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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.

October 11, 1965

Mr. Theodore W. Hurst
Worthington, Hurst and Associates
333 N. Michigan Avenue
Chicago, Illinois 60601

Dear Ted,

We have received your cards and hope that we will be able to run them fairly shortly. Henry has opened the deck, but I have not yet fully explored to see whether things are in order or not. ~~I will, so~~ I am sure that they must be. We will have to ~~run~~ these cards in New York because our programmers are not yet running here. I will ask that the CEC Service Bureau send us the print-out so that we can look it over, get our "feel" of the data, and then report it to you.

This might offer you the opportunity you are looking for to visit us here in Fort Collins. If you have an opportunity to come out anyway, please feel free to do so. We want to find out more about these green-eyed blondes.

Sincerely,

David J. Rogers
Professor of Botany

October 12, 1965

Dr. David L. Bruck
Department of Zoology
University of Chicago
1101 E. 57th Street
Chicago, Illinois 60637

Dear Dr. Bruck,

I am sorry to say that we are completely out of our science reprints. Other papers of interest are in press, but have not yet made the scene. If I could get your assistance to press the editor of Systematic Zoology to get him to publish a paper of ours a little sooner; the hottest thing we have done so far, and to me the most useful, is a Graph Theory Model described in a paper submitted to SSZ. We have word that this paper will not be published before September of 1966.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

October 13, 1965

Mrs. Frances H. Parker
Editorial Research Staff
National Geographic Society
17th and M Streets, N.W.
Washington, D. C. 22036

Dear Mrs. Parker,

I think the few changes made will satisfy my sense of what's correct on *Msnioc*. There are one or two places that one might quibble about; but I don't think that it is worth the changing of it.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

Encl. - proofs

October 13, 1965

Sage Books
2679 South York Street
Denver, Colorado

Gentlemen:

I would very much like to have a desk copy of your Manual of the Plants of Colorado . This book may be used in a new course to be taught at Colorado State University next quarter.

Very truly yours,

David J. Rogers
Professor of Botany

DJR/ec

October 13, 1965

Mr. Theodore W. Hurst
Worthington, Hurst and Associates
333 N. Michigan Avenue
Chicago, Illinois 60601

Dear Ted,

I had hoped to see you on my way west in August, but arrived in Chicago on Saturday night and left for Urbana on Sunday morning.

I am writing to inquire if there are any 'no logicals' included in the ordered characters. If there are, the 'no logicals' should be excluded from the ordering.

Why not stop off and say hello on one of your regular flights west?

Sincerely,

Henry S. Fleming

HSF/ec

October 15, 1965

Mr. Harold K. Voris
Division of Reptiles
Chicago Natural History Museum
Chicago, Illinois 60605

Dear Mr. Voris,

Your letter to Dr. Wirth has been sent along to me. Dr. Wirth is no longer involved in the project in which he was participating at the time he gave the paper at the meetings in Knoxville, Tenn. However, he was a member of a team of which I am Director which has moved in its entirety from New York Botanical Garden to the above address. We are continuing our endeavors in line with the paper presented by Dr. Wirth, and we have a working program. At the moment a description of this program is in the hands of the Editor of Systematic Zoology for publication; but I fear it will not appear for some time. If you are interested in running your data using the graph theory model (the basis of Dr. Wirth's paper in Knoxville), we can provide you with instructions which will allow you to prepare your information for input into the program. We have quite a number of suggestions about preparation of data that you should know about. If you wish to prepare your data in our manner, please let me know and we will send sufficient instructions to permit you to go ahead.

I would like to know something about the size of the group of reptiles you are studying -- How many objects will be involved? Do you have already some classification? How many characters describing each of the objects? Approximately how many character states are involved?

We have to re-write the computer program because in New York we used a CDC machine. Here, we will be using an IBM 7094, and the two programs are not compatible. This may take a few months to do. We hope no more than two. I will be pleased to hear from you.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

October 15, 1965

Dr. Larry Leslie
Apartment M-26
Jardine Terrace
Manhattan, Kansas 66502

Dear Dr. Leslie,

We enjoyed having you stop in to see us during your stay here at CSU. I may have misled you. Dr. Barkley is not himself a "numerical taxonomist" but a good "classical taxonomist". I doubt that he is up-to-date on the developments in computer methodology. It is interesting that you are attempting to get the bacteriologists there going. How would it be to ask us to give a seminar there? We might be able to do it if an invitation is forthcoming. We may even like to encourage you to collaborate with us on your various problems in the enterobacteriaceae.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

October 15, 1965

Mr. Seymour Sohmer
Department of Botany
The University of Tennessee
Knoxville, Tennessee

Dear Sy,

I have about six epistles from you, plus your grouping of clones of manihot esculenta. I have gone over these in some detail. I had the afternoon off yesterday with a bout of local variation of some virus or other, so perhaps I wrote legibly and perhaps incoherently about some of the things. The paper that you sent, I think, will serve if my suggestions are taken up (they aren't holy, however).

You worry about the first chapter of your thesis dealing with the description of the species and where to get the information. You are strictly on your own, Sy. I would suggest strongly that you read my paper that is coming out, I hope within the next few weeks, in the No. 4 issue of this volume of Economic Botany. This will give you my ideas about the descriptions which are adequate for the species. Your own knowledge of the morphology of these plants should be brought to play as well. Don't act as a shy violet. You have considerably more acquaintance with these plants than do the people for whom you are writing the thesis.

It is pleasing to see that you have turned into a botanical diplomat. I talked to Moh here at the meeting of the Genetics Society and think I can understand how you might have had difficulty. But, he seemed at least not to have noticed your possible animosities, so you must have done a good job working with him.

Letter to Seymour Sohmer
October 15, 1965

Page 2.

Henry sends his regards. Marge did not come with us here. Her husband had two more years to go before retirement in New York, so that she did not feel justified in breaking off to come along. There were other reasons as well. I hope that my scribbblings on your manuscript are meaningful. If they are not, or if you disagree, for gosh sakes, let me know.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

October 15, 1965

Dr. Robert F. Raffauf
The Society for Economic Botany
Smith, Kleine and French
Philadelphia, Pa.

Dear Bob,

You should have received a letter from Bill Steere which de-connected me from the Journal and suggested that Robert Breech be put on as Managing Editor.

I seriously doubt that I can make the meetings of the Council in October or November, and I think that Bob Breech can very well handle all of the problems that have to be brought up in connection with the Journal's policy. I think that there is some precedent for the Society to pay for Thieret's transportation. I recommend very strongly that you get John there for this Council meeting. The guy is one of the most sincere boosters and workers for economic botany that we have got in the whole Society, and he sure needs to have somebody recognize his contributions. I very strongly urge that you go ahead and pay his way to the meeting of the Council. I am sure that those of you in the megalopolis area can handle the Council's activities. You will have my best wishes for good operations. I really have no official capacity in the Society any more. One thing that you may wish to take up at the meeting of the Council is a place to meet. I think that if you give me enough time, I can arrange for it here at CSU. Let me know immediately if this invitation is useful to you.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

October 18, 1965

Dr. Charles Heiser
Department of Botany
University of Indiana
Bloomington, Indiana

Dear Charley,

Henry Fleming tried to grab you at the AIBS meetings, but was not successful. He had with him at the time the results of the computer run on your Solanum nigrum complex. We think the results are very interesting. We would like to go over these results with you in detail because it is obvious that, since we do not know the plant materials, we cannot judge the merit or value of the production. However, we think that we are, from our end, able to see things that perhaps you would not have been able to see if we gave you these results cold.

Charley, this may not be important to you, but it is tremendously important to us to put out a paper in which we demonstrate that the methodology has value. I fear that the result of your paper in the American Midland Naturalist, where you run your data using Sokal's method, may have a direct effect on our operations. The taxonomists do not know, I am sure, that we are not of the same "numerical taxonomy school" as is the Kansas group, and a paper that does not clearly indicate that there are several approaches to the use of computers for taxonomy may make it difficult, in the eyes of the granting agencies, to continue support.

