was able in this past summer to visit areas in Vera Cruz, Yucatan and states in between and found there that Manihot plays a regular role in the milpa agriculture among the Mayans. I would not at the moment be able to assess the importance of it as contrasted with maize, but the fact that it does operate in a very interesting rotational pattern with maize was quite interesting to me. The Mayans have apparently evolved a system whereby the crops mature at a different time from the maize and the techniques of cultivation are such that two years are required for the maturation of the manioc.

The first year's growth is cut back in May at the time of planting the maize and apparently does not recover sufficiently to disturb the maize before it is mature, and then the manioc is apparently sufficiently far along to be harvested three to four months subsequent to the maize harvest. I do not think that this particular use of manioc has been mentioned very often, if at all, in this Mayan agriculture. I have to do more reading to know how much has been reported about manioc cultivation in the Mayan cultures. One would certainly not think that they did much with it from the over emphasis that has been put on maize with no mention anywhere of manioc in the pre-conquest days.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF



MINISTERIO DE EDUCACION NACIONAL

*Instituto Colombiano de Antropología*

APARTADO NACIONAL 407 - BOGOTÁ (COLOMBIA)

Bogotá, June 17, 1963

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park, New York

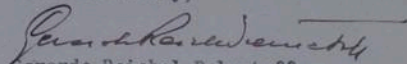
Dear Dr. Rogers:

Thank you very much for your thoughtfulness of sending me a reprint of your recent paper on Manihot esculenta. I have read it with great interest and I have learned a great deal from it.

I am taking the liberty of sending you a symposium paper on Sub-Andean agriculture. The description by Rodríguez de Medina quoted on p.93 is the only reference I know of for the use of bitter manioc in inter-andean Colombia.

With my renewed thanks ,

Yours sincerely,

  
Gerardo Reichel-Dolmatoff

P.S. Mailing address: Apartado aéreo 11313  
Bogotá-2, Colombia

FOOD RESEARCH INSTITUTE  
STANFORD UNIVERSITY  
STANFORD, CALIFORNIA

July 12, 1963

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
Bronx 58, New York

Dear Dr. Rogers:

Thank you very much for sending me a copy of your article  
"Studies of Manihot esculenta Crantz and Related Species," re-  
printed from the Bulletin of the Torrey Botanical Club.

I have read the article with great interest and am particularly  
intrigued by your election of Mexico as the point of origin of  
manioc. I had no notion that manioc figured in Mexican culture in  
a very significant way, although I was aware that it was cultivated  
as a minor crop in some parts of southern Mexico.

Sincerely yours,

  
William O. Jones  
Professor

WOJ:hh

Campanas, July 8, 1963

Dr. David J. Rogers  
New York bot. garden  
Bronx Park, N.Y., USA

Dear Dr. Rogers:

Your recent paper Studies of Manihot esculenta Grantz and related species, Bull. T. bot. C. 90 : 43-54, 1963, just arrived.

Since I worked many years with mandioca I thought that you would appreciate hear something more about it.

In its gross anatomy I could not find details to separate species in the conglomerate you call M. esculenta Grantz and I called M. utilissima Pohl. So I had to go to the books and learn a little more about the languages used by the Indians in South America to find out where there was the center of distribution of mandioca. I survey (unpublished) of the wild species belonging to Manihot I agreed with De Candolle and afterwards Vavilov, that the region so well delimited in your figure 2, should be taken as the place where mandioca arrived. If you pick up the atlas prepared by F.W. Schmidt (Die Sprachfamilien und Sprachenkreise der Erde) specially Tafel VI, you will notice that the gens Tupi and gens Tapuia together cover all the area where Manihot come from. Now if you try to know better the area under the point of view of botany you will find that it is dry, barren, where the tapias lived. We should then infer that in order to dig out roots to eat in hard times (of famine) the women tapias discovered the roots perhaps when the gens tupi fought the gens tapuia. The Region is what is called in tupi language caatinga, viz., caa, plant and tinga, white. For lack of water the plants from the caatinga shed their leaves, and the branches drying and baking in the sun turn white on account of air accumulated under the parchment above. See how white are many stems (manivas) of the wild species of manihot. The symptom is called Silvering (see Whetzel's Outlines), and may be well explained this way. We should try to superimpose to the very same area (in the impossibility to bring seeds or other vegetable remains) words. Tupi language is full of names dealing with mani. (Cfr. literature cited by Barbosa, padre A. Lemos.curso

de tupi antigo. Livr. S. José, Rio, 1936 ). The same could be said respecting Guarany, a very close related language to tupi (Cfr. Nogueira, Antonio Batista Caetano. An. Bibl. nac. Rio de J. 7: 1879). In Peru, if we examine the vocabulary of the language more spoken in that area, that by Fray Domingo de Santo Tomás, ed. inst. de Historia, Lima, 1931) we will not find manioca, despite to the fact that there were contacts between guaranis and peruvians in early days.

If you started a collection of terms from the tribes in the Mexican peninsula and another from the tupi-guarani here in S. America, it would be very interesting to learn where the balance will point, north or south of the Amazon. There is another interesting point which I tried once to learn but failed because I had no means to go deeply into the caatingas as I wished. I wanted to re-make Pohl's voyage to collect specimens of his species, and also note this: what plant growing around manihot spp. should bear ascia and pycnia, the so called Q and I stages by Arthur, thus completing the cycle of puccinia manihotis P. Henn. The plant bearing these two later named stages should be Brazilian if found in the caatingas, and Mexican if discovered in the peninsula. As plant pathologist and mycologist, I worked up and Índice de fungos da América do Sul, but could not find the tiny but important connexion. The so called cerrados in S. paulo and Minas Gerais are an extension of the caatingas. Floristically there are cerrados also in the Amazon valley. I collected and studied carefully the cerrados here close to Campinas, the cerrados de Mogi-Mirim, but could not find the plant which bears ascia and pycnia to complete the cycle of puccinia manihotis P. Henn. which in its general features in my way of seeing should be listed as long-cycled rust. I may of course be completely wrong on this. It is difficult to find out if the tupias ever had a center of civilization. If the tupis which considered themselves civilized had no such center where we could dig to find evidences of the use they made of mandioca, I assume that the best information can be gathered from the literature as preserved by the white men when they came to live here among the indians. I just scratched the surface of the problem. Age came and put me aside. It is no doubt, a great and interesting problem to solve. And it demands only moçada, which I believe you have.

Yours sincerely

*M. R. G. S.*

July 2, 1963

Dr. Betty J. Meggers  
Division of Archaeology  
U.S. National Museum  
Washington 25, D. C.

Dear Dr. Meggers:

I recently received the publication "Aboriginal Cultural Development in Latin America: An Interpretative Review" edited by yourself and Dr. Evans.

I am deeply appreciative of this publication. Certainly it is an extremely valuable volume for the likes of me who must look for such surveys to get an insight into current thinking.

Thank you for sending it to me.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

June 25, 1963

Mr. and Mrs. John Chretien  
1119 11th Street  
Lafayette, Louisiana

Dear Mr. and Mrs. Chretien:

I enclose photographs made during my visit to you. I want to thank you for your hospitality and your generosity with your plant material. The species, incidentally, if you are interested, is Manihot flabellifolia.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF  
Enclosures-2



UNIVERSITY OF SOUTHWESTERN LOUISIANA

*Joel L. Fletcher, President*

LAFAYETTE, LOUISIANA

June 20, 1963

Dr. David J. Rogers  
Curator of Quantitative Taxonomy  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dr. Rogers:

Many thanks for sending the article by Dandy and Fosberg from *Taxon*, Volume 3. I certainly was glad to receive it.

I am still hopeful that something will be found of the day lilies that were once in the Garden.

Sincerely yours,

Ira S. Nelson  
Professor of Horticulture

ISN/bn

May 29, 1963

Mr. Ira Nelson  
Department of Horticulture  
University of Southwestern Louisiana  
Lafayette, Louisiana

Dear Mr. Nelson:

The variegated Manihot plant arrived in good shape the day before yesterday. We are very pleased to have it.

I have made a few preliminary inquiries about the remaining data on day lilies. So far nothing very hopeful, but then things are in such a magnificent jumble here these days that I may still track something down.

I enclose a copy of the article by Dandy and Fosberg on Amaryllis in Taxon, Volume 3.

Thanks again for the prompt sending of the variegated Manihot. It is indeed a handsome addition to our living collections.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF  
Enclosure

YALE UNIVERSITY  
DEPARTMENT OF ANTHROPOLOGY  
51 HILLHOUSE AVENUE

June 7, 1963

BOX 2114, YALE STATION  
NEW HAVEN, CONN., U.S.A.

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, N. Y.

Dear Dr. Rogers:

Thank you for your letter of June 3 and for the information about bitter vs. sweet manioc. I had already learned through Bill Sturtevant of your difficulty in distinguishing between the two, but was curious about their relative values. It has seemed to me that bitter manioc must have some superiority to justify the relatively complicated procedure of squeezing the juice out of the roots.

I wish I could say that we had a better knowledge of the processes of growing and preparing the two kinds of manioc, but such is not the case, as you are doubtless aware. Some time ago, Reichel-Dolmatoff and I discussed the possibility of making a cross-cultural survey of these matters, since there are obviously significant differences even within the methods of preparing bitter manioc on the upper and lower Orinoco River, for example. Unfortunately, we have both had too many other irons in the fire.

Sincerely yours,

*Irving Rouse*  
Irving Rouse  
Professor of Anthropology

IR:em

June 3, 1963

Dr. Irving Rouse  
Department of Anthropology  
Box 2114 Yale Station  
New Haven, Conn.

Dear Dr. Rouse:

Thank you kindly for your enlightenment on your understanding of the distributions of manioc and their origins. You asked at the end whether sweet manioc is as efficient as a crop as is bitter manioc and if there is a significant difference in yield and/or nutritional value. My answer to these questions are unfortunately somewhat evasive rather than directly to the point.

Inasmuch as there is no distinct division between bitter and sweet manioc, it is difficult to definitely state that one is better than the other. The analyses do not indicate sufficient differences between one and the other to indicate that bitter manioc had to be developed before it could become a major food crop. My observations have been that sweet manioc is generally harvested earlier than is bitter manioc. The average time of growth for the sweet is about ten months whereas the average time for harvesting of bitter manioc is between 18 and 24 months. I think that the differences are comparable to those in maize where the sugar content of the younger ears is greater (green corn) than the fully matured dry corn.

Several analyses indicate a higher yield of starch in the bitter manioc than in the sweet, and yet the analyses are done in such a way as almost to favor this result in that sweet manioc is almost always harvested, as I said, earlier. In other words, no real scientific approach to this matter has been made.

As far as the quality of the starch of the two is concerned, I have no information. I can say with some certainty that on those analyses that I have had made myself, the difference in nutritional value between them is not significant. Both of them are 99% starch, with a few minerals and an insignificant amount of niacin--nothing else.

I am sorry to have such a poor report for you in these matters, but such is the case. I have tried on several occasions to establish a cooperative project in several Latin American countries to carry out some research along these lines. I have not yet been successful.

Sincerely yours

David J. Rogers  
Curator of Taxonomic

DJR:MDF

YALE UNIVERSITY  
DEPARTMENT OF ANTHROPOLOGY  
51 HILLHOUSE AVENUE

May 28, 1963

BOX 2114, YALE STATION  
NEW HAVEN, CONN., U.S.A.

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, N. Y.

Dear Dr. Rogers:

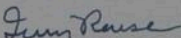
Thank you for your letter of May 15. I appreciate the trouble you have taken to comment so fully on Cruxent's and my monograph. I am afraid, though, you have misunderstood our remarks about tropical-forest agriculture. It was not our intention to support Sauer's thesis; we only borrowed from him the idea that manioc may have been domesticated independently from maize--an idea to which you also subscribe, if I may judge from your paper--and the further assumption that manioc and maize, because of their separate origin, may have become the principal crops in two distinct agricultural complexes. But it does not follow from this that manioc and maize were the only crops in their respective complexes. I am quite sure, as you point out, that sweet manioc was shared by both complexes. So also is maize in many places; e.g., it is currently being grown on the Saladero site, where we obtained our radiocarbon dates of ca. 1000 B.C. for griddles indicative of manioc. But at the present time it is less important there than manioc and, moreover, less efficiently used, not being ground into flour as in western South America. For these reasons we have concluded that manioc is and was the principal (but not the only) crop on the lower Orinoco, as it is and was in the West Indies, where again the corn is roasted or, in modern times made into gruel, instead of being ground into flour.

In your paper, you seem to accept Reichel-Dolmatoff's conclusion that manioc was the staple crop in Momil I and maize in Momil II, because only clay griddles are present in I and only manos and metates in II. Our argument is exactly the same: at present, only manioc griddles are made and used in eastern Venezuela and only manos and metates in western Venezuela; the same is true in pre-historic time, going back to 1000 B.C. in eastern Venezuela and to at least the time of Christ in western Venezuela; and therefore it seems reasonable to project the present evidence about the use of manioc in eastern Venezuela and corn in western Venezuela back into the past. You may, of course, object to using griddles as an indication of the cultivation of bitter manioc and metates as indication of the cultivation of maize, as Meggers and Evans, e.g., do; but if you do, then you must throw out the evidence of the Momil site as well as our identifications in Venezuela, which you do not seem to do.

May 28, 1963

Returning to sweet manioc, I would suggest the hypothesis that it was the original root crop in Venezuela and Colombia, in the stage which many archeologists are now calling "incipient agriculture." As you say, we are going to have difficulty proving this because no special equipment seems to have been needed to produce it, but I would not be surprised if sweet manioc goes back in Venezuela to 3000 or 4000 B.C., contemporaneous with the earliest, most primitive strains of maize ~~that~~ for which we now have evidence in Mesoamerica. I would further assume that sweet manioc was not efficient enough for "intensive agriculture" and that the development of the latter, i.e., of primary dependence upon agriculture rather than hunting, fishing, and gathering, had to await the domestication of bitter manioc in the tropical forest regions, just as it had to await the development of better strains of maize in Mesoamerica. I would be interested to know what you think of this idea. Is there a significant difference in the yield and/or nutritional value of bitter as compared with sweet manioc or not?

Sincerely yours,

Irving Rouse  
Professor of Anthropology

IR:em

May 15, 1963

Dr. Irving Rouse  
Department of Anthropology  
Box 2114  
Yale Station  
New Haven, Connecticut

Dear Dr. Rouse:

Thank you kindly for your detailed analysis in "An Archeological Chronology of Venezuela." I must admit my short sightedness in not including your discussions in my paper. There are many archaeological pieces of information which I did not use or overlooked. I was quite interested in your paragraph on page 264 where you support Sauer's differentiation into two fundamental systems of agriculture.

As a botanist with an agricultural background and having made observations in many parts of the New World, I find it difficult to make such distinctions. My observations run from studies of the Campa Indians along the Yucayali River through the various mixtures of Incas in upland Bolivia and Peru to the Indians of the Yucatan Peninsula and various slave-descendant populations of the West Indies. Certainly in each of these there is a predominance of one sort or another of agriculture, but never to the exclusion of other types. Certainly the highland native populations went for seed cultures (viz. quinoa) but also the same areas developed remarkable root crops, potatoes, Oxalis, and Tropaeolum. Indeed, the Indian population seems to have today such mixed cultures that it is extremely difficult to tell what is the predominant agriculture.

Indeed, there have been changes, but there is little reason to think that some of the more primitive types have done much more than to add such crops as bananas and rice to that which they already cultured before the advent of the white man.

For these and several other reasons I can not visualize such a marked differentiation. Perhaps one reason for finding the griddles for cassava cooking in eastern Venezuela in certain areas and not in others is merely that the use of sweet cassava does not require any more preparation than could be done with the use of fireplaces and hot stones.

Dr. Irving Rouse

-2-

May 15, 1963

I am not trying to remove the thoughts which a differentiation into seed cultures versus other cultures makes toward our attempt to understand prehistoric cultures in America. I merely wish to say that it seems to me a bit too much of a dichotomy. Further discussions along these lines would, I think, be profitable for many of us. Certainly we need more hybridization between the anthropological studies and botanical studies. I know that I have been considerably influenced by conversations with anthropologists.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

YALE UNIVERSITY  
DEPARTMENT OF ANTHROPOLOGY  
51 HILLHOUSE AVENUE

BOX 2174, YALE STATION  
NEW HAVEN, CONN., U.S.A.