For these reasons, I am willing to send one of my staff to Bloomington at your convenience to present the results, our interpretations thereof and a full explanation of the methodology. From my examination of the print-out, I think that you will be pleased to see the results that we have. I am sure that your schedule is very full, but I hope that you can arrange to have some time to go over these

Letter to Dr. Charles Heiser
October 18, 1965

Page 2.

results and publish them. We can suggest formats for publication which will simplify this matter for you. As far as interpretation is concerned, of course, this is your bailiwick, not ours. Two ways may be possible to handle the business of bringing the data to you. I could ask my Assistant, George Estabrook, to bring them along with him just before Christmas. The other alternative is to invite you to stop here either going to or coming from the AAAS meetings in Berkeley, in the event that you are going to those Christmas meetings. I do not think there can be another good way to get together, but you may have some alternative suggestions which I will appreciate. But whatever way, I hope we can make it fairly shortly.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

Dr. Jess Fults

Oct. 18, 1965

Dr. Dave Rogers

ALTERATIONS TO OLD MUSIC BUILDING

Will you please ask Mr. Hersh McGraw to take up the problems of alterations to the old music building according to the memo we wrote you in September?

DJR/ec
CC - File

October 18, 1965

Dr. J. F. Danielli, F.R.S.
Chief Editor, Journal of Theoretical Biology
The University Health Center
414 Michael Hall
Buffalo, New York 14214

Dear Dr. Danielli,

Enclosed herewith, somewhat belatedly, is our reworked version of "A Mathematical Model in Graph Theory for Biological Classification". I am sorry that we are one month past the time that you returned the paper to us. We have spent time attempting to adjust the paper according to the reviewers' comments. Let me make a few general comments in advance. In your letter, you recommend that we put the mathematical treatment in an appendix. It is my feeling that an appendix is a part that one may read or not read, depending upon his interest. The mathematical discussion is an integral part of this exposition. Especially as revised, it is intimately related to the biology which serves as its foundation. Far from optional, we feel that its inclusion in the main body (of which it comprises a major part) is essential.

We submitted the paper to the Journal of Theoretical Biology originally because, having perused its pages, it was our thought that this is the place where one's theoretical work might appear. This same comment is useful when considering reviewer number one's request that we compare this method with others. May I point out that this is not a review paper. It is the result of our own investigations. There are sufficient numbers of references in this paper such that one interested in others may make their own comparisons.

We spent more time in attempting to meet the requirements of reviewer number two, whose various points seemed to be well taken. We question the consistency of some of his statements, however. For example, "the exposition of the paper is impossible (Para. 2)" versus "I am not familiar with graph theory but from this description, one gets a pretty good idea of it (Para. 3)". I suspect that reviewer number two is more of a biologist than a mathematician (his comments seem to come from biological types, not from mathematical types). A mathematical discussion, because of the efficiency of the language, generally requires a closer reading than does more traditional biological writing. Perhaps he has not been used to reading a mathematical exposition. We have attempted, in revision, to make the reading (especially for biologists) easier and have gone to some length to meet the criticisms given by reviewer two.

Concerning reviewer three's comments, I am in a quandary as to how to justify two separate parts of the reviewer's comments. First of all, he asks us to make it more understandable to biologists (removing the mathematical exposition to an appendix) but at the same time, he requests that we submit a FORTRAN program that would be absolutely disastrous for any botanist to try to read meaningfully. Reviewer three could not make up an example nor write a FORTRAN program from the algorithm given. This algorithm has been revised and the revised form read and understood by a competent mathematician, and we are confident that a serious reader, moreover, can follow it meaningfully. This algorithm (as it has been modified) is not intended to be the directions for programming. It is intended rather to make the flow of the data through the processes of the graph theory method more meaningful. We have stated that there is a FORTRAN program available to anyone who would request it. This, I think, is a more typical procedure than to publish the FORTRAN program. The algorithm is extremely significant, and will be more so in the years to come because it "fleshes out" the procedures described in the section just before. I would refer reviewer three to any definition of phenotype, if he cares to argue with our use of that word. We have checked in dictionaries and texts of genetics and find our application of the word appropriate. The reviewer's objection to the use of the word, "classifier", does not strike us as appropriate. Not all people who classify are taxonomists. It seems to us that reviewer three is impatient with us for reasons for which we would not mind having people be impatient with us. We have attempted herein to clearly state our purposes, our methods, and then to recapitulate at the end. We find it extremely valuable to repeat the three principles stated at the beginning in the summary remarks.

Letter to J.F. Danielli
October 18, 1965

Page 3.

Again, we have attempted to meet the critical comments and valuable suggestions made by the reviewers. We have asked for several informal readings of this paper by men of high ability, and they have found it readable, orderly, and the exposition sound. I hope that we have produced an acceptable paper. Thanks for your consideration.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec
Encl. Orig. + 1 CC
of manuscript

October 21, 1965

Your reference: CP822/19/65.

Dr. Egbert A. Tai
University of the West Indies
Department of Agriculture
St. Augustine
Trinidad, W. I.

Dear Dr. Tai,

Enclosed herewith is the form indicating my interest in attending the symposium on Tropical Root Crops. I will definitely be interested to hear when you have fixed a date for this symposium.

One question in connection with this symposium, which you may or may not have an answer for, do you have any idea of the financial arrangements for participants at this symposium. Any information in this area will be appreciated.

Sincerely yours,

David J. Rogers
Professor of Botany

DJK/ec
Encl.

October 21, 1965

Dr. Benny Clarke
The University of Sydney
Dept. of Veterinary Medicine
Private Bag. P.O.
Camden, N.S.W.
Australia

Dear Dr. Clarke,

I am sorry that I have taken so long in answering your request for a reprint of our paper "A Computer Program for Classifying Plants".

We have moved from New York, and our new address is:

Department of Botany
Colorado State University
Fort Collins, Colorado 80521

I hope that you will record this change of address.

Unfortunately, our reprint supply for this particular article has been exhausted. If we have any future information for you, we will send it to you.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

October 21, 1965

Dr. George W. Byers
Editor, Society of Systematic Zoology
Department of Entomology
The University of Kansas
Lawrence, Kansas 66045

Dear Dr. Byers,

I've finally gotten around to correspondence and catching up on various things and have your form letter written on 10 September which says that our paper "A Graph Theory Model for Systematic Biology" will not be published before the June or September issue in 1966.

I wonder if we might expect that there will be a little bit of consideration of advanced publication inasmuch as we had indeed submitted it earlier. I hope that you can consider that in the placement of the paper. We would very much like to get it out sooner.

Sincerely,

David G. Rogers
Professor of Botany

DGR/ec

October 21, 1965

Dr. Richard M. Klein
The New York Botanical Garden
Bronx, New York 10458

Dear Dick,

In answer to yours of the 14th October, I am afraid I haven't got any real hot news for you concerning the possibility of a seminar here. We have just had a blow-up in the department, and I think you may recall something about the undercurrents that I mentioned to you concerning the head of the department. The Head has now been voted out, or so I hear. Everything comes to me in a very indirect sort of way, and I'm not "in" as far as the machinations within the department are concerned. As soon as the dust settles, I will let you know more about it. It is pretty certain that there will be "room at the top", and just what this indicates I have no idea -- yet. There will probably be an interim head, but whether the interim head will be invited to accept the job on a permanent basis is a moot question.

How do you feel about the administrative job? I can tell you that whoever does this job is going to be "out" as far as research is concerned. He is going to have to spend an awful lot of time getting a smooth running, cooperative department. They have a pretty big staff here, and it would seem to me that anybody who takes the job ought to know in advance that he is not going to be able to continue as a researcher.

I have on my desk, and am working slowly at, Wellman's manuscript. It is long past the time when I should have turned it over to you. The other day I saw Frank Salisbury, and he again promised me that along about Christmastime he ought to have a rough draft of his book. With Frank's move and so forth, I don't know whether he is really serious about that deadline or not. I sort of doubt it.

Letter to R.M. Klein
October 21, 1965

Page 2.

We are slowly getting ourselves established in this institution. We now have an old building pretty much to ourselves, although we still haven't gotten rid of a couple of the former occupants who are supposed to move into another building as soon as it's done. I suppose a place like this where you've got a small sized city operating, can't be expected to get things done as fast as they ought to. It certainly is true that I would have moved a lot faster here if things had been settled in the department; but I think that altogether things will be a much better operation in the future. Let me know how you feel about an administrative type position, and then I will be guided by your reactions.

Sincerely,

David G. Rogers
Professor of Botany

DGR/ec

October 21, 1965

Dr. P. F. Knowles
Professor of Agronomy
College of Agriculture
University of California
Davis, California 95616

Dear Paul,

I've finally gotten around to the answering of long overdue correspondence.

We came here actually to further the work we were already doing in New York. After we get ourselves established in this place, we will have a lot better arrangements for both research and teaching. We had no teaching in New York, actually, and here we will have students. This is the best thing that we can do to keep ourselves on the toe and to spread the word about this method which is quite different, in the way of numerical taxonomy, from other peoples' operations. The way we were operating in New York, collaborating with others, is essentially the way we will do it here; and for this reason, we are very eager to have your data as soon as you have a chance to prepare it. It would probably be a good idea to have a chat with us here, or perhaps I could meet you at the AAAS meetings at Berkeley at Christmastime -- I plan to be there -- to talk about how to set up your data for the most efficient use of it.

We have discovered some methodologies in setting up characters and attributes in such a way that they give us much better in-put for classification than anything we have so far published. I can bring you up-to-date on these methods and make it such that you have the best possible out-put from our programs. The programs are being rewritten for the machinery we have here. Because the computer in New York does not speak the same language as the one here, this should take about two to three months, if nothing goes wrong. We really are eager to have your safflower data, because I have the feeling that you have much better data than a good share of others interested in the process of classification and

Letter to P.F. Knowles
October 21, 1965

Page 2.

you are working on a group that will really test the mettle of our process. I hope you understand that we are still "experimental" in our programs and are not completely satisfied that we have the final answer as far as process of classification is concerned. What we have to date makes very good sense, and has proved useful in a number of test cases; but that still does not make us satisfied. We think we can do even better.

Let me know if by some chance you have enough money to get over the mountains to see us sooner than Christmastime. If not, I will be looking forward to seeing you then.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory.

October 22, 1965

University of Chicago Press
Chicago, Illinois

Attention: Mr. Henry M. Leppard, Editor
Re: Goode's Series of Base Maps

We would like to obtain, in the 200 series, maps of Caribbean America and of South America. Please let us know the prices on these, and how we can order them.

Also, do you have available a map of the Neotropics in the 200 series?

Could you let us have a catalogue of the published maps?

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 25, 1965

Dra Harold C. Conklin
Department of Anthropology
Yale University
Box 2114, Yale Station
New Haven, Connecticut 06520

Dear Hal,

I'm not just sure what you are looking for in the way of Manihot specimens. I don't have any duplicates that I can give you, and the specimens that I'll be working on are not available right now for any length of time. How long did you have in mind to keep this material? I'm not sure either just what you're looking for in the way of color slides of Manihot. Do you want just individual pictures of the cultivars, or do you want something about the processing? I had a very nice series of slides on the typical Indian processing of the Mandioca or Cassave down in South America. Unfortunately, I made the mistake of lending these to my good friend, Richard Evans Schultes of the Botanical Museum of Harvard University, and he has proceeded to loose the original set. He has sent me duplicates. These, of course, have lost a considerable amount of their original color. If you guys over there in the Ivy League schools could get together, maybe you could get yourself a good set of them, but believe me, Schultes is on my No. 1 List right now. If you are willing to throw a stick of dynamite into Harvard, go ahead and do so. Let me know more specifically what you are after, and I will try to supply it.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 25, 1965

Dr. Dilwyn J. Rogers
Associate Professor of Biology
Augustant College
Sioux Falls, South Dakota 57102

Dear Dr. Rogers,

Thank you kindly for sending on the request for a reprint of my computer work. I will forward this request, and am sending to you the only available reprints that I have at the moment. We have several papers that are in press, that have changed our direction and have improved our ability to do taxonomy with a computer drastically. Incidentally, we do not do "numerical taxonomy". That belongs to an opposing school. We never have felt that taxonomy was numerical, and to call it such is in bad nomenclature.

Sincerely yours,

David J. Rogers
Professor of Botany

P.S. Please note change of address.
DJR/ec
Encl.

31

October 25, 1965

Mr. Frank C. MacKeever
New York Botanical Garden
Bronx Park, Bronx, New York 10458

Dear Mac,

It has been sometime since I communicated with anybody at the Botanical Garden, and I am sorry I have taken so long to let you know that some of the materials, I don't know how much, have arrived here. The reason I don't know how much is the fact that I have not yet opened any of the packages. We had to order new herbarium cases to put them into, and I thought the safest thing to do is leave them as is and not disturbed until we had an opportunity to put them into safe storage. We have ordered twelve cases from Jack Sheehan, and I hope that they will soon be in. This will let you know that we are at least alive and have not all fallen in the Colorado River.

Things are beginning to smooth themselves out here. It always takes longer to get going than you hope it will, and we have certainly had that situation here. We have been in temporary quarters until just recently, and have just moved into what we hope to be our permanent home, the Old Music Building. It is the second oldest building on the campus. However, it will serve our needs very well -- once the Music Department gets itself out of here. The Music Department is to move into another old building which has been renovated for their use, but in the meantime, we are having to put up with scales and piano noises of all kinds (I won't call it music.). Sometimes it is musical and sometimes it isn't. We thought that after a while after arriving here that we had gone in the wrong direction and ended up in England because it started raining, there was a cold fog, and even some snow for about two weeks. The natives here were all going around blaming it on us, saying we had brought the weather with us. We are sure, of course, that was not the case because we remember the drought in New York. However, after a few days of this lousy weather, it cleared up and Colorado's bright blue skies came through. It has been that way ever since -- we have had absolutely marvelous weather. It is fun to get up now and again into the mountains to see the scenes and the sights. It's just absolutely marvelous to be able to look out to the east across the plains towards Kansas and other parts of the world. We still haven't found a

Letter to F. C. MacKeever
October 25, 1965

Page 2.

house to buy yet, but are living very comfortably in a nice little rented place, and I am not too eager to shift and move again. It is hard enough to make it the two thousand miles from there to here, and to just shift across town now is more than I can bear to think of. All the rest of the crew are in good shape. Henry and Mary are living in a nice apartment on the campus, in the faculty apartments. George has a place across town where he is holed up and Bob Brill (I don't believe you met him. He's our programmer.) is living in a basement apartment while he goes to school half time and works on our project half time. The university is really a tremendous place. It has 11,900 students now and all indications are that we will go to about 15-20,000 by 1970. The thing I like about this place is the university has set it's sights on excellence in the field of biology and they are going all out to make biology the major endeavor. This is truly a wonderful experience to be in a place like this where biology isn't the low man on the totem pole. Botany has a pretty big staff, with just about fifty scientific people -- or professional people, you might say -- teaching and doing research. That's just a small part of the total picture, of course, what with horticulture -- and I mean horticulture here is no horticulture like you get in New York -- and agronomy. All these units are really people working on plant materials and various sorts of research. And then, of course, they have big genetics groups here and other endeavors that really make the place hum. We're happy to be here. Our work is progressing nicely, and will get going full steam as soon as our herbarium cases arrive. I hope you are not too impatient with us.

Sincerely,

Dave

DJR/ec

- Taxonomy Laboratory.

October 25, 1965

American Association for the Advancement of Science
1515 Massachusetts Ave., N.W.
Washington, D. C. 20005

Attention: Subscription Department, AAAS
Membership Chairman, AAAS

Gentlemen:

I have attempted for several months to get my subscription and my membership in AAAS changed from:

The New York Botanical Garden
Bronx Park, New York

to:

Taxonomy Laboratory
Department of Botany
Colorado State University
Fort Collins, Colorado 80521

Will you please tell me how to accomplish this task? It does not seem complicated to me.

Very truly yours,

David J. Rogers
Professor of Botany

DJR/ec
Encl. Label from Science magazine.

- Taxonomy Laboratory

October 25, 1965

Mr. Ion Carausu
Statiunea Biologica "Stejarul"
P. Neamt, Bacsu, ROMANIA

Dear Mr. Carausu,

We are no longer involved in the studies of algal taxonomy and have passed on to other interests. Furthermore, you will note that we have left the New York Botanical Garden and are now situated at Colorado State University. We have no particular interest in the algae at this time. All of our work concerns the application of computers in taxonomy in general, and it was only for a very short time that we collaborated with an algal taxonomist on some marine algae, particularly on the genus Halimeda.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

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- Taxonomy Laboratory.