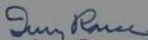
May 10, 1963

Mr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
Bronx 58, N. Y.

Dear Mr. Rogers:

Thank you for sending me a reprint of your recent article on cassava, which I have read with interest. I note that you do not cite the work by J. M. Cruxent and me in which we radio-carbon-date manioc (via griddles) at 1000 B.C. I am enclosing a copy of the first volume of our technical monograph on this subject. (See especially pp. 263 ff.) I am sorry I am unable to include the second volume, which contains the illustrations, but my supply is exhausted. The Yale Press is now publishing a semi-popular book of ours on the same subject.

Sincerely yours,

  
Irving Rouse  
Professor of Anthropology

IR:em  
encl.

May 23, 1963

Dr. William Reese  
Department of Biology  
University of Southwestern Louisiana  
Lafayette, Louisiana

Dear Bill:

I want to take this chance to thank you for very successful Manihot hunting. I enjoyed every bit of it. I particularly enjoyed the dinner at your home with Lorelle and the others.

John has all the specimens now being dried there at your place; and if you will ask him to send them up to me collect, I will be glad to pay the bill.

I am sorry that my name remembrance is so poor, but I can not even think of the name of the lady who was so kind as to invite us to her house for the shrimp boil. I must say that that was a most enjoyable experience, and I hope you will convey my thanks to the lady who was good enough to organize it.

Sincerely

DJR:MDF

May 23, 1963

Dr. Robert K. Godfrey  
Department of Biological Sciences  
Florida State University  
Tallahassee, Florida

Dear Bob:

I want to thank you and Neil for your very kind hospitality during my stay there. It was a real pleasure both to visit you and to get back into country that I grew up in. I can't remember a Sunday that I have enjoyed more than the one I spent just there just roaming about.

I was quite impressed with Dick Houk. I hope you can keep such students as he coming along. Personally, I hope his interest in quantitative taxonomy will grow. This is an area of great significance in my estimation, and I think it needs the addition of some bright young people in it.

Best regards to one and all at the department.

Sincerely

DJR:MDF

May 22, 1963

Dr. John W. Thieret  
Department of Biology  
University of Southwestern Louisiana  
Lafayette, Louisiana

Dear John:

I certainly had a successful trip and a most enjoyable visit with you and others. Perhaps the best part of it all was yours and Mildred's hospitality. I hope that I may be given a chance to reciprocate some time.

If you will, please tell Ira Nelson that I am looking up the information that he requested, and as soon as I can, I will forward it to him. Also, please tell him that we would be greatly indebted to him if he would send us one of the variegated *Manihot* plants that he has in his greenhouses.

Thanks for everything. It was a real pleasure to be there. Best regards to Dr. Graham and all.

Sincerely

DJR:MDF

UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 4

*The College*

*Division of Biology*  
BOTANICAL LABORATORY

May 20, 1963

Dear Dr. Rogers:

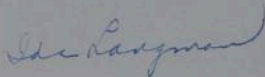
Thank you very much for your reprint on *Manihot esculenta*. I had already seen the article and am pleased to have a copy for myself.

I note that you have omitted the  
to  
reference ~~of~~ the MacNeish article in your bibliography, though he is quoted in your work. After I spoke to you about it (remember?) I did follow your indication that it was published by the American Philosophical Society and found the following which I imagine is the one you had in mind.

MacNeish, Richard

Preliminary archaeological investigations in the Sierra de Tamaulipas, Mexico. Trans. Amer. Philos. Soc. 48(6): 1-210, illus. 1958. Plant remains are discussed on p. 139-152.

Sincerely,



(over)

Unfortunately your article will not be included in the body of my bibliography. I have had to put the cut-off line at 1962. However, the habit being strong, I have accumulated a list of items published in 1963 so far and maybe I will be able to include an extra page of 1963 listings. That will be up to the editor. He already has 2/3 of the manuscript and so far I have been inserting items published through 1962 but that's the limit.

May 13, 1963

Dr. Edgar Anderson  
Missouri Botanical Garden  
2315 Tower Grove Avenue  
St. Louis 10, Missouri

Dear Andy:

Thanks for your comments on my paper. I have found particularly among the anthropologists and archaeologists that the ideas that I presented there match more with their findings and have had several people comment to the effect that they were glad that I was putting a new look to the beginnings of yuca cultivation.

I am sorry to hear of Mrs. Anderson's gout problem, but I am glad that things are much better for her now.

I have just been invited to spend a year as a consultant to the NSF. I have mixed feelings about taking a year off right at the moment when we are beginning to roll with our computer program. We are on the verge of getting some very exciting results, and I don't know that I want to take time off at the moment in such endeavors as NSF participates in, but it would be a good experience.

Sincerely

DJR:MDF

MISSOURI BOTANICAL GARDEN

"SHAW'S GARDEN"

2315 TOWER GROVE AVENUE  
ST. LOUIS 10, MISSOURI

May 7, 1963

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park, New York

Dear Dave:

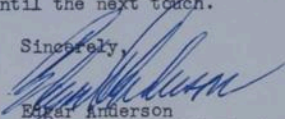
I have read and studied your recent separate on manihot since I missed the January Bulletin when it came in. The library does not circulate around with the staff the way it used to and it is hard for me to form a practical way of getting to look at it regularly.

Congratulations on the progress you have made. You are coming up with a new and logical idea which may and may not be right as you well know. Like all such ideas it will make us look at the old evidence in a new way and drive us to get new and more pointed evidence. This is all to the good whether your idea turns out to be right or wrong.

*ask Halstead  
for copy*  
In the current annual volume of Maize Genetics Cooperation Newsletter No. 37, there are over ten pages by Dr. Mangelsdorf and his colleagues, including nearly two pages of the wild maize from the Tehuacan Valley. It is fascinating stuff and, of course, keeps your new ideas from being considered as wild as they would have been a few years ago.

A month ago Dorothy had a touch of the gout. It was terribly painful for a few days but fortunately it was just a touch and has all gone away in so far as her ankle and her sensations are concerned. We hope it is a good long time until the next touch.

Sincerely,

  
Edgar Anderson  
Curator of Useful Plants

EA:fg

May 10, 1963

Dr. Betty J. Meggers  
Division of Archaeology  
U. S. National Museum  
Smithsonian Institution  
Washington 25, D. C.

Dear Dr. Meggers:

I appreciate your thoughtful comments on my paper on Manihot. I agree that I have not used all the possible archeological evidences, but as you can see, my thoughts are based on plant materials themselves.

I know that it is dangerous to speculate from present-day distributions of plant materials on what the climate, environment, and past distributions were like, and yet what other evidence of the plant material do we have? There is no fossil material of the plants, and there is good evidence that there was a more mesothermic period in Mexico at a time when people might begin to be interested in agriculture.

The beauty and at the same time the exasperation with Manihot is that there is such a wealth of potential wild material for the beginnings of cultivation of cultivated ones that one could think of any kind of evidence and twist it to one's desires.

I am very thankful to have your corroboration of my own suspicions about the earlier statements on the origins of Manihot, yet our only bases at the moment for considerations other than the earlier decisions about the origins are purely logical. We both know how illogical both plants and people are.

I look forward to your forthcoming publication, and you are indeed on my list for any other materials that may be forthcoming. I shall stick to Manihot for some time, as there is still much more information to be correlated on this one crop rather than going off to others with which I am less familiar.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

SMITHSONIAN INSTITUTION  
UNITED STATES NATIONAL MUSEUM  
WASHINGTON 25, D. C.

May 8, 1963

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park  
Bronx 58, N.Y.

Dear Dr. Rogers,

Thank you for the reprint of your article, "Studies of *Manihot esculenta* Cranz and related species", which I read with much interest. I recently speculated on the place of domestication of manioc from archeological evidence (most of which was unknown to you), and suggested that Colombia seemed to offer the best possibility, altho if I had known of your paper I would have agreed that Mesoamerica was a reasonable alternative. I have never been able to reconcile the theories pointing to eastern Brazil or the llanos of Venezuela with archeological evidence, and am glad to find you taking the same position.

The article mentioned above will appear in a few days as the concluding chapter in a series of papers on Cultural Development in Latin America, published in the Smithsonian Miscellaneous Collections. I will send you a copy of the volume, and hope that you will find it of interest.

Needless to add, I would appreciate receiving any future publications on the subject of manioc or the domestication of any other New World plants with which you may be working.

Sincerely yours,

*Betty J. Meggers*  
Betty J. Meggers  
Research Associate

May 10, 1963

Dr. A. C. Smith  
Smithsonian Institution  
Washington 25, D. C.

Dear Al:

Thanks for your thoughtful comments on my paper on Manihot esculenta. I do indeed intend to pursue a systematic analysis of the genus. I am in the process of working on that at the moment and have all of the herbarium material except that from Paris. For some reason, they have decided that they will not send their specimens to me.

I might say that we are going to subject the whole genus to analytical methods using the computer, and I hope this will not be too long in production.

Thanks again for your letters.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

UNITED STATES NATIONAL MUSEUM  
BUREAU OF AMERICAN ETHNOLOGY  
ASTROPHYSICAL OBSERVATORY  
NATIONAL AIR MUSEUM  
NATIONAL ZOOLOGICAL PARK



SMITHSONIAN INSTITUTION

Washington 25, D.C.  
U.S.A.

NATIONAL GALLERY OF ART  
NATIONAL COLLECTION OF FINE ARTS  
FREER GALLERY OF ART  
INTERNATIONAL EXCHANGE SERVICE  
CANAL ZONE BIOLOGICAL AREA

May 8, 1963

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

Thank you for sending me a reprint of your recent paper on Manihot esculenta. I have read this with a great deal of interest and I appreciate that it is an important contribution to our knowledge of the distribution and cultivation of the genus. I hope that you are continuing this work and that you will go ahead with a definitive review of the genus. Because of all the work you have done on the cultivated forms, you should be in a good position to give us a sound taxonomic summary.

*sent*  
Dr. Clifford Evans, of our Division of Archeology, Museum of Natural History, has worked a great deal with the Indians of Amazonia and Guiana, and I believe that he would be glad to have a reprint of your paper for his divisional library.

With best regards,

Cordially yours,

A. C. Smith  
Assistant Secretary

cc: Dr. Clifford Evans

May 7, 1963

Mr. John C. Lind  
New Julian Hotel  
Second and Monroe Street  
Corvallis, Oregon

Dear Mr. Lind:

In response to your letter of May 3 requesting information on the chemical analysis of Manihot utilissima, the enclosed analysis is supplied. It is taken from Agriculture Handbook No 34, "Composition of Foods Used in Far Eastern Countries," published by the Bureau of Home Nutrition and Home Economics of the U. S. Department of Agriculture. This handbook may be ordered from the Superintendent of Documents, U. S. Government Printing Office, price 30¢.

Also enclosed is a reprint of the analysis of the foliage of the plants in Jamaica which may be of interest to you. We also have a paper which is about ready for publication in the Journal of ECONOMIC BOTANY which gives detailed analyses of the amino acid of the proteins. This Journal is available in the library of Oregon State University in Corvallis. You will probably be seeing our publication in one of the forthcoming issues, probably September this year.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosures-2

COPY

Taken from Agriculture Handbook No. 34, U.S.D.A.  
March, 1952

Table 3--Composition of foods, 100 grams, edible  
portion, and as purchased

Cassava (Manihot esculenta): Meal and flour, E.P.

|                       |       |
|-----------------------|-------|
| Water, Pct.           | 11.9  |
| Food Energy, Cal.     | 360   |
| Protein, Gm.          | 1.6   |
| Fat, Gm.              | .6    |
| Carbohydrate          |       |
| Total, Gm.            | 84.6  |
| Fiber, Gm.            | 2.4   |
| Ash, Gm.              | 1.3   |
| Calcium, Mg.          | (82)  |
| Phosphorus, Mg.       | (132) |
| Iron, Mg.             | (1.9) |
| Vitamin A value, I.U. | ----  |
| Thiamine, Mg.         | .06   |
| Riboflavin, Mg.       | ----  |
| Niacin value, Mg.     | ----  |
| Ascorbic Acid, Mg.    | ----  |

May 3, 1963

Dear Dr. David Rogers:

I beg to say, I am introducing to you by your good friend, Dr. K. L. Chambers, Botany Department of Oregon State University, Corvallis, Oregon. For some informations, which I wish to have it from you is. I am interested a kind of POTATO, which grown in Thailand, under the scientific name (plant) MANIHOT, (speices) UTILISSIMA, however, I am attempted to have this kind of POTATO for making some of food products. If you mind to do me a favour and let know. What it is the analysis in chemical composition and composite of protein, etc. in this kind of POTATO PRODUCTS and also send me some of the literatures, which as written by you or by some one else. Actually, Dr. Chambers told me, that you are the only one as authority for this products in The United States of America. Therefore, I hope, that you are able to help me all of the informations in question, relation to the above with many, many thanks. I am,

Yours truly,

John C. Lind

My present address is as follows:

John C. Lind,

New Julian Hotel, Room 303, 2nd. & Monroe Street,  
(Corvallis) Corvallis, Oregon

May 2, 1963

Dear Dave:

Many thanks for the most interesting and useful reprint from the BullTorrBotClub. Have you seen Gertrude E. Dole's "Techniques of preparing manioc flour as a key to culture history in tropical South America"? It's on pp. 241-48 in Selected Papers of the 5th Internat. Congress of Anthropol & Ethnological Sciences ("Man and Cultures," ed. A.F.C. Wallace), Univ. of Penna. Press, [1960]. I suppose she'd send you a reprint. I don't entirely agree with her conclusions (I don't think modern distributions are as reliable indicators of history as she seems to think), but it is a useful compendium. Thanks again.

Bill

April 23, 1963

Dr. John W. Thieret  
Department of Biology  
University of Southwestern Louisiana  
Lafayette Louisiana

Dear John:

Thanks for your letter of the 15th. As we had originally talked, I was supposed to give some sort of a seminar or lecture down there. This would help me to justify the trip as well as to do some talking for taxonomy. I would like to talk about the problems of Manihot to either a seminar group in your biology department or to give a talk of a more general nature to the Sigma Xi group. Do I recall that this was part of our original idea?

I am sure we do not want to wait too late in the semester to give a seminar, and I wonder how we can get a date which is satisfactory to you and satisfactory to me. I am not asking for any kind of honorarium on this, inasmuch as the major purpose of the trip is for Manihot collecting and I will be able to justify expenses on that basis.

Let me know if we can get together for either a seminar with the biology group or a Sigma Xi group or any other group that you may think appropriate. Also, be quite honest in saying whether or not you want a seminar at all. One other possibility of a seminar topic that I have not mentioned is that I can talk about the use of computers in systematics and this might be interesting to a group broader than just the biology group. I leave this to your discretion.

At any rate, settle upon a date if possible which will meet your needs and mine. There are only a few dates in May that are not available to me, and we can probably adjust to fit the needs.

Sincerely

DJR:MDF



UNIVERSITY OF SOUTHWESTERN LOUISIANA

*Joel L. Fletcher, President*

LAFAYETTE, LOUISIANA

15 April 1963

Dear Dave,

Went on a Manihot observing field trip this weekend. The winter was rather unkind to our Manihot. Some were killed back right to the ground, but are now putting up fresh green shoots. Others are putting out shoots from quite a ways above the ground.

As I said before, people in the know seem to think that the plant will be flowering in about three weeks. They also seem to think that it stays in flower for about a month and a half to two months. They also tell me that the capsules, when ripe, open suddenly with a crack and spread the seeds widely.

plant-  
In the annual/distribution of the Louisiana Horticultural Society were specimens of a variegated Manihot that is grown for its foliage around here. Specimens of it have been put aside for you.

Talking with a horticulturist the other day. He seems to think that our Manihot came from Haiti with slaves way back when.

Sincerely yours,

*John*  
John A. Thieret

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE

U. S. Horticultural Field Station  
P. O. Box 150  
La Jolla, California

April 17, 1963

Dr. David J. Rogers  
Managing Editor, Economic Botany  
New York Botanical Garden  
New York 58, New York

Dear Dr. Rogers:

Thanks for your letter of April 11, 1963. I will be looking forward to receiving the cucurbit seed.