October 25, 1965

Dr. Heber W. Youngken, Jr.
Dean, College of Pharmacy
University of Rhode Island
Kingston, Rhode Island 02881

Dear Heber,

At long last I am sending all of the papers for our application to you. I think this is the way that we said we would do it -- that I would send it to you, and you would submit them. I have added, as an addendum, the information requested on some of the more recent requirements that you told me were needed after you had had a sight visit from Col. Daquisto. I hope this procedure is satisfactory, that the budget is in order and not too bad for what we are looking for. As you know, we are willing to negotiate some of these items; and if there are any of them that really need to be modified, we can do so formally or informally, whichever is the most appropriate.

As you can see from the request, it is going to take me sometime to get in business because I have to hire a staff. There is not staff, at the moment, ready to go and work on these particular projects. This will have the effect, actually, of delaying the operation to some extent. However, if the funds are forthcoming, it will be possible for us to get going by asking collectors (not our own) to begin to send materials to you. I have a few names and friends in various parts of the eastern tropics, and some in the western tropics, who might be willing (for a price) to begin the collections of interesting materials for us.

I am not so "hot" on this method, but at least it will get us going. The reason I have reservations is that we will not have much control over the material that we gather. We will have to accept whatever it is that the field collector gathers. It may or it may not be that which we were looking for originally. With this reservation, however, we can at least begin to show some work to the army.

I hope that you will find everything that you need; and if you do not, please let me know and I will help to supply it.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec
Encl.

- Taxonomy Laboratory

October 26, 1965

Dr. Robert Z. Norman
#310 Bradley Hall
Dartmouth College
Hanover, New Hampshire

Dear Dr. Norman,

I thought you might be interested in what I have been doing this past year and in what I hope to be able to do in the coming next few. With respect to my hope for graduate study, I must admit that you were quite right when you indicated to me that my record was not strong enough to qualify me for study at the institutions that I seemed to prefer. Perhaps I should have had the humility to give your advice more weight two years ago, for I was not successful in getting the support that I needed to start graduate study this fall either. Alternatively, however, I spent a very interesting and rewarding year in New York at the New York Botanical Garden working with Dr. David Rogers. Our problem, as you may remember, is to develop a computer method which will aid biological classifiers in their work. Evidently my efforts were not entirely sterile for the methods which we developed have met with some acceptance among biologists and have proven very useful in a number of specific classificatory studies. At present we have two papers submitted for publication describing our work: one with Systematic Zoology (of which I am a co-author) and one with the Journal of Theoretical Biology (of which I am the sole author). Dr. Rogers was evidently sufficiently pleased with my contribution to his project that he invited me to continue to work with him another year, which I am doing. This accounts for my change in address, for last summer Colorado State University asked Dr. Rogers if he and his research group would join the faculty of C.S.U. to continue their work on this campus. Thus I presently hold a faculty appointment (instructor) in the Botany Department here at C.S.U.

Letter to Dr. R. Z. Norman
October 26, 1965

Page 2.

Although I have been able to spend some of my time in the study of mathematics for its own sake (I have become very interested especially in Graph Theory and Information Theory) I am still very anxious to start graduate school next fall. This creates two important questions that perhaps you can help us with:

1. My admission to graduate school.
2. The discovery of a replacement for me here at C.S.U.

With respect to the first question, I am seriously considering a master's program at the University of Massachusetts at Amherst for many reasons, some of which are:

- a. I have a reasonable chance of a graduate assistantship of some sort there.
- b. I understand that they have recently increased their staff in mathematics and are interested in expanding their graduate program.
- c. Dr. T. T. Tanimoto, Chairman, Mathematics Department, University of Massachusetts at Boston, recommends the U. of Mass. to me, and me to them.

I would like very much to guarantee a place for myself this coming fall in order to avoid having to go through the entire application routine yet a third time. I hope to be able to come east this December to talk personally with some mathematics department members of UMass about this. If it is necessary, would you be willing to support my application there?

My very tentative plans (especially if my current interest in Graph Theory stays alive and the record which I accrue on my master's program warrants) are to return to Dartmouth to do Ph.D. work.

With respect to the second question, that of my replacement, Dr. Rogers and I have had conversations with the Chairman of the Math. Dept. here, (Dr. L. M. Madison) as well as members of the Botany Dept. concerning the matter. Let me describe briefly what sort of individual is desired. This new staff member would most probably hold a joint appointment with the Math. Dept. and the Biology Dept. He should have recently received his Ph.D. in Mathematics. He will function primarily as a mathematician with ample time to pursue his own research interests, but will also serve as a regular participant in this project in the Botany Department where he will concern himself primarily with the theoretical soundness of the methods (not with the details of programming or data preparation).

Letter to Dr. R. Z. Norman
October 26, 1965

Page 3.

He will also have some teaching. He should be interested in some abstract field such as Algebra or Topology rather than Statistics or Analysis. There are two reasons for this:

1. C.S.U.'s Math. Dept. needs to build up the abstract fields more than the applied fields, and such a gentleman would be more welcome from the Math. Dept. point of view.
2. This project in Biology does not use Analysis or Statistics and would rather the problem be viewed without the prejudices that a Statistical or Analytical background would necessarily give.
(This suggestion also came from the Math. Dept.)

If you can name anyone who would be interested in this position, Dr. Rogers would be most interested in your suggestion.

I hope your own work is progressing well. I thank you for your interest and help.

Very truly yours,

George F. Etsbrook

GFE/ec

- Taxonomy Laboratory

October 26, 1965

D. Van Nostrand Company, Inc.
Princeton
New Jersey

Gentlemen:

It seems that your book Principles of Angiosperm Taxonomy written by P. H. Davis and V. H. Heywood might be very well suited to a new course to be taught at Colorado State University next quarter.

Could you send me a desk copy?

Very truly yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 26, 1965

Mr. T. W. Hurst
Worthington, Hurst and Associates
333 N. Michigan Avenue
Chicago, Illinois 60601

Dear Ted,

Thanks for the character-attribute sheets. I have marked up the N values for the program, for forwarding to New York. Unfortunately, Page 5 which includes characteristics 18-23; attributes 201-222 is missing. This missing page would contain two ordered characters. Character 20 I have listed N=4. Character 23 I have listed N=5 rather than 6. This handling of character 23 is based on the last telephone conversation between you and Dave. If you disagree with the above N value for character 23, drop us a letter and we will have it changed in New York. In effect, attribute 222 is being considered as a 'not logical' and is not included in the ordering.

After having gone over your attributes, I have marked all other ordered characters (than character 23) with an N value covering the complete range of the character. You might like to make note of this in your records.

We are getting settled here and expect to start de-bugging the S_{ij} part of the program for the 7094 next week. Wish us luck.

Dave sends his best.

Sincerely,

Henry Fleming

HF/ec

- Taxonomy Laboratory

October 26, 1965

Mr. John H. Hanley
Head, Accounting Department
The New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear John,

In case you think we have forgotten your letter to us of September 23rd in which you gave us a recap of the funds left in the CNR account, I just want you to know that the reason we are hanging on to the bills and not returning them to you for the payment with the balance that you have available is that we are having a squabble about what we really owe the CDC. We have been trying to get them to straighten it out, and we hope that it won't be too long before actually they have knocked off some of the bills that we've got. There are some things which are unjustly charged to us and we are not going to pay until they've straightened it out. However, we hope that within the next few days it will be done.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 26, 1965

Mr. John W. Conifrey
Control Data Corporation
575 Lexington Avenue
New York, N.Y.

Dear Jack,

I am sending under separate cover a deck of Port-A-Punch data cards in your name. The accompanying enclosure should contain all the information that Henry needs for his dimension, etc. statements.

We want back:

1. Printout of S_{ij} 's (not ordered)
2. Printout of data feed in.
3. Plot. - skyline.
4. Sub-graph printout.
5. Printout of minimum similarities.

We have been waiting for your telephone call. As I figure it, we have considerable time coming to us. The only piece of data that we have run against it is (1) Opolonia containing only 35 objects which took three minutes and ten seconds. This figure is on the printout sheets. The last piece of data that Henry ran before the contract (character analysis with five hours of 1604A time) was a re-run of Manihot Esculenta. This run was several weeks before the contract.

For CDC's sake, you had better 'get cracking' on this business. If we cannot have the instructions back to New York Botanical Garden and through their red tape by November 15th on the proper forms, etc. the money will revert to some Admiral's slush-fund and CDC will have an exciting time -- it will make the Viet Nam war look like a skirmish -- getting their money.

Are you the father of a boy?

Sincerely,

Henry S. Gleming
~~David J. Rogers~~
Professor of Botany

DJR/ec

FOR HENRY

Number of objects = 150

Number of characters = 43

Number of attributes = 101 to 365 in lots of 70(101 - 170, 201 - 270, 301 - 365)
366 - 370 are not used.

Character	Number of attributes	N =
1	5	5
2	4	4
3	4	4
4	4	4
5	5	5
6	4	0
7	5	0
8	2	0
9	5	0
10	2	0
11	5	5
12	4	4
13	3	3
14	3	3
15	3	3
16	4	4
17	3	3
18	6	6
19	4	0
20	4	4
21	4	0
22	4	0
23	6	5
24	6	0
25	7	0
26	4	0
27	6	0
28	8	0
29	7	0
30	2	0
31	8	0
32	6	0
33	8	0
34	3	0
35	6	0
36	5	0
37	4	0
38	4	0
39	4	0
40	6	0
41	7	0
42	5	0
43	6	0

Notice that characters 1, 2, 3, 4, 5, 11, 12, 13, 14, 15, 16, 17, 18, 20 and 23 are ordered characters and with the exception of 23 have the same N as the number of attributes in the character. Character 23 has 6 attributes, but has a N value of 5 or one less than the number of attributes in the character.

- Taxonomy Laboratory

October 26, 1965

Dr. William T. Stearn
Department of Botany
British Museum (Natural History)
Cromwell Road, London S.W. 7

Dear Dr. Stearn,

We are sending to you by surface mail the following:

1. A copy of the computer printout of Oplonia.
 - a. Similarity ratios
 - b. Clustering
2. A copy of a manuscript (now in press) which explains our computer method.
3. A mimeographed paper "How to Read the Printout".
4. A large piece of brown "butcher's paper" with a series of subgraphs -- our own method of pictorializing the printout.
5. A computer-derived, computer-printed "skyline" graph of the results.
6. A copy of our interpretation of your characters and attributes.

We are not returning the original data sheets, thinking that you have your own copy of these. If you did not keep these data sheets, we can send them later if desirable. Because of the quantity of the material we are sending this by surface mail. You may be very much shocked by the weight of paper returned to you. We are sending these various documents because they are critical to the understanding of exactly what the computer has done and why it was done.

The actual output from the computer does not give you decisions already made concerning your taxa -- it is not intended to do so. You, as the taxonomist, the specialist, the knowledgeable person, must make the decisions as to what you will select as taxa. In spite of these admonitions, however, I think that you will probably find that the printout gives you some good ideas about how you may decide what your taxa are.

It must be understood that the suggestions that the computer makes are based directly on the information given. Nothing really new is added. In setting up your data for the computer, we have used our judgments where it is possible, but we cannot add information where it is missing, nor can we interpret several places on the coding sheets where the coding was doubtful. As is typical in taxonomy, several of the specimens were missing data, one of them missing up to nine characters. In those cases where much information is missing the specimens may not be as accurately placed as they might be. We might point out as well, that this study has the smallest number of characters we have ever tried; and when information is missing, it must be recognized that this has a direct effect on the positioning of the specimen in the graphs. We had considerable doubts about coding in the geographic factors as information about the plants. Adding geography as a character may have had some undesirable influence on the results.

Looking at the graphs (the brown paper), one gets an overall view of major systems represented by the various specimens. It seems in this study four major "systems" are operating. Three of these are Caribbean and one is Peruvian. Note that the Peruvian specimen, No. 35, does not join until the very last level, Level 21. At a very high level, Level 2, specimens No. 11 and 12, and joined at Level 7 by No. 27, stay apart completely until we get to Level 18 where No. 11 is joined to specimen No. 18. Specimens No. 4 and 5 at Level 5, joined by No. 6 at Level 9, stay separate for a very long time, and they too do not join onto the largest cluster until we get to Level 16 where, through specimen No. 6, this cluster joins specimen No. 27.

The meaning of this activity, i.e. what you want to do about decisions on the sub-generic or generic levels is obviously something that you can decide best with the specimens in front of you. It has been our practice to take all of the specimens that the graph represents and look at them as they are put together, or suggested that they be put together, by the graphs. There are also other kinds of hints that you can find at a lower level than the generic or sub-generic divisions. Some of interest to us, for example, concern specimens No. 15, 16 and 17, O. microphylla of Jamaica, composed of similar individuals but these differ very little from the Antigua and St. Vincent specimens (specimens No. 13 and 14). Is this an effect of coding in geographic data?

Minor specimens 18 and 19 are quite similar, and if they are not a sibling species, they might represent a variety of microphylla. Specimen 11 of minor should be examined closely -- it seems to be an aberrant specimen from the graphs, because it joined with a specimen of armata (Specimen No. 12) at a relatively high level (Level 3) at a similarity rating of .96; and in turn, it serves as a node to relate the armata cluster (12) to minor (specimens 18 and 19) at a much lower level, 18, with a similarity of .75. Armata specimen No. 32 also relates to minor specimen 18. This specimen should be similarly studied carefully. As a suggestion, is minor (No. 11) a hybrid between microphylla and armata?

Specimen No. 25 (polyece) is as equally related to minor (specimen 19) as to tetrasticha (No. 8). On the basis of two specimens of polyece (31 and 25) the species is variable.

Spinosa, whether from Cuba (21), from Hispaniola (22, 26, 28), the Bahamas (33), or the Virgins (10), group among themselves but indicate some variation. Specimen 20, microphylla (with nine characters missing) should be appraised. It probably relates to 21, spinosa, because of missing information.

There are many more facets of information that one might derive here. I merely started you out with these in order that you can see the type of reading that might be done. Care must be used when appraising the sub-graphs, particularly with poor specimens. Specimens that lack information are being tested only on their information present. The amount of information present is also being weighted by the amount of missing information. Notice that at Level 11 specimen 20, which lacks nine pieces of information, is operating (acting as an articulation point) between specimens 21 and 7. Specimen 24 is another poor specimen. Another piece of information that you may wish to take into account is that the coding has weighted the characters for spines and hairs. Those specimens without spines and hairs may be indicated as more distant than we would intuitively place them. We might also point out that the characters concerned with whether the apex of the leaf is emarginate or mucronate should be consolidated into one character.

Letter to Dr. W.T. Stearn
October 26, 1965

Page 4.

In closing, let me say that we are probably burdening you with a great deal of work for essentially a very small taxonomic problem. We do feel, however, that if you are willing, or have the opportunity and time, to really digest the operations as we outlined them, you will gain a tremendous insight into the groups of organisms under study. If you have this one project well understood, then it is likely that you will have a better opportunity when really complicated and large studies begin. We hope you will consider other cooperative studies -- our objective is to provide assistance.

Sincerely yours,

David J. Rogers
Professor of Botany

DJK/ec

October 28, 1965

Mr. Kenneth D. Knievel
Office of International Programs
South Hall, Colorado State University
Fort Collins, Colorado, 80521

Dear Ken,

Our conversation yesterday has stimulated me to sit down and write out my thoughts about a program for mandioca (Manihot esculenta). This crop is so critical amongst millions of tropical lowland people that it deserves to receive the very best we can offer in the way of technical assistance.