Your recent paper in the Bulletin of the Torrey Botanical Club on Manihot esculenta Crantz has been read with interest. When available I would like to receive a reprint. In connection with the association of pre-Columbian man with manihot, you may be interested in the attached reprint. Manihot is one of the main crop plants pictured on the Nazca embroidery. I am sure the site from which this embroidery was excavated has a radio-carbon dating, but I have not followed South American archaeology very closely in recent years.

With kindest regards, I am

Very sincerely yours,



Thomas W. Whitaker  
Geneticist

Enclosure

TWW:vw



UNIVERSITY OF SOUTHWESTERN LOUISIANA

*Joel L. Fletcher, President*

LAFAYETTE, LOUISIANA

April 10, 1963

Dr. David Rogers  
New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

I know I have been lax about divulging information on Manihot. Please, sir, forgive me.

Bill Reese seems to think the plant should be in bloom in about 3 weeks. It is just coming into leaf now. We too had a hard winter.

I'll scout around town to find some Manihot specimens \_\_\_\_\_ and, I'll keep you informed. Expect another letter in a few days. In case of emergency, I'll phone you collect.

Sincerely yours,

John W. Thieret

JWT:gp

MEMORANDUM  
2/4/63

TO: Dr. Maguire  
FROM: D. J. Rogers

Here is the list of my collecting work:

|                  |                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------|
| June-July, 1960  | Jamaica and Belem, Para, Brazil<br>Collection of cultivars for amino<br>acid analysis<br>Sponsored by UNICEF |
| Jan.-March, 1961 | Brazil from Sao Paulo north to Belem<br>Manihot studies, wild and cultivated<br>material<br>Sponsored by NSF |
| Jan.-Feb., 1962  | Bolivia, Peru, Brazil and Venezuela<br>Same objectives as 1961<br>Sponsored by NSF                           |

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
CROPS RESEARCH DIVISION  
BELTSVILLE, MARYLAND

January 31, 1963

Dr. D. J. Rogers  
New York Botanical Garden  
Bronx Park  
New York, New York

Dear Dave:

Under separate cover, I have sent to you a duplicate specimen of Ethiopian manioc which you may keep. It was, indeed, rather common at Tippi, and as I recall, I did see it around houses out in the bush several miles distant from Tippi. Undoubtedly, it would be found elsewhere in that general region. It is here that Coffea arabica is very common as a "wild" plant (it is cultivated intentionally and it occurs in out-of-the-way places in the forest). It is an area with at least 70 inches of rainfall distributed fairly regularly throughout the year, although records from there are lacking. I do have an eight year rainfall record from an area not too far away where the rainfall is 68 inches per annum. Be interested to have your opinion about my material, if for any reason it seems to deviate from the norm.

Sincerely yours,



Frederick G. Meyer  
Research Botanist  
New Crops Research Branch

Separate cover  
Specimen

January 14, 1963

Dr. Antonio Bacigalupo, Director  
Instituto General de Investigacion y  
Estudios Avanzados  
Universidad Agraria  
La Molina, Lima, Peru

Dear Dr. Bacigalupo:

Your Christmas card was very much appreciated, and I am prompted to write to tell you the present situation as far as I can see it.

I had lunch with Dr. Roberts just before Christmas and found only then that he had changed his plans and had not visited you there at La Molina. As soon as I found that he had not made a visit to you and therefore there would have been no opportunity for you to discuss with him the possible research projects on yuca, I made no further requests from him about the potentialities of a research program. Instead, I told him that when I had completed my taxonomic treatment of yuca would be the most opportune time to make a request from him for a more thorough going research in its productivity.

I was sorry to hear that he had changed his plans and had not seen you at Lima as had been planned earlier. We certainly do not want this endeavor to stop entirely, and I wonder if you would care to give me some sort of a statement of your interests and desires concerning yuca that I might present personally to Dr. Roberts.

I would be pleased to fit into the program in any way that you find advisable--as an advisor, as a consultant, as a participant in the program, or whatever seems most appropriate to your endeavors. If you would like to consider such a procedure, I will be pleased to help where I can.

Please accept my belated wishes for a very Happy New Year, and give my kindest regards to Alex Grobman and to Jorge Leon.

Sincerely

David J. Rogers  
Curator of Economic Botany

DJR:MDF

October 9, 1962

Dr. Antonio Bacigalupo, Director  
Instituto General de Investigacion y  
Estudios Avanzados  
Universidad Agraria  
La Molina, Lima, Peru

Dear Dr. Bacigalupo:

Thank you kindly for keeping me up to date with your various operations. I am very pleased to have your letter of September 28.

Just before Dr. Roberts left on his trip to see you, he called me and suggested that he would like to see me when he returns from that trip. This would be some time in December, I expect, and this seems to me to be an ideal opportunity to discuss the matter of yuca.

I am not sure what to say about the news that Dr. Ed A. Hein has shown interest in this project. I happen to have seen the work that Dr. Hein accomplished in Bolivia in setting up a yuca plant near Santa Cruz. To my way of thinking, this was one of the most poorly designed operations that I have had the misfortune to see. Here was a beautiful set of machinery set up but never brought to the point of operation. There were so many factors left undone in the operation both in terms of planting and in terms of operation that I wonder whether Dr. Hein is the man whom you want as an advisor on this project or not. I am seriously disturbed by our own failure to understand exactly the method of operations and the most important steps needed for the development of such work. I am primarily concerned with the fact that the last consideration in most of the American operations has been with the plant material itself, whereas indeed this should be the first. I trust that you will be able to evaluate Dr. Hein better than I can, but at the moment I have a fairly poor opinion of him.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

INSTITUTO GENERAL DE INVESTIGACION Y ESTUDIOS AVANZADOS  
UNIVERSIDAD AGRARIA  
LA MOLINA - LIMA - PERU

DIVISION DE ESTUDIOS AVANZADOS.

September 28, 1962.

Dr. David J. Rogers, Curator of  
Economic Botany  
The New York Botanical Garden  
Bronx Park  
New York 58  
New York

Dear Dr. Rogers:

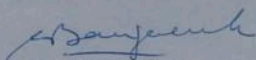
Thank you very much for your September 11th letter by which you let us know that you are eager to learn about the outcome of our discussion with the people from Rockefeller and to know what their opinions are concerning our program.

I have talked to Dr. León about your idea that it may be possible that you could talk to Dr. Roberts the vice-president of agricultural research, about our project on yuca. We are of the opinion that it may be better if the initiative came from us, and then, later on you could reinforce this initiative by talking to Dr. Roberts after we have talked to him. Dr. Roberts is coming to visit us during the middle of October and so right now we don't have anything new to tell you about this part of the project.

The other day I had the chance to talk with Dr. Ed. A. Hein, who is an agronomist and an industrial advisor to the United States AID Program in Peru; this gentleman was the man who developed a plant for the industrialization of yuca in Bolivia. He was very much interested to know about our project and he mentioned that he could cooperate in it. Dr. León got his name and is going to talk to him about the overall program that he has outlined.

The best of luck in your continuation with the research on the systematics of *Manihot* along the lines you mentioned to me while you were here in Lima. We also trust that we can look forward to an extended period of cooperation.

Sincerely yours,

  
Antonio Bacigalupo  
Director

The Museo Arqueologia Rafael Larco Herrera  
1515 Av. Bolivar - Puebla Libre,  
Lima Peru

Has several pots of coastal areas  
ca 2000 yrs old, with beautiful  
representations of yuca.



UNIVERSITY OF SOUTHWESTERN LOUISIANA

Joel L. Fletcher, President

LAFAYETTE, LOUISIANA

27 November 1962

Dear Dave,

One of these days I'll have to try to get the "d" on this machine repaired.

Yes, it sometimes causes me to wonder about some of the people who submit manuscripts of book reviews to me. Some folks even send the manuscripts in single-spaced! Usually I send the reviews right back for retyping.

What I think I'll do is this. I'll make up a "sample book review" somewhat less than a page long and send a copy of this to every reviewer to give him some idea of how we want reviews to be done.

Will be looking forward to having you visit down here when the Manihots bloom. Gee, what a poetic expression-- "When the Manihots bloom." Almost as good as "When the swallows come again."

There are on our campus several examples of a Manihot (I think it is the same as the commonly grown one here) that has beautifully variegated foliage. The plants I've seen are only about 6 or 7 feet tall, but they are surely striking in appearance. Have not noticed any flowers or fruits, though, on the ornamental.

Take a look in Clair Brown's Louisiana Trees and Shrubs, which is Louisiana Forestry Commission Bulletin No. 1 (1945), and see the pretty picture of our Cassava tree.

I'll do a bit of scouting around to see what I can find out about the Manihot here.

Maybe you'll consider staying with the Thierets when you come to Lafayette. I realize, of course, that you'll have plenty of money to stay in one of our fancy motels, but I suspect that you and I will have lots to talk about.

Sincerely

JOEL L. FLETCHER  
LE ROI DE LA RAYON

581.946.3  
B811

November 28, 1962

Dr. Theodor Binder  
Hospital Amazonico "Albert Schweitzer"  
Casilla 78  
Pucallpa, Peru

Dear Dr. Binder:

You will find enclosed several sheets of analyses of yuca that may be of assistance to you in your quest for information for your diabetic friend.

You will note that there are several types of analyses here, and they are included to give you some idea of the variations of yuca. I think that the included information will be satisfactory for your needs.

I appreciate the remembrance of yourself and your wife and of the others who were so kind to me while I was there. It is my hope to some day return to work there in the Pucallpa area, and you may be certain that when the time comes I will notify you of my coming.

Very sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosures

# HOSPITAL AMAZONICO "ALBERT SCHWEITZER"



PUCALLPA - CASILLA 78 - PERU

November 13, 1962

Dr. David J. Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park  
New York 58, N.Y.

Dear Dr. Rogers,

A friend of mine is considering to come to work here at the hospital with us. He is a diabetic on a diet. He would have to eat yucca instead of potatoes most of the time as they are staple food in our region.

I wonder if you would be kind enough to give me information on the approximate carbohydrate substance\* of our yucca. It would be extremely helpful.

We remember that you were talking of the possibility that you would have to come back for further studies of yucca in this region. Please let us know if this should come true and come to see us.

My wife and our staff members who know you want to be remembered to you.

With kindest personal regards

Sincerely yours,

*Theodor Binder*

Theodor Binder, M.D.

*\* and preferably the whole  
chemical composition*

B/sch



*Manihot*  
UNIVERSITY OF SOUTHWESTERN LOUISIANA

Joel L. Fletcher, President

LAFAYETTE, LOUISIANA

26 Nov., 1962

Dear Dave:

I am delighted that you are delighted with the little manihot seedlings. I hope that they grow well and become splendid vegetables, for the sake of manihotiology! You are certainly welcome to come down and I imagine that our Sigma Xi Club would be quite interested in having such a distinguished Botanist as yourself, for a guest lecturer; or if that proves too complicated to set up then I am quite sure that we can get up an enthusiastic audience of botanical and horticultural types. Maybe we can make out on both counts and of course I will let you know the details later on.

The local manihot will be blooming in great abundance probably in March and April; my best suggestion is that I should keep an eye on it and let you know a couple of weeks in advance, so that you can come down at the optimum time for flowering. Of course you will be welcome to stay with either me or John Thieret while you are here.

So, I am pleased at the prospect of having you come down here and you can be certain that we will do all we can to make your trip worthwhile.

With best wishes

*Bill*

IOWA STATE UNIVERSITY

of Science and Technology



AMES, IOWA

*Department of Botany and Plant Pathology*

October 11, 1962

Dr. Dave Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

The box of Manihot slides was received. I have selected about half a dozen of them to send off for duplication. As soon as they come back, I will return the complete set to you.

Many thanks for your kind help. Best personal regards.

Sincerely yours,

Duane Isely

DI:df

October 5, 1962

Dr. Duane Isely  
Department of Botany  
Iowa State University  
Ames, Iowa

Dear Duane:

Under separate cover I am sending via registered mail some of my Kodachromes of *Manihot* that you requested. I trust that you will be able to select from these those that fit your needs.

I have no need to tell you of the care necessary in keeping them and returning them at your earliest convenience.

Sincerely

DJR:MDF

September 11, 1962

Dr. Antonio Bacigalupo  
Universidad Agraria  
Apartado 456  
La Molina  
Lima, Peru

Dear Dr. Bacigalupo:

I am sorry that your letter of July 24 did not reach me before my departure on an extended vacation. I am very pleased to know of your projected endeavors for research, and I am particularly pleased to know that you have Dr. Jorge Leon working with you in this problem. Dr. Leon is one of my close personal friends and I am confident that his project will be a well considered one.

I am eager to know the outcome of your discussion with the people from Rockefeller and to know what their opinions are concerning your program. In the event that it is your desire for me to do so, I will take the matter up with Dr. Roberts, the vice-president of agricultural research, whom I have had the pleasure of meeting. However, I shall await your request that I do so.

Thanks again for keeping me acquainted with your endeavors. I assure you that I am continuing with the research of the systematics of Manihot along the lines I mentioned to you while there. I trust that we can look forward to an extended period of cooperation.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

*sent by air mail post card  
9/3/62*

July 24, 1962

Dr. Davis J. Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park, New York 58, New York  
U.S.A.

Dear Dr. Rogers:

Thank you very much for your June 27th letter with which you have included a very interesting bibliography about Manihot.

I have taken your letter to Dr. Jorge Leon, who is working for the Organization of American States here in La Molina assigned to the Zona Andina, and also to Dr. Orlando Olcese, Rector of our University. We have discussed with them the possibilities of the research project that you are proposing and they are certainly very much interested in the ideas that you are trying to develop as far as Manihot cultivation and utilization in Peru.

We would be very happy to write to the Rockefeller in connection to the program that you are proposing and even more we are very eager to develop a big project on the agriculture crops of the jungle. This is the general idea that we have had at the University for a number of years, and right now we are in the process of structuring our project on tropical agriculture for the next few years. In this project we hope to carry out the following programs:

1. A program on animal production.
2. A program on coffee production.
3. A program on cacao production.
4. A program on yuca production.

Since the people of the Rockefeller are going to come to visit us very soon, we also hope to have ready, in about a month, all the other projects, where we need assistance from the Rockefeller Foundation.

The Rector of our University has asked Dr. Leon to write a project on yuca, one phase of which is going to be, by all

Dr. Rogers

Page 2

means, the classification of the yuca varieties that we have in Peru. He is going to consider you as one of the cooperators in the developing of this activity.

We would appreciate your comments on these ideas that I have outlined, and if you still think that we should write to the Rockefeller very shortly, we will be very happy to do so.

We certainly enjoy your visit here in Lima, and we only hope that you can come and work with us on the development of our country.

Best regards,

  
Antonio Bacigalupo

AB tv

C.C.: Dr. O. Olcese

Ing. F. Accame

Dr. J. León

September 11, 1962

Dr. George Eiten  
Instituto de Botanica  
Caixa Postal 4005  
Sao Paulo, Brazil

Dear George:

Caroline Allen has just delivered the seeds which you thoughtfully sent with her for me. I have already planted these and hope we will get something from them.

In the meantime, it would be very helpful if you have made herbarium specimens of these to include them in the next shipment to The New York Botanical Garden.

I appreciate your continued interest in this work. Best regards to you and to Alcides and Beulah.

Sincerely

DJR:MDF

September 6, 1962

Dr. Rogers McVaugh  
Botanical Museum  
University of Michigan  
Ann Arbor, Michigan

Dear Rog:

Sorry your letter of August 3 came after my departure.

I would be very pleased to have the ten sheets of Manihot and one sheet of Stillingia for identification.

I expect that you are back at Ann Arbor now, or if not, that this letter will be marked to be forwarded to you.

Sincerely

DJR:MDF

## CHICAGO NATURAL HISTORY MUSEUM

FORMERLY FIELD MUSEUM OF NATURAL HISTORY  
ROOSEVELT ROAD AND LAKE SHORE DRIVE  
CHICAGO 5, ILLINOIS

August 3, 1962

Dr. David J. Rogers  
New York Botanical Garden  
New York 58, New York

Dear Dave:

As I am sure you know, the entire herbarium of Sessé and Mocino, assembled in tropical America before 1800, has been here in Chicago for some years, on loan from Madrid. Every specimen has been photographed, and now before returning the collection to Spain we are attempting to complete the work of determination that was begun by Mr. Paul C. Standley before his retirement.

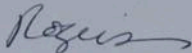
There are in the collection 10 sheets of *Manihot* that have never been properly named, and I wonder if you would be willing to undertake this for us? If so I will ask the Museum to send the material on loan as soon as possible.

A majority of the specimens in the herbarium came from Mexico, but perhaps a quarter of them came either from Cuba or from Puerto Rico, a few from Central America, and an occasional one from Texas, from coastal California or Baja California, and from as far north as Vancouver Island or beyond. This makes it difficult for one who does not specialize in a group to name the material in the absence of definite locality-data, and your expert opinion will be much appreciated if you can find time to look at this material within the next few months.

My own part in this is merely that of an expediter; I shall be here in Chicago for a few weeks only before returning to Ann Arbor.

With best regards,

Sincerely,



Rogers McVaugh

\* + 1 sheet of  
*Stillingia*!

ack. by post card 8/13/62  
Probably you had 1 so  
will visit until  
further word from  
you

August 14, 1962

Dr. C. Barle Smith, Jr.  
U.S.D.A., A.R.S.  
New Crops Research Branch  
Beltsville, Maryland

Dear Dr. Smith:

In your letter of August 1 to Dr. Rogers you offered to collect viable material of Manihot pauciflora when you return to Mexico late this month.

I forwarded a copy of your letter to Dr. Rogers in California, and I have just received a wire from him instructing me to send you import tags so that you can send him the Manihot material.

Accordingly, I am enclosing two tags and hope that these will reach you before your departure for Mexico.

Sincerely yours

Secretary to Dr. Rogers

MDF  
Enclosures-2

Send Smith Import  
TAGS GET FROM M. DAVIS  
TRIF FINE

DAVE  
42.07 J. Rogers.  
California

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
CROPS RESEARCH DIVISION  
BELTSVILLE, MARYLAND

August 1, 1962

Dr. David Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

The collections that I made of Manihot pauciflora are from the Tehuacán Valley, southeast of Mexico City. I will be back in the area again the last week in August. Have you any interest in viable material of this species? If so, please send me an import tag and I will be glad to do what I can to get material for you.

Sincerely yours,

*Smith*

C. Earle Smith, Jr.  
Botanist  
New Crops Research Branch

*copy sent to  
Shaw's file  
Aug. 3  
Schubert's by post card  
P/3*



July 20, 1962

Dr. C. Earle Smith, Jr.  
U.S.D.A., A.R.S.  
New Crops Research Branch  
Beltsville, Maryland

Dear Smitty:

Thanks for your letter of the 16th with the references on Manihot in Tamaulipas. I have read MacNeish's paper and find that the evidence included therein is a wee bit tenuous. I had a letter from MacNeish in which he states that the identification was made upon a single seed. Boy, he's got more courage than I have identifying not only genus but species of Euphorbs from a seed! Anyway, it is an indication in one direction.

I would like to know again the approximate area in Mexico where your work has been progressing and to know further whether you have made any more collections of M. pauciflora. I would be interested to see whatever material you have. Thanks again.

Sincerely

DJR:MDF

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
CROPS RESEARCH DIVISION  
BELTSVILLE, MARYLAND

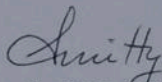
July 16, 1962

Dr. David J. Rogers  
The New York Botanical Garden  
New York 58, New York

Dear Dave:

At the Economic Botany meetings I remember you mentioning the occurrence of yuca in Northern Mexico. There was a reference to this in a paper by Larry Kaplan and MacNeish. The citation for this is Kaplan, L. and R. S. MacNeish. Prehistoric bean remains from caves in the Ocampo region of Tamaulipas, Mexico. Bot. Mus. Leaflet 19: 33-56. 1960. The mention of Manihot is on page 38 of this report. MacNeish makes several mentions of the plant in his paper on archeology of Tamaulipas, Mexico, more properly, Preliminary archeological investigations in Sierra de Tamaulipas, Mexico, published in Transactions of the American Philosophical Society, vol. 48 for 1958. Manihot is mentioned on page 140, 146 and in the table on page 148. I am sorry I have been so long in getting this information to you. It takes me a while to remember everything that I am supposed to remember.

Sincerely yours,



C. Earle Smith, Jr., Botanist  
New Crops Research Branch



Soil Conservation Service

September 6, 1962

Dr. Cesar Vargas C.  
Casilla 79  
Cuzco, Peru

Dear Dr. Vargas:

In further reply to your letter of August 16, I wish to advise you that I did receive your letter of June 26 and the copy of the pottery photograph. Thanks for sending it.

Incidentally, the original photographs that illustrate your article in ECONOMIC BOTANY (the issue will be off the press soon) are being returned to Dr. Schultes.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

August 22, 1962

Dr. Cesar Vargas C.  
Casilla 79  
Cuzco, Peru

Dear Dr. Vargas:

In Dr. Rogers' absence I wish to acknowledge your letter of August 16.

I can answer your question about your article which is to be published in ECONOMIC BOTANY. It will appear in the No. 2 issue for 1962 which is now in page proof and should be off the press within the next few weeks.

Concerning your letter of June 26 and the copy of the pottery photograph, I can only tell you that I do not recall that your letter arrived in this office. It is quite possible, however, that it may have arrived while I was on vacation. At any rate, Dr. Rogers will write you more about this when he returns around the middle of September.

Sincerely yours

Secretary to Dr. Rogers

MDF

B-35-62.

Dr. César Vargas C.,  
Casilla 79,  
Cuzco, Perú, August 16, 1962.

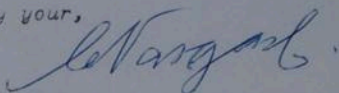
Dr. David Rogers,  
Managing Editor, Economic Botany,  
The New York Botanical Garden,  
Bronx Park, New York, N. Y., U. S. A.

Dear Dr. Rogers:

On June 26, I wrote you sending at meantime ~~just~~  
one copy of a photograph of the pottery reproduction  
of MANIHOT. I have no notices from you about  
this matter.

Also, I am awaiting from you some notices about  
my article to be published in the Journal of ECO-  
NOMIC BOTANY. Please give me your notices about  
this matter.

Very cordially your,



C. V. C.

Are attached photos to be  
sent <sup>sent</sup> to Vargas?  
^  
sent to Schubert

June 26, 1963

Dr. Cesar Vargas C.  
Casilla 79  
Cuzco, Peru

Dear Dr. Vargas:

I am very much interested in the specimens of Manihot which you have in your collection. The material from the Apurimac Basin should be very critical materials, and I would be very pleased to see them.

I was privileged to collect in Peru but did not have the opportunity to get into the same area where you have collected Manihot. This material will indeed be vital to the studies.

If there is any additional data describing the habitats of the Apurimac material that you have, I would very much like to receive them.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

B-22-63.

César Vargas Calderón,  
Casilla 79,  
Cuzco, Perú, June 20, 1963.

Dr. David J. Rogers,  
The New York Botanical Garden,  
Bronx Park,  
New York, N. Y., U. S. A.

Dear Dr. Rogers:

I have at hand your interesting article: Studies of *MANIHOT ESCULENTA* Grants. Many thanks for sending it.

I have in my Herbaria, (Herbario Vargas), some wild species of *Manihot*, from Apurimac Basin; perhaps would like to have them?. Please tell me about.

Cordially yours



C. V. C.

December 18, 1963

Dr. Cesar Vargas C.  
Casilla 79  
Cusco, Peru

Dear Dr. Vargas:

I should have acknowledged some time ago  
that the specimens that you sent arrived. One  
of them is a species that I do not recognize  
at the moment; the other is Manihot pavoniana.  
I am very pleased to have this material.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

Dr. César Vargas C., casilla 79,  
Cuzco, Perú Sept. 25, 1963.

Dr. David J. Rogers, Curator,  
The New York Botanical Garden,  
New York, N. Y., U. S. A.

Dear Dr. Rogers:

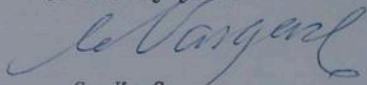
I have your letter Sept. 18, and the identifications of Manihot, sent to you some weeks ago. Yes, the specimens sent to you are for your herbarium.

Now I am glad to tell you, that I am sending for your herbaria, two number of Manihot, both are wild ones. So you may now the distribution of the Manihot species en South-Peru.

The package we sent by ordinary mail, so will take some weeks to arrive there.

Hoping to hear from you, I am

Cordially yours



C. V. C.

September 18, 1963

Dr. César Vargas C.  
Casilla 79  
Cuzco, Perú

Dear Dr. Vargas:

Thank you kindly for sending your specimens of Manihot.  
I have tentatively identified them as follows:

|       |                                      |
|-------|--------------------------------------|
| 11608 | <i>Manihot esculenta</i> Crantz      |
| 13197 | "                                    |
| 13473 | "                                    |
| 14335 | <i>Manihot pavoniana</i> Muell. Arg. |

I assume that these specimens are for our herbarium.

The No. 14335 is quite an interesting species. In addition to its distribution in Peru, I have found the thing in or near Santa Cruz, Bolivia. If you have any more notes on the geography and distribution of this species, I would be pleased to receive them.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF

June 28, 1963

Dr. Ralph W. Richardson, Jr.  
The Rockefeller Foundation  
111 West 50th Street  
New York 20, New York

Dear Dr. Richardson:

The enclosed request for assistance from  
The Rockefeller Foundation for travel in Mexico  
in connection with collections of Manihot is  
approved as an official function of The New York  
Botanical Garden, and the funds received will be  
accepted and administered by The New York Botanical  
Garden. This assistance is deeply appreciated.

Sincerely yours

Pierre Dansereau  
Assistant Director (Botany)

BD:MDF

## THE NEW YORK BOTANICAL GARDEN STATEMENT OF ACCOUNT

PAPER

| YOUR INVOICE NO. | OUR PURCHASE ORDER NO. | AMOUNT    | DEPT. OR PROJ. | EXPENSE ACCOUNT |
|------------------|------------------------|-----------|----------------|-----------------|
| X                | X                      | \$ 250.00 | 1042           | 00              |

DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

June 28, 1963

Dr. Ralph W. Richardson, Jr.  
The Rockefeller Foundation  
111 West 50th Street  
New York 20, New York

Dear Dr. Richardson:

Enclosed please find statement of my endeavors in accordance with our conversation yesterday. I trust that this proves satisfactory, and I definitely wish to thank you for your efforts on my behalf.

Sincerely yours

David J. Rogers  
Curator of Quantitative Taxonomy

DJR:MDF  
Enclosure

## Systematic Studies of the Cultivated Species Manihot esculenta

For the past ten years I have been involved with the taxonomy of the cultivars of Manihot esculenta (yuca, cassava, or manioc). These studies are intended to provide a basic background of information required for more practical types of endeavor in the areas of plant breeding and cultivation of this tropical lowland American crop. As in most cultivated plants, a large number of variations occur in the complex known as Manihot esculenta, but comparatively little scientific work has been done. The primary goal of my studies has been to determine the nature of the variability within the complex and to determine if possible something of the origin and relationship of the variations.

Because of the particular nature of the biology of flowering in the genus Manihot, it has become apparent that the sources of genetic material which have been incorporated in one or another of the cultivated varieties has been derived from species that is either native or adventive in a particular part of the distribution. The species of the genus are all obligately out-crossing species with few or no barriers to hybridization. This phenomenon enhances the opportunity for incorporation of different genes into the cultivars at varied points in time and place.

For a number of years the consensus of opinion was that Manihot esculenta was derived or first cultivated in eastern Brazil. From my own observations of this species in Brazil and other South American countries, and from studies made by archeo-ethno-botanists, it has become apparent that other geographic areas are as significant in the origin of the cultivars as Brazil, if not more so. The whole Mesoamerican complex of civilizations indicates an age greater than any known from eastern Brazil areas. Numbers of wild Manihot species occur in the Mesoamerican area. Manihot esculenta is a small part of the agricultural economy in Mesoamerica, increasing in importance as one moves toward the more tropical areas of Mexico, Guatemala, Honduras, and Nicaragua. It is important, therefore, that we now give more attention to the Mexican areas to determine something of the distribution of genetic materials within the genus Manihot in order to test the hypotheses of this area as a center of dispersal and origin of the complex.

Although botanists have made collections of the wild species of Manihot, information is still extremely fragmentary as to the nature of these species and the potential possibility of their providing genetic materials for the origins of the cultivated species. It is my intention to spend six weeks collecting materials in well documented localities and to determine the real frequency of occurrence of the cultivated species in relation to the wild species. To accomplish this, it is important to have transportation to localities of known importance that lie a bit

off of the main thoroughfares and to be able to reach these with the minimum of time between them. Although it would be possible to travel from center to center by bus, it is almost impossible to carry along in such conveyances all the necessary equipment for collecting, and of course it is difficult to stop between cities and towns. The type of collections that are to be made require more time than the usual collecting of a botanist. Much more detailed attention is applied to each of the species and plants, and in addition to the classical herbarium material, materials for cytological and chemical analyses are collected. It is my hope to spend about four weeks in the states to the west of Mexico City in both the more temperate higher altitude areas and those areas that grade down toward the Pacific Ocean--specifically in the states of Nayarit, Jalisco, Colima and Michoacan. It is also my intention to spend a few days in the areas near Vera Cruz where cultivars have been collected and are growing and a few days in the Yucatan Peninsula making observations and collections of the cultivars and wild species that occur contiguously in that area. If time permits, I would like to visit portions of the Isthmus of Tehuantepec.

Specifically, I would be much advanced in this work if sufficient funds, approximately \$250, could be granted to allay expenses of hiring a jeep from one of the car-rental agencies in Mexico for this purpose. Hertz International estimates costs for a jeep at \$45.00 per week, not including cost of gasoline. The \$250.00 would therefore allow about five weeks' rental, plus gasoline and insurance.

June 27, 1962

Dr. Antonio Bacigalupo, Director  
Instituto General de Investigacion y  
Estudios avanzados  
Universidad Agraria  
Apartado 456  
Lima, Peru

Dear Dr. Bacigalupo:

At long last I have made a partial bibliography along the lines that you requested during my visit there in the early part of February this year. I am sorry that it has taken so long to get this information together. It was only a question of finding the time to do so.

The bibliography is not complete but represents those that I suggest would be worth your reading. Furthermore, the literature is not up to date. I suspect that there are additional references that I have not located that might be significant in more recent years. These, however, will give you a start on the problems of yuca.

I have certainly not forgotten the fine reception that you gave me there. I was very pleased to work with you and with the others who so kindly helped me during my visit. I hope that there will some day be an opportunity to return and to do more adequate studies there.

In this connection, I have made one phone call to the assistant director for agriculture in the Rockefeller Foundation, Dr. Roberts. He indicated that, although Rockefeller has not yet become a specialist in tropical crops, he felt that there was certainly room for this type of study and hoped that we would be able to develop some sort of a program. I feel, however, that if the request for such a program were to come from you it would have a great deal better chance of becoming a reality than it would coming from me. It is difficult for the Rockefeller Foundation to understand that a norte Americano can know anything about tropical crops, and I suppose they have some justification in this respect. However, perhaps with an encouraging word from you, I could be of some use in convincing the Rockefeller people of the value of a through investigation and developmental program for yuca.

Very sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

*This compilation made for Dr.  
Antonio Barigalupo, & Molina, Peru-*  
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June 28, 1962

Dr. Edgar Anderson  
Missouri Botanical Gardens  
2315 Tower Grove Avenue  
St. Louis, Missouri

Dear Andy:

We hope to be able to get away from here one day earlier. We should be able to leave on Tuesday, July 31, and be in St. Louis on Wednesday, the first of August. Is this too late for you?

If this is too late, then we will have to see if I can't delay until the symposium in October inasmuch as Bob Dressler has asked me to chair one of the sessions.

I would appreciate it if you would tell Hugh Cutler that I would like to see him for a few minutes on the first of August.