Let me review the situation with this crop before getting into suggestions for work on it. Mandioca is a new-world crop, raised by native Indians long before the advent of Europeans. The methods of culture are still essentially those practiced by the Indians. This is not entirely bad, but it is certainly no "pat on the back" for those interested in tropical agriculture. Mandioca is seldom, if ever, a large-scale crop. Rather, it is a kitchen garden, door-yard crop where each family raises enough for immediate needs and little more. I have seen, in all my travels to study this particular crop, only one really organized, large-scale planting of mandioca for commercial production. There are areas in the state of Sao Paulo where large-scale production occur, or so I understand. Surely, there are suppliers of local markets, but these are not sufficient to supply a steady, useful quantity for commercial production and the local needs. There are good reasons for this. There does not exist in the tropical countries any kind of assistance from local banks, from government or private enterprise, the kind of funding necessary to guarantee the local farmer a return on his time and effort to raise the raw materials necessary to the whole project. If a private investor from the U.S. goes into the tropical areas with a fancy factory but is not willing to subsidize the farmers with long term, low credit money we can guarantee failure. This is true in our own country -- it is doubly true in the underdeveloped ones. And, in the case of mandioca, there is going to have to be much technical back-up, because the farmers are going to run into many problems that they cannot solve by themselves when they begin plantation-size growing of this crop. Inevitably, there will be disease problems, insect pests, nutritional deficiencies, etc. which require the attention of pathologists, physiologists,

Letter to Mr. K. K. Knieval
October 28, 1965

Page 2.

geneticists and the like. This is not idle prediction -- it just happens, no matter what the crop. But we may forget that many of our temperate zone crops, or tropical crops raised for temperate zone markets have already had all this attention. Look at sugar, coffee, cacao, etc., etc. Commercial organizations are willing to, and have, paid tremendous amounts of money and time for research. The United Fruit Company's efforts just on bananas is a good example. No such effort has been made with Manihot.

It would seem to me wise to begin with pilot programs -- not full-blown production schemes. This should involve the whole framework of agriculture, engineering, economy, marketing and consumer, but in microcosm. Select a small group of farmers, the progressive ones, back them with long-term loans, with local agricultural know-how, have the whole flow of the work organized in advance, so that no hitch comes at any critical stage. Carry through production with essentially home-made processing equipment, not fancy, made-in-Germany stuff. Get your local technicians into the work -- they're going to become involved anyway, if the thing's to be a success.

To get such a program going, one needs a fairly small staff, but these staff members must be top-notch, well-rounded people who know something about the tropics and the special problems presented there. There aren't too many people in the U.S. who really know what tropical agriculture is all about. To get what is needed, you'll have to do as the Rockefeller Foundation has done in Mexico -- get good men, pay them well, and leave them with the job until they succeed. You can't do research overnight.

I'm sure that you're stuck with an impossible task of selling this idea to a program that was not set up for this type of objective. But, if this idea isn't sold, you can chalk up another failure of "good old American know-how".

I leave you with this. I haven't even mentioned my own research -- if you cannot sell what I suggest above, my part in the whole fabric will never get a hearing. I know -- I've banged my head on this wall for nearly fourteen years.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

Letter to Mr. K. K. Knievel
October 28, 1965

P. S. No. 1:

I have in my possession two manuscripts written by a chap named Arnold Krochmal who has been doing some agronomic and horticultural investigations for what he calls Cassava, which is the same thing as Mandioca. These might have some interest to you for reading; but I cannot publicly display this material inasmuch as it has not been released for publication yet. I am sure Dr. Krochmal would not mind your reading this. If you want to do so, I will be glad to let you see them. It is pertinent because he talks about agricultural development of mandioca in the state of Sao Paulo.

P. S. No. 2:

I have read over very rapidly the thesis by Ish Kansaw. There are some rather glaring errors in the introductory material which we can clear up in pretty short order. I think this will have a useful effect on the thesis, and I will be glad to go over them with Ish.

- Taxonomy Laboratory

October 28, 1965

Dr. Taffee Tanimoto
156 Belleview
Newton, Massachusetts

Dear Taffee,

What luck did you have with the position for George on the Amherst campus? Have you had a chance to call the Chairman over there; and if you have, -have you got any word for us?

When are you coming to see us?

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 29, 1965

Mr. Robert R. Gulick
BioSciences Information Service
3815 Walnut Street
Philadelphia 4, Pennsylvania

Dear Bob,

It may not have come to your attention that I transferred my place of business from New York Botanical Garden to the above address back as of the 1st of September. I thought that I had sent in the appropriate address changes to Biological Abstracts before leaving; but it seems that such has not cleared through the channels. Would you be so kind as to have my address changed from the Botanical Garden to the Taxonomy Laboratory, Botany Department, Colorado State University, Fort Collins, Colorado 80521?

For your information, we moved our operations here from the NYBG to improve our opportunity for both research and teaching. NYBG offered us no opportunity for teaching, and here we hope to be able to spread the gospel of computer taxonomy to the heathen. We are very happy with our situation here, but I hope that I can continue to be of service to Biological Abstracts. (I haven't received any abstracts recently for editorial work, but will be glad to have them.) I will be happy if you will show this letter to Phyllis, to whom I send my best and warmest regards.

While I am at it, I might as well ask you if you can tell me the cost of special literature researches. If it doesn't cost too much, I might even ask to have a search made on the subject of the use of computers in the study of evolution and such words as might occur in combination herewith, such as "models for evolutionary studies" and mathematical models for evolutionary studies". Let me know if this can be done reasonably and in a fairly short time.

Best regards.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

October 29, 1965

Dr. Carl C. Moh
Inst. Interamericano de Ciencias
Agrícolas de la OEA
Turrialba, Costa Rica

Dear Dr. Moh,

I wonder if I might trouble you for a few cuttings of Manihot esculenta that I may propagate here in Colorado. I am not particular about the particular varieties that you might send. As a matter of fact, only three or four different types would be all that I would be interested in. If you would send them to me here, I will be more than willing to pay whatever transportation costs are involved. I would guess that sending them by parcel post would be the easiest way.

I haven't any growing specimens of yuca with me, and I feel a little bit lonesome without them. This is the reason that I want them up here, although I do hope that I will be able to get some students interested in various aspects of the study of these plants. One of the things that I would like very much to get students going on, if I could possibly do so, is the physiological character of HCN production -- metabolic pathways, environmental influence, etc. This is, of course, a factor that is very difficult to work out, and I'm not just sure how to attack the problem. But inasmuch as we have a number of good physiologists on the staff here, it may be possible to get somebody going who can do some good work with this particular aspect. I trust that it will be little trouble for you to send me the materials. I will appreciate it very much.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

October 29, 1965

Dr. Howard Irwin
Department of Botany
Universidade de Brasilia
Brasilia, F.D., Brazil

Dear Howard,

Your manuscript arrived very shortly after we got here, and I didn't have the opportunity at the time to acknowledge it. I hope that everything is all right with the manuscript and that you have submitted it for publication. Have you heard anything about the time it will appear?

I hope that you and family have been able to get settled in Brazil and with a minimum of trouble. I am sure that something must have gone awry, with with all the fancy arrangements you had to make.

We are more than pleased with our new situation here. The Dept. of Botany has just lost a chairman. The man who had been on the faculty as chairman for about twelve years had lost the confidence of just about all the staff in the department. Of course, this was something that was already in the mill when I came, and my appointment has nothing to do with him particularly. Henry and George and Bob Brill and I are all now situated in one of the oldest buildings on campus, the Old Music Building. We are pretty happy about the place because it is our own building, and we will have enough room for ourselves to spread out, to spread out specimens, and also have enough room for a number of students. I have a new course to offer in taximetrics next spring. This is something, of course, we are eager to do and to get going on a graduate program. I think we have the interest of a number of the staff and faculty who want us to prepare their students, and this is exactly what we are looking for. In taxonomy, we have Harold Harrington (He's the oldtimer who wrote The Flora of Colorado.) and a young fellow who got his degree at the Rancho Sants Ana Botanic Garden, Claremont College. His name is Bill Klein. He did his work under Munz and naturally worked on Oenothera. Of course, he came under the influence of Vern Grant out there, and his take-off is biosystematics. At the

COPY

Letter to Dr. H. Irwin
October 28, 1965

Page 2.

moment, the department as far as taxonomy is concerned, is not really "gung ho", but I think we will be able to shift the picture quite rapidly.