Sincerely

DJR:MDP

MISSOURI BOTANICAL GARDEN

"SHAW'S GARDEN"

2315 TOWER GROVE AVENUE  
ST. LOUIS 10, MISSOURI

June 18, 1962

Dr. David J. Rogers  
Curator of Economic Botany  
New York Botanical Garden  
Bronx Park  
New York 58, New York

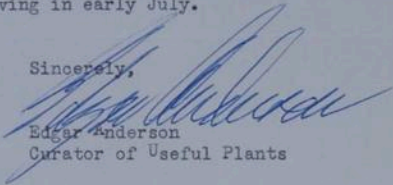
Dear Dave:

I got hold of your letter of June 15 just as I sat down to dictate and I read your letter but not your paper. We would certainly like to see you and there is a lot of room one place or another in our house including an apartment in the basement and no commitments for it as yet. The only catch is that I am teaching in a Summer Institute at Chapel Hill, North Carolina, which begins on the 6th and I would like to drive east with my wife in a leisurely fashion. Could you possibly make it a day or two sooner? I certainly want to talk over with you what you have been finding out about Manihot.

The January-March number of Economic Botany has just come in. You certainly managed to cover wide fields to get hold of some first-rate papers and produce meaty and quite timely book reviews. How you manage it I can't imagine. I shall expect to see more gray hairs when you turn up here in August.

By what route are you coming West? We might possibly meet you at some pleasant place in between. I am asking my secretary to get in touch with Hugh Cutler and find out for you when he is planning to come back from the West. I know he is leaving in early July.

Sincerely,



Edgar Anderson  
Curator of Useful Plants

EA:fg

Dr. Cutler expects to leave St. Louis about July 2nd and should be back here about July 24th.

FG

June 26, 1962

Ing. Agron. Adolfo Salazar C.  
Coordinador General  
Servicio Forestal y de Caza  
Edificio Ministerio de Trabajo  
7º Piso, Av. Salaverry  
Lima, Peru

Dear Adolfo:

We are pleased to know of your interest in  
subscribing to ECONOMIC BOTANY. We are enclosing  
herewith the standard invoice for the subscription  
price. Upon receipt of a check from the Forest  
Service, we shall commence your subscription with  
the first issue of 1962.

Sincerely yours

David J. Rogers  
Managing Editor  
ECONOMIC BOTANY

DJR:MDF  
Enclosure



SERVICIO FORESTAL Y DE CAZA

Edificio Ministerio de Trabajo 7° Piso - Av. Salaverry - Lima, Perú

Teléfonos: 36440 - 27 - 30  
40255 - 39

Dirección Cablegráfica:  
SERVICIO FORESTAL

June 20, 1962

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park, New York 58  
New York, U.S.A.

Dear Mr. Rogers:

After a trip to Tingo María and Pucallpa I had the pleasure of finding a letter of you of May 25, and the "color fan", it is very useful for us, for which I am recognised.

It was also a great pleasure for us to cooperate with you and we will continue doing it whenever you need it. We are sure that the study of the Taxonomy of the genus Manihot, in which you are working, will be of great help for the Science and our productive countries.

In a near future we will send you some herbarium specimens in accordance to your kindly promise to help us in the identification of the trees of Peru.

The Forest Service is interested in obtaining the subscription of the bulletin "Economic Botany" for which we would appreciate very much you let us know how we can get it.

As soon as I will know the approbation of my fellowship I will inform you the date of my trip to the U.S.

Sincerely yours,

Adolfo Salazar C.  
Coordinador General

June 23, 1962

Dr. R. S. MacNeish  
National Museum of Canada  
Ottawa, Ontario  
Canada

Dear Dr. MacNeish:

Thank you kindly for your advice and comments on Manihot.

I am quite interested in the fact that you have differentiated between Manihot dulcis and Manihot esculenta. These two are, to my way of thinking, synonymous.

So far in my collection of specimens (and I have collections from most of the major herbaria), I have failed to turn up a wild Manihot species from Tamaulipas.

I will follow through with the suggestions that you made and see the specimens that Dressler has.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF



CANADA

OUR FILE NO.  
YOUR FILE NO.

DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

NATIONAL MUSEUM OF CANADA

HUMAN HISTORY BRANCH

Ottawa, June 18, 1962.

Mr. David J. Rogers,  
Curator of Economic Botany,  
New York Botanical Garden,  
Bronx Park,  
New York 58, N. Y.

Dear Mr. Rogers:

I just got back from digging up more vegetable remains further south in Mexico and am sorry to say that our identifications have not progressed far enough to say whether we have any *Manihot* in southern Puebla or not, but will keep you in mind when the identifications get finished.

Now as to the Sierra de Tamaulipas specimens. The collection that C. Earle Smith identified is in the Botanical Museum of Harvard and Drs. Galinat or Mangelsdorf are in a better position to tell you where it is than I. I also would like to add that since I worked in the Sierra de Tamaulipas, we dug a series of caves in Southwest Tamaulipas near Ocampo and *Manihot* remains were found there. The basic specimens for this identification are in the hands of Dr. Dressler at the Missouri Botanical Gardens and, although I have not heard from him for quite some time, he might be in a position to send you some of the specimens or discuss his identifications. I also would suggest that you write to the Botanical Museum of Harvard for one of their Leaflets, Volume 17 by Mangelsdorf, Galinat and myself as I have none left.

Now as to my limited knowledge of *Manihot*. As far as I can see from our digging in Tamaulipas, the roots were not used as food, but rather the nut-like seeds and leaves. In the Sierra de Tamaulipas the *Manihot* does not seem to have been used until just before the time of culture in the Laguna cultural phase and here our evidence is a single seed. In Southwest Tamaulipas the picture is somewhat different. Here there were some leaves and nuts as early as the Flapco culture at 2000 B.C. and Dressler may have some evidence that it was used even earlier. The best evidence that it was actually used as food, however, comes from much later in our San Lorenzo and San Antonio periods between

*Seeds*  
A.D. 700 and 900. Here we have both pieces of seeds and many pieces of leaves in human *fetus*. All these Manihot specimens seem to be Manihot dulcis rather than Manihot esculenta. Thus, my present feelings on the matter are that Manihot esculenta was probably domesticated further south in the tropics and is relatively unconnected with our materials in Tamaulipas. Further, this southern domestication resulted in the use of the root as a food staple. In Tamaulipas we are dealing with Manihot dulcis, a completely different specimen and I believe here it was probably not domesticated but collected as just another wild food plant.

*the people among*  
Our researches on foods of Tamaulipas show that almost all periods, even corn agriculture, collected and ate a large amount of wild plant stuffs. In fact, the archaeological evidence would seem to show that they were pretty hungry and ate any plant that they could get their hands on. One of these plants was Manihot dulcis which they ate right along with the various desert plants and nuts and berries.

Sorry I cannot be more helpful to you in your quest for the origin and spread of Manihot, but perhaps, what I have put down will be helpful in some small way.

Yours sincerely,

*R. S. MacNeish*  
R. S. MacNeish, Chief,  
Archaeology Section.

/cp

June 25, 1962

Dr. Robert L. Dressler  
Missouri Botanical Garden  
2315 Tower Grove Avenue  
St. Louis 10, Missouri

Dear Bob:

I will be glad to accept the chairmanship of the botanical section of the symposium. Let me know what I can do to help out.

I just had a letter from MacNeish the other day saying that you had some materials of Manihot that he had dug out of a cave in Tamau-lipas. What are the chances of letting me see these materials? If possible, I would like to take a glance at them.

Best wishes.

DJR:MDF

MISSOURI BOTANICAL GARDEN

"SHAW'S GARDEN"

2315 TOWER GROVE AVENUE  
ST. LOUIS 10, MISSOURI

June 22, 1962

Dr. David J. Rogers  
New York Botanical Garden  
Bronx Park  
New York 58, N. Y.

Dear Dave:

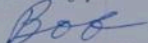
I had been meaning to write you when your letter arrived, but that was a very busy time, and I didn't get to it as soon as I wanted to.

I certainly would like to have you take part in our "Quantitative Systematics" symposium. In fact, I was wondering if you would be botanical chairman. I did chat with Sokal last month when he was here, and I have the panel pretty well drawn up in my own mind, but I haven't yet written some of the people. Sokal will give a paper, as will Jim Duke. There is a possibility that Sneath will be in the country then, but we can't count on him yet.

I am writing the other possible participants now, and should have a more complete panel in a few weeks.

Please let me know if you'd be willing to be the botanical chairman (we would pay your expenses, of course), and I'll keep you posted as the panel develops.

Sincerely,

  
Robert L. Dressler

June 25, 1962

Mr. Ladislaus Cutak  
Missouri Botanical Garden  
2315 Tower Grove Avenue  
St. Louis 10, Missouri

Dear Lad:

Thanks for your letter of the 22nd on *Manihot*. I will be pleased to have the root cutting of the variegated one. I think that I recall seeing something in the bulletin by Pring on the variegated form.

Would you send me some cuttings of the typical green form? I hope we get people here to root them, although I don't think they have the same capacity here for such as you have there. I shouldn't say this really, but let me have the cuttings anyway.

Sincerely

DJR:MDF

MISSOURI BOTANICAL GARDEN

"SHAW'S GARDEN"

2315 TOWER GROVE AVENUE

ST. LOUIS 10, MISSOURI

PERSPECT 6-5567

Dr. David Rogers  
New York Botanical Garden  
Bronx Park, New York 58, N.Y.

June 22, 1962

Dear Dave :

With so much to do around here I don't get too much time for corresponding anymore, hence I'm usually tardy answering mail.

The plant we have parading around as MANIHOT UTILISSIMA or M. ESCULENTA has been in our possession since 1904. Of course there are many generations removed from that original one. The seed came from Haage & Schmidt of Erfurt, Germany. The variegated forms, I think, were originally gotten from England thru Mr. Fring, perhaps 20 years ago. Right now I'd have to do some digging to find their origination. Our files are not up to date at present, although we are trying to re-establish them. The variegated one is rather difficult to root and our plants are not in too good condition at the present, so I will have Mr. Kohl root some and send them to you later in the season. The typical green form used to flower and fruit regularly in the old Economic House and seedlings sprouted everywhere. I saved only one plant for the Climatron which hasn't flowered as far as I know. If you think you can root them yourself I'll be glad to ship you cuttings. I never did try to root the green form as it became weedy in the old range, and there was no need to grow it from cuttings. Let me know what you desire immediately.

I'm scheduled to go to Costa Rica next month for three weeks.

Very sincerely,

*Lad*  
Ladislav Cutak

SMITHSONIAN INSTITUTION  
BUREAU OF AMERICAN ETHNOLOGY  
WASHINGTON 25, D. C.

June 22, 1962

Dr David J. Rogers  
New York Botanical Garden  
Bronx Park  
N.Y. 58, N.Y.

Dear Dave,

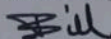
I'm glad to hear that you were satisfied with the specimens--an ethnologist is capable of preparing proper herbarium specimens (or ought to be; I'll admit I took a bit more care with the manioc than with most of the others).

Use: The Seminoles boil the root "like a potato", without scraping off the rind--both "kinds" ('red' and 'white') are treated thus--and then eat it. There is a vague tradition that at one time "flour" was made from the root, but nothing is remembered as to the techniques for so doing. I heard nothing about eating the leaves; as far as I can tell in a rapid search of my notes, I did not ask specifically about this.

I will be pleased at whatever you can tell me about the variety/varieties represented by the specimens. Eventually, I will want to know in detail--when I get around to writing up my material on Seminole agriculture and plant use.

I presume by this time you've received my Taino reprint--sorry I neglected to send you one when it first came out.

Sincerely,



William C. Sturtevant

June 20, 1962

Ing. Agron. Angel Marzocca  
Instituto de Botanica Agricola  
Araoz 2875  
Buenos Aires, Argentina

Dear Sir:

In a separate package I am sending three herbarium specimens of Platanus occidentalis L. Unfortunately, these specimens are sterile. When I am able to collect some fruiting specimens, I shall send them to you. Thank you again for your very kind assistance with the collections of Manihot.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MTF

June 14, 1962

Ing. Agron. Angel Marzocca  
Instituto de Botanica Agricola  
Araoz 2875  
Buenos Aires, Argentina

Dear Sir:

I was very pleased to receiving from you the cuttings and the seeds of Manihot flabellifolia.

According to your request, I am enclosing the Index Seminum of The New York Botanical Garden.

At the moment I am preparing a herbarium specimen of Platanus occidentalis which, as soon as it is ready, will also be sent to you.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosure



REPÚBLICA ARGENTINA  
SECRETARÍA DE AGRICULTURA Y GANADERÍA  
—  
I. N. T. A.  
INSTITUTO DE BOTÁNICA AGRÍCOLA  
—  
ARAOZ 2875  
●

Buenos Aires, junio 6 de 1962

Mr. David J. Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park - New York 58  
NEW YORK - U.S.A.

De mi mayor consideración:

Tengo el agrado de dirigirme a Ud. con el propósito de contestar su atenta carta del 29 de mayo ppdo., e informarle lo siguiente:

Por vía aérea envío a Ud. un paquete con estacas de Manihot flabellifolia Pohl (M. tweediana Muell. Arg.), provisto del certificado fitosanitario que Ud. acompaña para facilitar su introducción.

Dentro de la encomienda acompaño una muestra de semillas de dicha especie, ya que se trata de una planta de muy rápido crecimiento y que Ud. podrá observarla para los fines solicitados.

Desearía de su amabilidad y en calidad de intercambio, si fuera posible remitirme, un ejemplar de herbario de Platanus occidentalis L. y vuestro "Index Seminum", si es que ese Jardín Botánico lo edita.

Por correo separado también enviamos a Ud. nuestro "Index Seminum" 1962.

Con tal motivo saludo a Ud. muy atentamente.



ING. AARON ANGEL MARZOCCA  
M. D. DIRECCIÓN DE INSTITUTO DE BOTÁNICA AGRÍCOLA

June 15, 1962

Dr. Edgar Anderson  
Missouri Botanical Garden  
2315 Tower Grove Avenue  
St. Louis, Missouri

Dear Andy:

Enclosed is a carbon of the talk that I will give tomorrow at the meeting of the Society for Economic Botany. I have not indicated in the paper where the figures are, but there will be twelve Kodachromes to illustrate various points. The emphasis that I placed here on Mexico makes it important that I make a collecting trip there to see the material. I had thought that my field work was completed with the past trip to Bolivia and Peru, but the findings that I made in those two countries make me feel that they were definitely not particularly in the main stream of Yuca culture.

This coming August I am going to take the whole family and drive across country to the meetings at Corvallis. On the way we would like very much to stop in St. Louis to see you and perhaps even camp out over night in the grounds or in whatever facilities you have for visiting firemen. While there, I would very much like to go over with you the findings that I presently have for your criticisms and at the same time to show you some of the slides that I have.

We will probably be there on or about Thursday night, August 2, and would leave the next day some time. I hope this is convenient and that you will be there. I would also like to talk to Hugh Cutler about this paper.

Sincerely

DJR:MDF  
Enclosure

June 13, 1962

Dr. R. S. MacNeish  
National Museum of Canada  
Ottawa, Ontario  
Canada

Dear Dr. MacNeish:

I have read with great interest your paper in The Transactions of the American Philosophical Society for 1958 on the preliminary archaeological investigations in the Sierra de Tamaulipas. My research centers about the systematics of Manihot esculenta, and your mention of finding seed and leaf remains in the caves is quite interesting.

If at all possible, I would be pleased to examine the specimens upon which you base this identification and to compare them with the present day cultivated races (if any) from that vicinity. I would like to know if you have any further information as to the cultivation of Manihot by the peoples of this region. If there are any indications of vegetable remains of the roots of this plant, it would be most exciting.

Further, I would like to have a reprint of your paper published in The Botanical Museum Leaflets, Volume 17, with Mangelsdorf and Galinat.

The evidence that you present is helping to build up my own ideas that perhaps one of the centers of origin of Manihot is Mexico, although I would have assumed that the most likely places would be further to the south and perhaps to the west. Any comments that you care to make in this connection would be greatly appreciated.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

June 19, 1962

Dr. William C. Sturtevant  
American Bureau of Ethnology  
Smithsonian Institution  
Washington, D. C.

Dear Bill:

I have just had a chance to look at the specimens you gave me last Saturday. They are excellent and as well prepared as anything I have ever seen.

Naturally, we always want a little more information. Did you by chance note how the Seminoles prepared the root? Is it just boiled and eaten as a vegetable or do they go to any more complexities to prepare it?

I have checked through my cards on reprints and will admit that they are far from complete. I did not find reference to your paper. Would you send me one?

Sincerely

DJR:MDF

June 8, 1962

Mr. V. C. R. Henry  
P. O. Box 97  
Macdonald College  
P.Q., Canada

Dear Mr. Henry:

I expect to be here between the 21st and 27th of June and will expect your call some time during that period. We are usually in the office between 9 and 5, Monday through Friday.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

P.O. Box 71

Macdonald College  
Province of Quebec  
Canada

June 6, 1962

Dear Dr. Rogers

You will probably remember that I visited you at the New York Botanical Garden last December (around Christmas).

During this visit which took place because of our interest in cassava, you were kind enough to offer me encouragement my plan to do research aimed at improving this crop plant. As you no doubt recall, I work as an Agronomist with the government of Tr in the West Indies and am registered as student with Macdonald College of McGill University here in Canada. I have just completed the 2nd. Year toward the Ph.D. degree. I am returning to Trinidad in 3 or 4 ~~the~~ weeks and I hope, as soon as I get there to initiate studies on the cassava plant which, I hope, will provide me eventually with enough data and material for a Ph.D. thesis.

My interest in cassava extends beyond these academic considerations, however. In my job as an Agronomist I am involved in foodcrop improvement and I believe that cassava can be an important source of food in Trinidad and many other tropical countries.

I expect to be in New York about 21st. to 27th. June (on my way to Trinidad) and I wondered whether I could visit you again at the New York Botanical Gardens at that time. With a crop like cassava for which so ~~many~~

NO ENCLOSURE PERMITTED — NE RIEN INSÉRER

V.C.R. Henry  
P.O. Box 97  
McMaster College  
C.P., Canada

SENDER'S NAME AND ADDRESS — NOM ET ADRESSE DE L'ÉMETTEUR

SECOND FOLD HERE — PLIER ENCORE ICI

AÉROGRAMME

AIR  
MAIL  
PAR  
AVION

CANADA

10c

POSTAGE POSTES



TO OPEN HERE — POUR OUVRIRE, COUPER ICI

FIRST FOLD HERE — PLIER D'ABORD ICI

little botanical information is available; it is not always easy to select the areas in which research is likely to yield useful results. and I am sure that any of your impressions or suggestions in this connection would be most helpful. Also, I am interested in getting some idea of the range of variability for certain agronomic characteristics in known material and have in mind requesting your permission to look at your collection in Jamaica which I shall visit, if you think it desirable, before returning to Trinidad.

I trust that your recent visit to South America (which you were getting ready for when I came to the Botanical Garden) was both interesting and profitable.

I shall telephone your office when I arrive in New York

Yours Sincerely

V.C.R. Henry

V.C.R. HENRY

May 31, 1962

Memo to: Dr. Maguire

From: D.J. Rogers

Subject: Manihot specimens from South American Herbaria

1. On your forth-coming visit to various herbaria in Brazil, will you please check the following:

1. Rio--Museu National, asking for the loan of all their material of Manihot.
2. Salvador, Bahia--Instituto Biologico, for possibility of specimens collected either by Ule or by Zehntner. If they have any of this genus by either collector, please arrange for a loan.
3. Dois Irmãos, Recife--Instituto de Pesquisas Agronomicas. Head curator: Dardano de Andrade Lima. I would be pleased to have all his specimens of Manihot. As I recall, there were no collections of either Ule or of Zehntner there, nor any other historical collections, but a fairly good set of specimens of more recent times.
4. Fortaleza--Escola de Agronomia do Ceará. Any collections from NE Brazil.

May 25, 1962

Mr. Lad Outak  
The Missouri Botanical Garden  
2315 Tower Grove Ave.,  
St. Louis 10, MO.

Dear Lad:

For some time now I've been meaning to write to beg some cuttings of your Manihot that's growing in the climatron. I think I remember seeing two kinds, one variegated, the other labelled as *M. utilisima*, or *M. esculenta*.

We have had several attempts made at growing some of the cultivars of *M. esculenta* here in our greenhouse without too much success. The ones we started with came from Trinidad, and they're about as unhappy as you can imagine.

I took a short look at your *M. esculenta* there in the climatron last October, and have the sneaky feeling that we're dealing with a closely related species to *M. esculenta*, namely *M. tweediana* which comes from northern Argentina and extreme southern Brazil. This might be the reason you're getting good growth--the plants came from a climatic and insolation region much more similar to our own than the things we have from Trinidad.

At least I'd like to have a try at this explanation, and it would be a lot better if I had the living material. Besides, that variegated one is quite a handsome plant. If you can spare some of these I'd certainly appreciate them. Let me know if and when you send the material.

Give my best regards to one and all at the Garden.

Sincerely,

David J. Rogers

May 29, 1962

Dr. Arturo Ragonese  
Instituto de Botanica del M.A.G.N.  
Araoz 2875  
Buenos Aires, Argentina

Dear Dr. Ragonese:

Upon the recommendation of Dr. Elsa O'Donnell I am writing to you for assistance. For some time I have been interested in the systematic studies of the genus Manihot (Euphorbiaceae). A very interesting problem has developed, and I would like to have some living plant material of the species Manihot tweediana.

I believe that this species occurs in the vicinity of Buenos Aires; and if you have any living material from which you could make cuttings, I would be most pleased to receive them. I am enclosing a plant quarantine inspection sticker in the event that you have the opportunity of sending living material. I will be more than glad to meet the expenses necessary for the collection and mailing of this material. If the labor of some of your assistants is required, I shall be glad to meet that cost too. If you will notify me of the costs involved, I will immediately reimburse you. It would no doubt be best if the material were sent by air express.

The problem and the reason for this request is that we have naturalized in the southern part of the U. S. a species of Manihot which I consider to be most closely related to Manihot tweediana, although in this country it has been usually considered to be the cultivated Manihot esculenta. I feel that our climate is such that the cultivated Manihot esculenta would not be able to survive, but I feel that some time in the past someone has made an introduction of Manihot tweediana and these are the plants that are now growing wild in Florida, Louisiana, and Texas.

I shall be very pleased if you are successful in getting such material for me.

Very sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

Enclosure

May 25, 1962

Dr. Gaston Bejarano B.  
Proyecto de Desarrollo del Alto Beni  
C. B. F. USOM  
Casilla Correo No. 1124  
La Paz, Bolivia

Dear Gaston:

I was very pleased to receive your letter of April 4 and to hear of your activities. I noticed that you had expected to go to Chapare. I wonder if while you visited Chapare you had seen any yucas in that vicinity. That seems to have been one locality that I had hoped to visit that I did not get to but in which there is some interesting materials.

If you have an opportunity while in Cochabamba, you might be interested in paying a visit to Mr. Steinbach and his son who have done a number of interesting collections in various parts of Bolivia. They were making a collaborative collection of various wild plants for The New York Botanical Garden, but that project seems to have been stopped. Their major difficulty was an insufficient source of money.

The remaining portions of my trip were mixed success and failure. I did not have an opportunity to visit some of the localities that I had hoped to visit in Peru because the airline transportation at that time of year failed to go when I could go. However, in Brazil I was very kindly received by the assistant to Dr. Batista, although Dr. Batista himself was still in Rio. I am very sorry that I did not have an opportunity to see Dr. Batista there. As I arrived in Manaus on Friday afternoon and was only there for the full day Saturday and left again early Sunday morning, I did not have an opportunity to visit the Instituto. I was very sorry to have missed this opportunity, but I had to make the most use of my time in the collection of yuca.

After leaving Manaus I stopped shortly at Belem and then went directly to Caracas. You really should visit Caracas to see their Instituto Botanico. This is a very active group, and the people there are extremely cordial. I am sure you would find a good reception were you to visit there some time. Caracas

Dr. Gaston Bejarano

-2-

May 25, 1962

is a lovely city, and it is well worth the time to see some of the cultural institutions they have there.

I trust that you are having more luck in getting the money for you development in the Alto Beni, and if there is anything I can help with, please do not fail to mention it. Please remember me to your wife and give my best regards to the others there in La Paz.

Very sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

## PROYECTO DE DESARROLLO DEL ALTO BENI

C. B. F. — USOM

CASILLA CORREO No. 1124  
LA PAZ - BOLIVIADIRECCION TELEGRAFICA  
"CORFOMENTO"

April.4.1962

Dr. David J. Rogers  
 Curator of Economic Botany  
 The New York Botanical Garden  
 New York, USA

Dear Dave:

I received your most pleasant letter from March 7 on the date that is because I did not return from the jungle until the date, except some hours during the middle March.

I am still with the boy scouts of colonization, with great troubles with the Proyecto who needs my work on the regular staff, on Friday I expect to go to the Chapare (Cochabamba) for a couple of weeks.

The same day you were living (January the 29, at 3 pm) I was in the middle of the most incredible bunch of wild manihot, all kinds and shapes, just thinking in you, it is a place in front of the Coroico river near Caranavi. I expect to send you some material as soon as possible. I have marked the place, it is exactly what you would dream with.

I will try to prepare the complete information of the two specimens I send you, the generals may be: Both plant were close together they were near a place of ancient cultivars destroyed by the river. No 115 was very tall 3 mts more or less and 116 was smaller 2 mts. they were in the middle of a bunch of tertiary vegetation and there for I was not able to study the branching I will do it as soon as I return to the place, it is near Caranavi at the end of the air strip close to the border of Coroico river.

You did not told me nothing about the rest of your trip and specially your Brazilian experience, I received letter from Dr. Batista offering me more money and telling me that he was at Rio but preparing trip to Manaus in order to meet you.

How were all things at Riberalta, my spirit was all the time with you.

Sorry, think I don't have more time now, I send you two letters that arrived for you, please tell me if you got your letters from the embassy.

My best regards to your wife and children and my great  
 friendship from:

May 25, 1962

Ing. Adolpho Salazar  
Servicio Forestal  
Lima, Peru

Dear Adolpho:

Enclosed you will find one of the color fans in which you showed some interest. I have already sent one of these color fans to Ing. Gutierrez at the Servicio Forestal in Tingo Maria.

It was a pleasure to work with you and your assistants, and I certainly do appreciate all the assistance that you gave me while I was there in Peru. I am hoping that I will be able to make up a decent taxonomy for the genus Manihot and for the cultivated species Manihot esculenta (yuca) as a result of this collaboration. We are proceeding at the moment to get our materials into good order and will soon be able to start work intensively on the monographic analysis.

I am still interested in knowing whether it is possible to receive from you in the Servicio specimens of the fine materials that you and your assistants are collecting in the various parts of Peru. I think that we would be able to give you some assistance on the identification of these, and we would be very pleased to see them.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosure

May 25, 1962

Dr. Alexander Grobman  
Servicio de Investigacion y Promocion Agraria  
Edificio Ministerio de Trabajo 10° Piso  
Av. Salaverry  
Lima, Peru

Dear Alex:

I am sorry I have delayed so long in thanking you for your very good cooperation and assistance during my visit in the study of yuca. I have been busy making up the collections into usable form (preparing labels and photographs and mounting specimens) and have not quite completed this aspect. When it is done, I hope to send you a list of the materials collected and a set of duplicate photographs with the numbers of my collections on them from each of the locales. This might or might not be useful; we'll have to see.

I hope you will tell Tony Bacigalupo that I have not forgotten his request for a set of titles on yuca production, technology, and toxicity and that I am slowly accumulating this information for him.

My first goal is to get the taxonomy worked out which should be within, I hope, a year or two; and when this is done, than I expect to be able to say more specifically to the Rockefeller Foundation that we are now ready to proceed with the experimental phases with more certainty and that it would be well if they became interested in yuca in much the same way they have been interested in corn.

Give my regards to Dr. Rice and to the other staff members there who were so very friendly and helpful to me.

Sincerely

David J. Rogers  
Curator of Economic Botany

DJR:MDF



SERVICIO DE INVESTIGACION Y PROMOCION AGRARIA

Edificio Ministerio de Trabajo 10° Piso - Av. Selaverry - Lima, Perú

Teléfono: 40255

Dirección Cablegráfica: SIPA

December 27, 1961

#L-628-61

Dr. David J. Rogers  
Curator of Economic Botany  
New York Botanical Garden  
New York 58, N.Y.

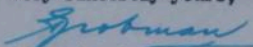
Dear Dr. Rogers:

Your letter to the Director of SIPA has been directed to me for its attention which I take up with pleasure on account of the personal acquaintance with you and your work.

We shall be extremely pleased to offer our cooperation at the various locations in the Peruvian jungle where you might need our assistance in the task of collecting the varieties of yuca. We would be willing to offer land for growing the yuca varieties that might be gathered in these collections, for both your further use as well as for agronomic evaluation.

Please be sure to call upon us upon your arrival in Lima.

Very sincerely yours,

  
Alexander Gröbman,  
Director of Research

AG:hl

May 25, 1962

Dr. I. D. Welt  
Institute for Advancement of Medical Communication  
1028 Connecticut Avenue, N. W.  
Washington 25, D. C.

Dear Dr. Welt:

I don't think that I want to publish any more about what I said in the symposium. Most of what I said was in the Science paper, and most of what everybody else has said has been published already in many places. Let's not confuse the literature by publishing similar materials sixteen times.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

INSTITUTE FOR ADVANCEMENT OF MEDICAL COMMUNICATION

33 EAST 68TH STREET • NEW YORK 21, N. Y.

Washington Branch • 1028 Connecticut Avenue N.W., Washington 6, D. C.

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Irving S. Wright, M.D.

May 15, 1962

WASHINGTON BRANCH

Chief  
Isaac D. Welt, Ph.D.

Assistant Chief  
Judith T. MacMillan

Dr. David J. Rogers  
The New York Botanical Garden  
Bronx Park  
New York 58, N.Y.

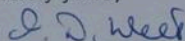
Dear Dr. Rogers,

On December 30, 1960, we participated in an AAAS symposium on "Machine Methods in Biology." Since that time, I have been concerned that the excellent papers which were presented were never, at least to my knowledge, published in the literature.

The Society for Industrial Microbiology and the American Institute of Biological Sciences are co-sponsoring a symposium on biological information problems to be held during the AIBS meetings in Corvallis, Oregon. Since the papers to be presented are scheduled for publication by the Society for Industrial Microbiology in a separate volume, it occurred to some of us that this publication might also serve as a publication medium for our symposium. We have accordingly been invited to submit our papers, either in their original form or as modified, to the Society for publication.

Please let me know how you would feel about this and whether we can expect a copy of your paper within a month or so. If this request represents an undue imposition upon your time, we will simply forget about it, but please let me know how you stand.

Sincerely yours,



I. D. Welt, Ph.D.  
Chairman of the 1960 symposium

IDW/lf

15/62/237

V. BALU

Central Food Technological  
Research Institute  
Mysore-2

May 21, 1962.

25/5

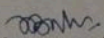
Dear Mr. Rogers,

This has reference to your letter dated  
7th May 1962 and to thank you for your interest  
in the utilisation of tuber crops like tapioca.

I have informed Mr. A. Rahman, the Head of  
our Division about your interest and we are  
arranging to send you by separate registered book-  
post, publications pertaining to the utilisation of  
tapioca.

We will be pleased to have your comments  
and views after you have perused the literature.  
If there is any other matter on which you need our  
help, please do not hesitate to write to us.

Sincerely yours,

  
(V. Balu)

Mr. David J. Rogers,  
Curator of Economic Botany,  
The New York Botanical Garden,  
Bronx Park,  
New York 58.

May 7, 1962

Mr. Balu  
Extension Division  
Food Technology Research Institute  
Mysore  
Mysore, India

Dear Mr. Balu:

In a recent conversation with Dr. Stahl, who, I understand, worked for some time with you, I learned that your organization had been responsible for the utilization of tapioca in a rather unique and interesting way--the forming of tapioca into shapes similar to rice.

I would be very pleased to have whatever published information you have on this method of utilization of tapioca. I understand that there are several publications available, and we will be pleased to receive them.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

May 16, 1962

Ing. Abelardo Gutierrez R.  
Apartado No. 27  
Tingo Maria, Peru

Dear Ing. Gutierrez:

At long last I am enclosing a copy of the  
Nickerson Color Fan that I promised to send you  
some time ago.