I wonder if it would be too much to ask you to look for seeds of Manihot for me. I have some room in the greenhouse now, and there is nothing like the situation in New York where I cannot go in and diddle with my own materials. So, there is a better chance that I can get something growing here. If you have any chance to get seeds, just put them into a regular envelope and send them along. I don't think there will be any trouble. Some of those odd species that you found on the cerrado will be most welcome. If you can get that one species -- the one with the simple, unlobed leaves again, this will be most helpful. Anything, of course, in Manihot will be useful to me and I will be more than happy to have it.

Connie and I are well set up in a little home we rent. We haven't decided on what sort of house to buy. The town of Fort Collins is loaded with houses for sale, although most of them seem to be higher priced than we are willing to pay at this particular time. It seems, however, that if we wait until the middle of the winter, we will have a better chance to get the prices down into the range that we are interested in. The kids love the schools here, which is a real shift from what we had in New York, where we had to practically force them to go to school at the point of a pitchfork.

Once again, I hope that your stay in Brazil will be profitable, and that we will be hearing from you soon. Give my best to Marian and the kids.

Most sincerely
signed Dave

David J. Rogers
Professor of Botany

DJR/ec

OUTLINE OF BOTANY 170. TAXIMETRICS

The following is an outline of the course rather than a lecture schedule. This method of presentation is offered rather than the lecture schedule because the course is "experimental" this year. Having no precise prerequisites, and having no idea whether students will be sufficiently well prepared to accept the total offered by this outline, we will most likely have to modify the content as we proceed.

Four staff members will participate in the course. The biological and taxonomic aspects will be taught by D.J. Rogers and H. Fleming, the mathematical aspects by G. Estabrook, and the computer aspects by R. Brill.

The method of presentation will be a combination of lecture, discussion, and practical application. Students will actually do a small, selected classification, run it through the computer, and interpret the results.

We want to keep the class small for the first run-through to allow more flexibility, and to give us more "feed-back" on the value of the presentation.

I. Definitions and description of taximetrics (syn.="numerical taxonomy").

- A. Application of numerical methods to non-numerical data in taxonomy.
- B. The place of taximetrics in the total field of biological taxonomy.
- C. The types of data used in classification process.

II. Historical review of taximetrics.

- A. Michel Adanson, 18th century French biologist non-weighted classification, and the subsequent controversies
- B. The early efforts to quantify taxonomic classifications.
- C. Computers and their influence on taximetrics.

III. How is a computer used in classification?

- A. Simple description of the computer.
- B. How the circuitry of the computer lends itself to classification.
- C. Examples of use of computer in classification.
(Psychology, anthropology, biology, social sciences)

IV. Introduction to fundamental mathematical concepts useful in taximetrics.

- A. Arithmetic logic.
- B. Sets.
- C. Unique determinations.
- D. Functions and correspondence.

OUTLINE OF BOTANY 170. TAXIMETRICS

- 2 -

- V. Biological foundations for taxonomy and ecology.
 - A. The "synthetic" versus the "analytic" aspects in biology.
 - B. The information derived from biological objects -- characters.
 - C. The role of characters individually and collectively in classification.
 - D. Defining taxonomic categories.
 - E. Hierarchical versus non-hierarchical classifications.
 - F. The formal taxa of biology.

- VI. Developing rules and applications of mathematical thought processes appropriate to biological problems (fitting the mathematics to the biology rather than the opposite).
 - A. This, and the next section, will be student-participation procedures.

- VII. Practical applications using existing methodologies -- "doing a classification."

- Taxonomy Laboratory

November 1, 1965

Standard Oil Travel Center
918 Michigan Avenue
Chicago, Illinois 60605

Gentlemen:

Will you please send us whatever maps you have which provide information about the area which includes Texas, New Mexico, Arizona and the country of Mexico?

Very truly yours,

Henry Fleming
Associate Professor of Botany

Same request sent to Humble Touring Service and
15 West 51st Street
New York, 19, N.Y.

~~PHILLIPS~~
~~Phillips~~
~~Phillips~~ 66 Touring Service
P. O. Box 88027
Houston, Tex.

- Taxonomy Laboratory

November 1, 1965

Professor E.G. Kundert
c/o Graduate Applications
Department of Mathematics
University of Massachusetts
Amherst, Mass. 01003

Dear Professor Kundert:

I am writing to support Mr. George Estabrook's application to the Graduate School for Advanced Work in the Department of Mathematics.

Mr. Estabrook has been working under my direction for the last year and will be working until the end of next July or August. In this position, it has been his responsibility to investigate the various methods of application of mathematics in the field of biological taxonomy or classification. I personally feel that Mr. Estabrook's investigations have been extremely useful to the process of classification. He has been able to look at biological classification and to use his already considerably knowledge to develop mathematical models which accurately reflect some of the processes.

The above indicates that I am not able to judge his formal academic ability, but it also indicates that Mr. Estabrook has grasped the information presented in his various formal courses and has been able to use them with marked success. I would judge from this that no matter what his grade average may have been, he has done the job of learning which was anticipated and has done it with outstanding success.

Mr. Estabrook is an able teacher. During his work with me, one of his requirements has been to present his findings before his peers in botany. In these various lectures and seminars, Mr. Estabrook has demonstrated again and again his ability to get concepts across to people who are not necessarily as well trained nor as skilled

Letter to Prof. E.G. Kundert
November 1, 1965

Page 2.

mathematically as he is. His writing is as lucid as his speaking. In various informal settings, Mr. Estabrook has also demonstrated his teaching ability. I would say, from his work with us, that he has gained considerable amount of poise and understanding of the needs for teaching. Although it has not been under what one may consider formal teaching conditions, he has certainly done a lot of it and has gained considerable skill in the process.

I recommend Mr. Estabrook for his personal qualities as well. He is unfailingly pleasant, and is willing to work under very unusual conditions, as he has had to with us. He has always been very prompt in the submission of whatever is required of him. I think that his diligence and his personal manner both will contribute to a very successful graduate program.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

JIM GRACE, CSURP

11/1/65

DAVE ROGERS, TAXONOMY LAB./BOTANY DEPT.

IBM CONTRIBUTION

Would you please have the appropriate signature affixed
to the enclosed agreement, and forward it to IBM in
New York.

DJR/ec
Encl.

- Taxonomy Laboratory

November 1, 1965

Prof. E.G. Kundert
c/o Graduate Applications
Department of Mathematics
University of Massachusetts
Amherst, Massachusetts 01003

Dear Professor Kundert:

Thank you for your letter of October 26, 1965. I have written to the Dean of the Graduate School to ask him to reactivate my application.

Please find enclosed the completed teaching assistantship application. As you requested, I have asked Professor Tanimoto and Professor Rogers to write to you on my behalf. If these actions are not sufficient for me to be adequately considered for admission and financial assistance, please inform me.

I expect to be in the area of Amherst, Massachusetts between the 26th of December and the 2nd of January of 1966. During that time, I would like very much to meet with you or some other member of the Department of Mathematics to discuss the graduate program at the university. Please advise me if such a meeting will be possible.

Thank you very much.

Sincerely yours,

George F. Estabrook

GFE/ec
Encl.

- Taxonomy Laboratory

November 1, 1965

Dr. Taffee Tanimoto
156 Belleview
Newton, Massachusetts

Dear Dr. Tanimoto:

I received a reply from Dr. E.G. Kundert, Department of Mathematics at the University of Massachusetts, indicating what I must do to reactivate my application for graduate study in mathematics. He also asked me to ask you to write to him your opinion of me as a prospective graduate student and teaching assistant. If you would be willing to do this, I would appreciate it very much.

Sincerely yours,

George F. Estabrook

GFE/ec

- Taxonomy Laboratory

November 1, 1965

Office of the Graduate School
University of Massachusetts
Amherst, Massachusetts 01003

Gentlemen:

I am advised by Professor E. G. Kundert to request you reactivate my application for admission to the Graduate School in Mathematics. This application, together with complete supporting credentials, was submitted to the office of the Graduate School in the spring of 1964.

If this letter is not sufficient to insure that I be considered for admission in the Graduate School, fall of 1966, please advise me immediately of what I should do.

Thank you.

Very truly yours,

George F. Estabrook

GFE/ec

- Taxonomy Laboratory

November 1, 1965

Mr. Harold K. Voris
Division of Reptiles
Chicago Natural History Museum
Roosevelt Road and Lake Shore Drive
Chicago, Illinois 60605

Dear Mr. Voris:

This is in partial answer to your letter of October the 22nd. We are definitely interested in seeing what sorts of comparisons can be made between our methodology and others. Because of this interest, we find that it would probably be best for one of us to have a personal visit with you.