I wish to thank you for your kind assistance  
in helping me to collect yuca while I was there  
at Tingo Maria. I trust that my activities will  
be of some use to you in the future.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosure

May 16, 1962

Ing. Angel Camacho R.  
Apartado 27  
Tingo Maria, Peru

Dear Ing. Camacho:

I wish to express my appreciation of your kind assistance during my recent visit to Tingo Maria. Your help certainly did make for a tremendous improvement in my activities, and I am sure that it will be of great service to both of us that we can finally classify and start the scientific studies of yuca.

I was particularly interested in one of the varieties of yuca that we collected--variety No. 465, which we found near Monson. This particular variety is quite interesting in that it offers some characteristics that are different from others that we found in that area. I trust that you will be able to continue growing that particular variety from the cuttings that we made while I was there. I would be particularly pleased to receive other herbarium samples of this particular variety after it has had an opportunity to mature in your variety collection garden.

I have just written a letter to Ing. Gutierrez and enclosed in the letter to him the color charts that you saw when I was there. I trust that this color chart will be useful both to you and to him in your work.

Thank you again for your great assistance to my work there. Give my best regards to the director.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR: MDF

May 16, 1962

National Geographic Society  
16th and M Street, N. W.  
Washington 6, D. C.

Attention: Map Section

Gentlemen:

I am interested in knowing whether indices to your current series of maps are available. I am particularly interested in the South American series; and although I do not think the series on South America is complete, I would be pleased to receive quotations of the prices for the indices and for the South American maps.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

May 16, 1962

Mr. Ralph Vogel  
Brown & Root, S.A.  
Casilla 4016  
Lima, Peru

Dear Ralph:

I am sorry I have waited so long to write to you. Certainly if your life had depended on my information, I am afraid that we would not have been very successful in keeping you going.

The only piece of information that I have so far picked up is that which is enclosed. I am afraid that it doesn't really answer most of the questions you were interested in about hepatitis.

On a couple of occasions I have tried to contact the man who is supposed to be the expert on hepatitis in New York and have not been able to reach him. Just today when I called him, I found out that he has gone to Europe and will not be back until the first of June. Perhaps a letter to him from you would have a better effect than I could get myself. His address is Dr. Hans Popper, Mt. Sinai Hospital, 5th Avenue and 100th St., New York, N. Y. I got his name through the New York Academy of Medicine, and I suppose you can cite this reference as the place where you obtained his name.

I certainly do want to thank you for all the hospitality you showed me while I was in Pucallpa. It made my visit there much more palatable. Give my best regards to your wife.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDP

May 7, 1962

Miss Clarissa Kimber  
470 Science Hall  
University of Wisconsin  
Madison, Wisconsin

Dear Miss Kimber:

In answer to your letter of the first of May, I am sorry that I can not really give you any definite information on any of your queries. Here, however, is what I have as a sort of feeling at the moment, for what it is worth:

1. I have not done any more work on digging into the distribution of Manihot in the Pacific Islands inasmuch as my major interest is in the origins in the Western Hemisphere. I have, perhaps unrealistically accepted the fact that the plants were distributed from Central or South America to the Pacific Islands during historic times. There is no reference that I can give you which specifically documents this distribution. The major evidence that I have for the origins of the crop in South and Central America rather than having been found as a natural species in the Pacific Islands is that there are apparently no other species of the genus to be found on these islands.

2. I concur that Manihot should be best dealt with as a single species, and I use the epithet Manihot esculenta Crantz for this. Without question several species have contributed genetic material to the cultivated complex, but as of this moment it is impossible to distinguish bitter and sweet as a separate species. Of this I have sufficient evidence to warrant this as a statement of fact. There is, furthermore, no morphological differentiation which would permit a separation into two sub-species based on the CN-glucoside. At best we can only say that these are physiological  
*rather*.

3. My opinion on the origins of Manihot differs from those previously advanced in that I feel that the origins are more complex than previously determined. There is no possibility of putting one's finger on a single point in place and time where some knowledgeable group of Indians suddenly decided that this is a worthwhile cultivar and therefore began its cultivation from a single wild species. There are several places, all of which seem to have contributed something to the cultivars. One of these areas is

western-southern Mexico, south through Guatemala, Honduras, and perhaps Nicaragua where one finds a number of wild species in the same areas in which the cultivars are grown. As Indians moved along coastal routes and up rivers to the south and west in South America it seems that there were sufficient numbers of naturally-occurring species in these areas for the Indians to have recognized similarities to those known in Central America, and from these additional areas we have picked up the tremendous variations that are apparently in the species. Certainly the wild species occur in the drier coastal zones from Colombia eastward along the north coast of South America, but then as you move on around the coast and down into Brazil you find wild species occurring in the moister forest regions near the coast. In northeast Brazil which has been the eastward point of selection for the hypothesis of origin of a number of people, there are several "weedy" species occurring in the caatinga. I have visited these regions, examined the plant material there and find that the species occurring there are an extremely heterogenous group with a tremendous number of variations within the same population. I assume that these are secondarily derived species and would be more or less like the wild species of carrot which is likewise a widely distributed weed. I suggest that these species are derived from the cultivars. I would disagree with Sauer specifically in that he picked a most unlikely habitat for the origin of a cultivar. Having been in these regions and having seen the habitats and the wild species, I would suggest that this is not an area amenable to a stable type of civilization which could have been the original starting point for the cultivars. I would certainly pick areas where food sources are more generally available and the climate is more ameliorative. Such regions can be found in almost all of the areas of the distribution of manioc, and in each of these regions we find likely species for the starting points for the cultivation of manioc.

4. Concerning feral manioc, I think that some of my comments above indicate my feelings about this problem. One may find feral manioc along the river bottoms in Peru in the regions where the rivers run down to the Pacific, but then in all areas I have found feral manioc. Other botanists perhaps did not recognize that some of the species they found were indeed feral, but indeed they are. The complications involved in these are probably attributable to the nature of pollination and seed setting which results from the monocious habit of the plants. The female flowers are almost inevitably open and receptive for pollen before any staminate flowers are open on the same plant. This would tend to cause outcrossing and influence the possibility of hybridization. This type of activity at the moment is very prevalent and this tends to obscure species lines.

May 7, 1962

5. This would then tend to show that there is no great variation in the genetical constitution of the plants. Also, no counts have been made on other than the species, M. esculenta, M. saxicola, and M. glazvii. It would seem that there is no much new there. I am sorry that no one really has investigated this possibility. I have wanted to but have never been able to make it.

Your "long-winded" inquiry has elicited a long-winded reply. I give you this information inasmuch as I have not yet published on it. I think you can see why not. However, I have just completed my last field work before sitting down to a monograph of the genus which will indicate some of the possible intergrants into M. esculenta and indicate further the complexities of this crop. Perhaps in another year or two I will begin to write up my findings and hope that I can find a publication area big enough to accept a monograph without waiting for ten years. I further project a monograph on the cultivated species itself but feel that the more important thing at the moment is to clear up the confusion of the species and the genus, 66 which there is considerable.

Good luck on your field work on Martinique. I had hoped when I read that you were going in that direction that you were going not to the island of Dominica but to the Dominican Republic. I realize that you are not going to the latter, but were you to do so I would be very pleased to have received specimens of the only possible "wild" species from the northern coast of the Dominican Republic, particularly on the Samana Peninsula. I plan to give a 15 minute paper on this material at the Corvallis meetings of the AIBS this August.

Incidentally, thank you very much for the Christmas card. I had intended to acknowledge it but never did. I will be very pleased to keep in touch with you.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

470 Science Hall  
University of Wisconsin  
Madison, Wisconsin  
May 1, 1962

Mr. David Rogers  
New York Botanical Gardens  
New York, New York

Dear Mr. Rogers:

Last autumn we talked a bit about Manioc varieties, origins, etc. Since then I've got a bit involved with the plant particularly its pan-tropical migrations. There is brief mention in Burkill of the possibility of diffusion to the Philippines by the Spaniards at an early date by way of the Acapulco - Manila run. Merrill makes much of this but gives little concrete evidence on which to make his statements. Have you run across any such evidence for introductions to the Pacific and Far East, or of a series of short range hops into the Pacific? Perhaps you could refer me to some historical materials which treat of the Pacific introductions.

It would seem from reading Greenstreet and Lambourne as well as Chandraratna and Nanayahkara that the separation into species, bitter and sweet, has been abandoned with good reason. I am interested however as to whether the so called races and varieties can be said to hold true. Do these subspecific groups keep to their distinguishing characteristics and vary only as to the variation in prussic acid formation? Somewhere, I guess it was Graner, reported 2n equals 36 in 37 different varieties. Some doubt was expressed as to whether it was a diploid, however. Have you anything on that? Crosses with Manihot saxicola were made in an attempt to develop a high protein type. Are the other wild Manihot species of the same number? I should think this mitigates against a higher ploidy.

Chevalier like others before him puts the origin of Manioc in north-eastern Brazil. Sauer suggests an origin in the dry savannas of the Caribbean margins. You mentioned that you had some well considered ideas of the subject. Would you mind speculating on paper?

I met Mr. L. Williams at the Field Museum in Chicago this Easter thanks to Mr. Sauer. We were talking about manioc and whether it ever went wild. He said that he had never seen it so in Latin America, but on one occasion in Africa, he had seen it apparently quite feral. The tubers however were quite useless. Have you seen anything which might throw some light on the subject? In fact your name came up. Mr. Williams wondered whether you had published any thing on manioc recently. I hadn't seen anything but that didn't prove a thing. Have you?

You must pardon the long winded query, I have a tendency to get carried away. I should like to hear from you, tho. June 5th I leave for Martinique to begin a bit of field reconnaissance for my dissertation. The topic is changes in plant cover on Martinique and Dominica Fifteenth Century to the present. I am really rather looking forward to the summer.

Very sincerely,

Clarissa Kimber  
Clarissa Kimber

M. Dominguez  
Abbot  
Vic. of Laguna, Samaná Peninsula, chiefly on  
leaving the Pico de Azúcar, alt. 100-500 m., May 6  
Soma de Perro, 2 mi. S. of Guarabo, S.E. of  
Jovero, Seibo Province, from sea level to  
100 m. Nov. 20

Ekman -  
Hispaniola, Civ. Santo Domingo: Península de  
Samaná, prov. de Samaná, El Valle, in  
thickets along the river. 16 May,

"Straggling, 3-4 m." - nom. vul. - yuca

cimarrona.

Miller -

Rio San Juan - Vine - Mar. 23

I met Mr. J. L. Williams at the field museum in Chicago this winter thanks to Mr.  
Gentry. We were talking about Mexico and whether it was worth while. He said that  
he had never seen it so in Latin America. But we are working in Africa, he had  
seen it as recently quite lately. The two men however were quite useless. Have  
you seen anything which might throw some light on the subject? In fact your name  
came up. Mr. Williams wondered whether you had published anything on Mexico  
recently. I hadn't seen anything but that didn't prove a thing. Have you?

You must pardon the long winded query. I have a tendency to get carried away.  
I should like to hear from you, too. I am leaving for Washington to begin  
a bit of field reconnaissance for my dissertation. The topic is changes in plant  
cover on Washington and Louisiana fifteenth century to the present. I am really  
rather looking forward to the summer.

Very sincerely,

Charles K. R. K. K.  
Charles K. R. K. K.

REPUBLICA DE VENEZUELA



April 25, 1962

MINISTERIO DE AGRICULTURA Y GRIA

Instituto Botanico  
Apartado 2156  
DIRECCION Caracas, Venezuela

No. \_\_\_\_\_

Dr. Dave Rogers  
The New York Botanical Garden  
Bronx Park, New York 58, N.Y.

Dear Dave:

As per your request, I am sending you two labels for the  
Cassia and seven labels of Aristeguieta's no. 4675.

It was certainly a real pleasure to have had you here with  
us, even though too briefly. I am glad the water was not turned off  
on the days you were here. A brief rain fell two days ago, but we  
are still awaiting the beginning of the rainy season. However, many  
trees are in beautiful flower now. You should have seen the millions  
of yellow-flowered Tabebuia in bloom between Ortiz and El Sombrero  
a month and a half ago when Leandro and I returned from a collecting  
trip for living plants for the Parque del Este. Everything was covered  
with the yellow blossoms and I have never seen such a gorgeous sight  
before. How in blazes these trees and others which produce an abundance  
of flowers before the rains come, after all those dry months, can  
produce such a wealth of flowers without any rains, is an interesting  
physiological problem for someone to investigate. So many of the  
trees put forth new foliage and flowers in abundance before the rains  
come. Please tell me how they do it.

Please give my best wishes to all your staff,

With memories of our recent pleasant visit here,

Sincerely,

*Julian*

Julian A. Steyermark

April 18, 1962

Manager  
Hotel Tourista  
Tingo Maria, Peru

Dear Sir:

Enclosed please find a photograph of yourself with  
the yuca plant.

I was very pleased to have been a guest at your  
hotel and remember your services with great pleasure. I was more pleased with your beautiful  
hotel and its services than I was with any other  
at which I stayed during my recent trip to Peru  
and Bolivia.

With kindest regards, I am,

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosure

April 16, 1962

Dr. Reed C. Rollins  
Gray Herbarium of Harvard University  
22 Divinity Avenue  
Cambridge 38, Mass.

Dear Reed:

Bassett has probably written to you that I expect to appear some time to select specimens of Manihot for study.

If convenient, I should like to work there on Thursday and Friday, the 26th and 27th of April. I will probably arrive some time on the afternoon of the 26th.

Dick Schultes tells me that there is some sort of a visiting day for alumni on Friday. Would it be inconvenient for me to be there during that time?

Sincerely

David J. Rogers  
Curator of Economic Botany

DJR:MDF

April 11, 1962

Dr. Julian A. Steyermark  
Instituto Botanico  
Apartado 2156  
Caracas, Venezuela

Dear Julian:

Would you be so kind as to send me a couple of labels for the Cassia that we collected near San Juan de los Morros? You recall that you gave it a number and that we would await your sending labels for it.

Also I would appreciate it if you would ask Leandro for seven blank labels to be used on his collections of the duplicate specimens of his No. 4675.

Sincerely

DJR:MDF

April 11, 1962

Dr. Hugh Cutler  
Missouri Botanical Garden  
2315 Tower Grove Avenue  
St. Louis, Missouri

Dear Hugh:

I read your article in the new book, "Readings in Cultural Geography," with great interest. Did they give you separates of this article, or is it necessary to have the whole book to get your article out of it? If there is a separate, may I please have one?

I keep looking for an answer that I suppose I never will be able to find about the time of origin of food plants in the tropical Americas. Although I have read Towle's book on the prehistoric ethnobotany of Peru and Bird's work, I still have no feeling that the age of archaeological materials is sound evidence for the earliest culture. It seems to me that a whole host of plants must have been domesticated within a period of 5,000 years, maybe even less. Under what stimulation were these domesticated? Was it a glacial period during which time the tropical areas were actually more desperate so that there was a period of development or was it an inter-glacial epoch?

If our earliest evidence of culture in South America goes only to 2000 (plus or minus 1000) B.C., it strikes me that there must have been at least another 1000 or 2000 years before this during which the plants were actually brought into cultivation. Have you ever formulated any thoughts on this particular subject? I would be interested to know.

Sincerely

DJR:MDF

April 9, 1962

Dr. Djalma Batista, Director  
Instituto Nacional de Pesquisas da Amazonia  
Caixa Postal 478  
Manaus, Amazonas, Brasil

Dear Dr. Batista:

I am very pleased to have your letter of March 26.  
I too am sorry that I was unable to see you in Manaus  
during my visit there.

However, Dr. Mario Moraes gave me excellent assistance,  
and I was pleased to have been able to accomplish as  
much as I did in the short time available there.

We look forward to further cooperation with you and the  
possibility of eventual collaboration on some studies  
in the genus Manihot, especially on mandioca and maca-  
cheira.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF



PRESIDÊNCIA DA REPÚBLICA  
CONSELHO NACIONAL DE PESQUISAS  
INSTITUTO NACIONAL DE PESQUISAS DA AMAZONIA

Rua Guilherme Moreira, 112 - Caixa Postal, 478

MANAUS - AMAZONAS

Manaus, 26 March, 1962

C/nº 101

Dr. David Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park, New York 58 - N.Y. - USA

Dear Dr. Rogers:

Unfortunately I was not able to be here in Manaus when you visited this Institute. I regret that important matters for the Institute held me up in Rio much longer than I had expected.

However, my assistant, Dr. Mário Moraes tells me that he did his best to help you. I do hope that you found your visit to South America profitable, and I want to assure you that INPA will always be ready to collaborate with you whenever it is possible.

With kindest regards, I am

Cordially yours,

DJAILMA BATISTA

DIRECTOR

L. H. BAILEY HORTORIUM  
NEW YORK STATE COLLEGE OF AGRICULTURE  
A UNIT OF THE STATE UNIVERSITY OF NEW YORK  
CORNELL UNIVERSITY  
ITHACA, NEW YORK

April 6 1962

Dr. David Rogers  
New York Botanical Garden  
Bronx Park  
New York 58, New York

Dear Dave:

The Gesneriad from Tingo Maria is Gloxinia perennis (L.) Fritsch. At least I do not find it distinguishable from that species despite its location. Possibly the thing has become naturalized there though I suspect that it is native and that we simply do not know nearly enough about the entire range of the species.

Most sincerely yours,



Harold E. Moore, Jr.  
Director

HEM/f  
Enc

P.S. I hope I'll have a chance to hear some of your experiences.

April 3, 1962

Dr. H. E. Moore  
Bailey Hortorium  
Ithaca, New York

Dear Hal:

In Peru recently I picked up a gesneriad, made a herbarium specimen of it and took the enclosed Kodachrome.

The plant was growing very commonly along the steep roadside banks near Tingo Maria. It looked rather handsome to me, and I wonder if anyone has put it into cultivation yet. They called it locally "flox de lluvia."

I have one more Kodachrome from which I am having a black and white positive made to accompany the specimen. Would you be willing to identify this one for me?

Sincerely

DJR:MDF

March 30, 1962

Dr. Leandro Aristeguieta  
Instituto Botanico  
Apartado 2156  
Caracas, Venezuela

Dear Leandro:

I am sorry to have delayed so long in telling you how much I appreciated your assistance in getting the two species of Manihot and also how pleasant it was to receive your material from the Herbarium on loan so quickly. At the same time, we sent a request to you for the loan, we sent one to several places here in the U.S., and they have not been nearly so quick in responding as you were.

I am sure that I would never have found the Manihot materials without your aid. I trust that there will be an opportunity for you some time when you are in the vicinity of San Juan de los Morros to get a bit more of the Manihot, stems of which we collected and specimens of which you had made some two years earlier. Although I have tried to get the cuttings of the plant to grow here at the Garden, I fear that they are not going to make it.

I also want to express my appreciation of your incorporating the Manihot material into the magnificent Parque del Este. I have the greatest admiration for your activities in that park and think this represents one of the finest botanical gardens I have ever seen.

Please give my best regards to Dr. Lasser and other members of the staff.

Very sincerely

DJR:MDF

March 30, 1962

Dr. Julian A. Steyermark  
Instituto Botanico  
Apartado 2156  
Caracas, Venezuela

Dear Julian:

I am red-faced for having waited so long to send a note of thanks for your very kind attentions and assistance and friendship and lodging while I was there in Caracas. It was like a breath of fresh air to visit there where some honest botanists are at work after having been in the other areas where no such animal exists. I have just been going through my collections there and getting labels typed, and it is a great pleasure to recall the collections we made there. Let me know if there is anything I can do for you here.

I don't know whether you have yet had a letter from Dr. Jablonski concerning the status of your Euphorbiaceous genus name for Croizat. I did ask Dr. Jablonski about it, and his comment to me was that the specimens for the type were only in fruit and that in order to be sure he thought that specimens in flower would be needed. Perhaps the next time you are in the area you might check it out to see if it is in the flowering stage.

Things are moving along quite nicely here. Everyone seems to be well and busy. We just got three new graduate students signed up to come next September. This should make things even more interesting in these parts.

Bassett told me some weeks ago that he was working away at the answers to the long letter that you wrote to him. I don't know whether he has finished it off by now or not. Anyway, he seems quite pleased with the situation.

Thanks again, and give my best to Dr. Lasser. I am also writing a letter to Leandro to express my appreciation of his help in locating the two Manihots.

Very sincerely

DJR:MDF

March 21, 1961

Ing. Juan C. Rodriguez I  
Casilla No. 8  
Riberaita, Beni  
Bolivia

Dear Sr. Rodriguez:

This is my first opportunity to let you know that I have returned safely to the U. S. and that I thoroughly appreciate your great hospitality during my visit to your experiment station. Your good cooperation and assistance made it possible for me to accomplish much more in the study of yuca than I would have been able to do without your assistance.

I am entering a subscription to ECONOMIC BOTANY, the journal of which I am the editor, in your name. With the subscription you are automatically a member of The Society for Economic Botany for one year. I trust that you will find the journal of general interest to you. The first issue will probably be in your hands in June of this year. If you have not received a copy by this time, I would be very pleased if you would notify me and I shall do my best to have copies sent to you.

Please give my best regards to your wife and thank her for her hospitality in your home.

Very sincerely yours

David J. Rogers  
Curator of Economic Botany

djr;mdf

March 12, 1962

Ing. Reynaldo A. Crespo Cesta  
Director, Est. Exp. Agr. de La Molina  
Apartado 2791  
Lima, Peru

Dear Sir:

We have just received the copy of the paper entitled "Las Hojas y Tallos de Yuca como Forraje." I am very pleased to have this as a part of my library, and I appreciate the speed and facility with which you have prepared this for me.

I was indeed pleased to visit you at La Molina and am hoping that my contributions to the study of yuca will be of some assistance to you.

With best regards, I am,

Sincerely yours

David J. Rogers  
Curator of Economic Botany

djr;mdf

March 5, 1962

Dr. Hans Huffnagel  
FAO Mission  
Caixa Postal 298  
Belem, Para, Brasil

Dear Hans:

I hope this letter will catch up with you sooner or later. I am addressing it to both you and your wife so that either one will receive it.

I was very pleased to find Cox feeling better and trust that you and she have been reunited at least for a while. I am very sorry I missed you, but I am glad that I had a chance to call you before you left Washington.

Please be assured of a standing invitation from the Rogers' in the event that you are able to return with Cox some time later in the spring.

Also waiting for me on my return here was your very nice Christmas card.

Best wishes to you and your family, and tell Cox that I certainly appreciated the warm hospitality during my stay there in Belem.

Sincerely

P.S. (added in long hand) Your letter from Washington (mailed from Miami) arrived. Will reserve 10 minutes for you on June 16 meeting of Soc. for EB. Also, have notice of your book and will request review copy from FAO.

DJR:MDF

March 7, 1962

Prof. Gaston Bejarano B.  
Proyecto de Desarrollo del Alto Beni  
C.B.F.  
Av. Libertador Bolivar 1584  
La Paz, Bolivia

Dear Gaston:

This is to let you know that we have returned safely to the U.S. after a very fascinating and on the whole successful trip. Thanks to your endeavors our Bolivian endeavors were much more easily carried out. It was most unfortunate that you were not able to go along with us on the last part of our trip, but I feel that we were able to accomplish most of our desired aims in Riberalta. I am only sorry that you were not able to get back to La Paz on the weekend before we left.

Although I am sure that you feel somewhat discouraged by the fact that you have to participate in the Point Four anthropological endeavors, I would like to encourage you to continue with that particular endeavor for several reasons. Very obviously the major reason is one of politics; it will be much to your advantage, and I also feel to the advantage of B.B.F., that you cooperate in what may be onerous tasks.

Once again let me ask you if you can supply more information concerning the two specimens of *Manihot* which you so kindly collected for me after we had left. The most significant information of course is the locality of these two plants. I would also like to know, if you can tell me, anything about the height of the plants and how the plants branched. Any information in this connection will of course be highly significant and most useful to me. I am very pleased to have these specimens, and I am sorry that we did not get to see them ourselves.

I would certainly appreciate it if you can supply me with information concerning your biological station in the Alto Beni. I am certainly pleased to know of your endeavors in that connection and will be pleased to assist you as soon as you have given me some sort of an outline of the project as you see it. We talked at some length about the kinds of applications you should make for assistance, but I shall have to have a written copy in order to know exactly how I may be of most assistance.

Please be assured of my continuing interest in your endeavors. My best regards to your wife and sincerest personal regards to you.

Sincerely

David J. Rogers  
Curator of Economic Botany

DJR:MDF

Enclosure

March 6, 1962

Refund Division  
American Express  
65 Broadway  
New Yrk 6, N. Y.

Attention: Mr. Egan

Gentlemen:

We owe you an apology. Through the stupidity of an assistant, the travelers' checks which we claimed to be lost (our letter of February 5) turned out to be safe in the cash drawer of The New York Botanical Garden from which they had never been removed. I am very sorry to have caused you the extra work.

Sincerely yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF  
Enclosure

March 6, 1962

Mr. Fred Olday  
c/o Crown-Dorex  
416 Lackawanna Avenue  
Scranton, Pennsylvania

Fred:

The travelers' checks never left The New York Botanical Garden. They were in the safe, and I have recovered them. I will need your signature in order to deposit the money to the National Science Foundation grant. Will you please return to New York to sign them as soon as possible?

Very truly yours

David J. Rogers  
Curator of Economic Botany

DJR:MDF

February 5, 1962

Refund Division  
American Express  
65 Broadway  
New York 6, N. Y.

Attention: Mr. Egan

Gentlemen:

We have just received a letter from Dr. David J. Rogers, who is on a botanical expedition in South America, reporting the loss of the following traveler's checks:

|    |      |                                   |
|----|------|-----------------------------------|
| 11 | \$10 | K15-700-896 to and including -906 |
| 25 | \$20 | 722-937-987 to and including -999 |
|    |      | 722-938-000 to and including -011 |
| 7  | \$50 | P87-605-083 to and including -989 |

These checks were either in Dr. Rogers' name or in the name of Fred Olday who is accompanying him on the expedition.

Dr. Rogers informs us that he will not need this money in South America. However, we should appreciate your instituting proceedings for the refund of the lost checks and letting us know if there is anything further that we need to do in this connection. Dr. Rogers expects to return to this office on March 1.

Sincerely yours

(Mrs.) Marjorie D. Fraser  
Secretary to Dr. Rogers

MDF

*2/5 - sent to Lupton & Mansure*

WH 4-2000

The New York Botanical Garden BRONX PARK • NEW YORK 58 • NEW YORK • LU 4-8500

Sat. P.M., Sun, Jan. 28.

Dear Marge:

Somewhere we've lost a whole book of traveler's checks—those assigned to Olday. From the check record, these nos. are:

|    |      | From         | To-Incl. |      |
|----|------|--------------|----------|------|
| 11 | \$10 | K 15-700-896 | -906     | 110  |
| 25 | \$20 | 3 22-937-987 | -999     |      |
|    |      | 3 22-937-000 | -011     | \$00 |
|    |      | 3            |          |      |
| 7  | \$50 | P 87-605-983 | -989     | 350  |
|    |      |              |          | 960  |

None of these checks had been cashed.

Please apply to Refund Division, Am. Express,  
65 Broadway N.Y. 6, Mr. Egan

and ask that the checks be sent there. I do not think we'll need them. All I can think of is that the checks slipped out of Fred's pocket some time during one of our trips in a plane, a taxi, a jeep, or tractor (or boat)—we've been in all these vehicles and you do get jolted around—try to explain that we are on a botanical expedition, and that such things can happen.

We leave here tomorrow for Lima, I hope. So far, only medium amount of success. I hope there will be better luck in Peru. There we'll be working with Americans more, or American trained people, and I think things will go better—we'll see.

So far, no mail—have you any from us?

Next address c/o American Consul,  
Quito, Peru—marked please hold

*File copy*

CONCOURSE TOURS, INC.  
2438 GRAND CONCOURSE  
NEW YORK 58, N. Y.  
CABLE ADDRESS: COURSETRAV

PREPARED FOR  
Dr. David Rogers  
Mr. Fred Olday

ITINERARY

|         |                                                                                 |
|---------|---------------------------------------------------------------------------------|
| 1/2/62  | Depart Idlewild 3:45pm. via Pan Am fl. # 701,<br>arrive LaPaz 2:30pm. (1/3)     |
| 1/29/62 | Depart LaPaz 3:00pm. via Panagra fl. # 720,<br>arrive Lima 4:30pm.              |
| 2/2/62  | Depart Lima via Faucett fl. # 211, arrive Tingo<br>Maria                        |
| 2/13/62 | Depart Tingo Maria via Faucett fl. # 211,<br>arrive Pucallpa                    |
| 2/21/62 | Depart Pucallpa via Faucett fl. # 211, arrive<br>Tarapoto                       |
| 2/21/62 | Depart Tarapoto via Faucett fl. # 210, arrive<br>Iquitos                        |
| 2/23/62 | Depart Iquitos 8:00am. via Panair Do Brasil fl. #<br>164, arrive Manaus 6:10pm. |
| 2/25/62 | Depart Manaus 11:10am. via Varig fl. # 608,<br>arrive Belem 4:50pm.             |
| 2/26/62 | Depart Belem 2:10am. via Varig fl. # 700, arrive<br>Caracas 7:10am.             |
| 2/28/62 | Depart Caracas 3:00pm. via Pan Am fl. # 204,<br>arrive N.Y. 9:00pm.             |

*Ticket  
referred  
to  
Panagra  
Lima & Iquitos*

The above flights have all been confirmed.  
The rate per person is \$ 616.43.  
You will have to purchase the ticket for  
Tarapoto to Iquitos in Lima. The above rate  
does not reflect this charge.

Concourse Travel Bureau

*Edward J. Schwartz*  
By, Edward A. Schwartz



SCHEDULES IN THIS ITINERARY ARE CORRECT AT THE TIME OF WRITING  
THEY ARE SUBJECT TO CHANGE

CONTACTS FOR ROGERS AND OLDAY ON SOUTH AMERICAN TRIP, JAN.-FEB., 1962

BOLIVIA

c/o American Embassy, La Paz

or

c/o Dr. Gaston Bejarano B.

Mailing address: ~~Casilla Correo No. 1124~~

La Paz, Bolivia

Cable address: "Corfomento"

*Republica Dominicana 209  
Miraflores*

PERU

Lima: c/o American Embassy

or

c/o Dr. Earl E. Smith

Mailing address: USOM/Lima

American Embassy

Lima, Peru

Cable address: Servicio Forestal

Iquitos: ~~c/o American Consul~~

*% Astoria Lumber Co  
Iquitos Peru  
Hold till Feb. 21*

BRASIL

Manaus: c/o Dr. Djalma Batista  
Instituto Nacional de Pesquisas da Amazonia  
Manaus, Amazonas, Brasil

Belem: c/o Dr. Hans Huffnagel  
FAO Office  
c/o S.P.V.E.A.  
Belem, Para, Brasil

VENEZUELA

Dr. J. A. Steyermark  
Instituto Botanico  
Apartado 2156  
Caracas, Venezuela

COPY

Instituto Nacional de Pesquisas  
da Amazonia  
Rua Guilherme Moreira, 112--Caixa postal, 478  
Manaus, Amazonas

January 3, 1962

Carta No. 6

Mr. David J. Rogers  
Curator of Economic Botany  
The New York Botanical Garden  
Bronx Park, New York 58, N. Y., U.S.A.

My dear Mr. Rogers:

Thank you for your letter of December 13, 1961, re your proposed trip to various countries of South America. We look forward with great pleasure to your visit among us in Manaus and hope that your stay here will be of mutual interest. We shall expect you with your assistant Mr. Olday on Flight 164 Panair on February 23.

I note your interest in a collection of various cultivars of mandioca of this region and have already started field work toward this collection.

Unless you advise me to the contrary, we shall expect you on February 23. You and Mr. Olday will be our guest.

With kindest regards and best wishes for the New Year, I am,

Sincerely yours

signed

Djalma Batista, Director

1/18/62 Dear Dr. Rogers:

Everyone here was glad to get your letter and to know that all is well. Everything is okay here--nothing new. I am sending the original of this letter to Lima, c/o Dr. Smith, in case it misses you in Bolivia.

*2107*