Mr. George Estabrook, the mathematician of our group, is planning a trip to the East in December. He will probably be able to stop by Chicago on his return, and visit with you if it is convenient after the beginning of the new year.

One reason for his making a personal appearance is that there are several aspects to our study which apparently need some background information so that you can understand what really can be done with our program. We started to write down a list of instructions for the preparations of characters, and discovered that we have a paper in production at the moment. Since this is the case, it probably will be better to give personal instructions so that there can be some understanding of what is intended. Therefore, if it is convenient to you, we will make these arrangements. If, on the other hand, you need to have this information sooner, we will send you a copy of our instructions and discussions on the characters themselves.

I hope this is satisfactory to you. Will you please let me know if you will be in Chicago after the first of the year?

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 1, 1965

Professor Gileno A. Barreto
2895 Aurora
University Towers
Boulder, Colorado

Dear Professor Barreto:

I have recently read a copy of the thesis presented to Colorado State University, Department of Chemistry, by Mr. Ishmeal Ransaw.

In Mr. Ransaw's thesis, he mentions he has made a comparative analysis of the starch qualities of five varieties of mandioca which were prepared for his studies at the University of Bahia under your direction.

As a botanist with a great interest in the over-all study of mandioca, it occurred to me that it would be a very good idea to have documenting herbarium specimens of each of the varieties which Mr. Ransaw has tested. We have found that the local names of mandioca varieties are not very good documentations for the best scientific studies of these plant materials. I would, therefore, like to have your recommendations as to how I may obtain herbarium specimens prepared according to a set of my instructions, which are representative of a plant material from which the five varieties were derived.

Please let me know if it is possible to ask someone on the staff at the University of Bahia, or of the Agronomic Institute in Cruz das Almas to prepare the above described specimens and send those to me here. Any name that you care to refer me to will be much appreciated.

Very sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

Nov. 1, 1965

Mr. John W. Conifrey
Control Data Corporation
575 Lexington Avenue
New York, N.Y.

Dear Jack,

We have a statement of account sent to us at this address from CDC in Minneapolis. In it we still have the same billing that we have had right along, and want to know if you know anything about this particular bill. Does this summarize your accounting or your record of our expenditures? Or, does it not? This letter was dated October 26th.

One of the items that they have billed us for is dated Feb. 10, 1965. I thought we had certainly cleaned up all the accounts for that period before we left New York.

Please let me hear from you one way or the other about this money very shortly. If it is not taken care of this month, unfortunately, the Control Data Corporation will not get its money. Let me repeat it. Unless this is cleaned up this month, and very quickly, CDC will not be able to get any money because we will have lost it. Please let me hear from you as soon as you get this letter.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 2, 1965

Mr. David B. Lellinger
U. S. National Herbarium
Smithsonian Institution
Washington, D. C.

Dear Dave,

I wonder what is happening to our collaborative project, if anything. I should like to know if there is any advance towards the culmination of a cooperative study.

You know, of course, of our move out here. We are more or less settled now, and are in the process of re-writing our programs from CDC Fortran to Fortran IV. for the 7090. But in the meantime, we are trying to pull together loose ends from our various collaborative endeavors, of which yours is one. Let me know what the status of your project is.

Do you have any spare copies of the discussion and theoretical model behind your work for the study of evolution in ferns? I have in my file your flow chart that was made up for the symposium in St. Louis in 1962. I also have in my file Herb Wagner's little mimeographed blurb on divergence index method for expressing evolutionary data. Other than these two unpublished items, there is no discussion that I can find on the ground plan method for evolutionary studies. I would be very pleased if you could send me a copy of your discussions, and also if you can cite for me some published works discussion these. I need this rather quickly inasmuch as I am writing a chapter in a book entitled, "The Use of Computers in the Study of Evolution". Naturally, my deadline is upon me and I must have this information as quickly as possible. Let me ~~know~~ from you as soon as is convenient.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 4, 1965

Dr. Fred Wellman
Department of Plant Pathology
North Carolina State University
Raleigh, North Carolina

Dear Fred,

This is just a note to let you know that today your package of illustrations arrived. I am glad to have them because I can now proceed to the complete evaluation on your manuscript.

I hope it doesn't take too much longer.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 4, 1965

Mr. John H. Hanley
Head, Accounting Department
The New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear John,

We finally have gotten some clearance from the C.D.C. on our billing procedures, and with this letter I am returning to you their Invoice No. B68499 to pay as much as the balance left in the O.N.R. contract will allow. You will note that the amount I have mentioned to be paid is \$5,004.67. This figure I took from your letter of Sept. 23rd, and I am assuming that this will wipe out our funds in the contract with the exception of the remaining salary checks for Henry Fleming.

Thank you for your patience, and I hope that this finishes off your headaches with us.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec
Encl.
CC - Conifrey/CDC

- Taxonomy Laboratory

November 4, 1965

Dr. K. J. Goering
Assistant Dean, College of Graduate Studies
Montana State University
Bozeman, Montana 59715

Dear Dr. Goering:

As I am no longer associated with Economic Botany, I am sending your manuscript to the editor of the journal, Dr. Richard Evans Schultes, at the Botanical Museum, Harvard University, Cambridge 38, Massachusetts.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec
CC - Dr. Schultes

- Taxonomy Laboratory

November 4, 1965

Dr. Charles B. Heiser, Jr.
Department of Botany
Indiana University
Bloomington, Indiana 47405

Dear Charley,

Thank you for your letter of the 25th. As it is now working out, it seems better if we send Mr. George Estabrook to see you during the week following the Christmas holidays -- that is, about January 4th or 5th.

George is able to speak our language, and he has been over all of the background information that you have given us about the Solanum complex. I will admonish him not to anticipate that you are a finished mathematician, but that you are looking for biological types of discussion rather than mathematical. He is perfectly able to do this, and I think that he will be good at explaining what is going on and some of the interesting results that you might get from this computer work.

I hope that this time is convenient for you. If not, please let me know.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 5, 1965

Dr. Fred Wellman
Department of Plant Pathology
North Carolina State University
Raleigh, North Carolina

Dear Fred,

This is just a note to let you know that today your package of illustrations arrived. I am glad to have them because I can now proceed to the complete evaluation on your manuscript.

I am not certain at the time that you will be in New York that there will be anything very specific to discuss because the manuscript will have to be forwarded to Dick Klein and also to Jake Page who is the Doubleday editorial representative for us. They may or may not have had an opportunity by December 3rd or 4th to have done much with it. However, I will write to both Page and Klein and tell them of your possibilities of stopping and then ask them to contact you directly to see whether or not they would like to talk to you. I would definitely like to have them meet you, but I do not want you to have to go into the city if it is at all possible to escape. You should hear from Dick Klein before you leave Raleigh for Ithaca.

I will forge ahead full steam now and finish up my reading of the manuscript and forward it to them as soon as possible. Everything looks pretty good, Fred.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 5, 1965

Dr. Richard M. Klein
New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear Dick,

I just received yesterday the final set of illustrations from Fred Wellman. I now have the completed manuscript in my possession and will probably finish it up within the week. After that I will send it directly to you.

In Wellman's letter to me, he said that he was expecting to be through New York on December the 3rd or 4th. It was his idea that it might be a good idea to meet with you and/or Jake, but that he wasn't at all interested in going into the city if there were no need for it. I wrote to Fred and told him that I would leave it up to you as to whether you wanted to see him at that time or not. I also told him that he would be hearing from you about this before he leaves North Carolina on November 27th, so will you please decide with Jake whether or not you want to talk to Fred. You should have in your hand by then his manuscript.

Frankly, there is a little more work to be done on the manuscript, but it is my opinion that it is almost ready to go. I would say, at this juncture, that Fred has indeed turned in a manuscript and that we have, therefore, something to work with.

One problem -- Fred thinks that I have the original copies of the illustrative material for his book. Please jog my memory on this, but I think that Jake Page has the originals of the manuscript in his possession. If not, we are going to have to do some scratching to find out where the illustrations are.

Letter to Dr. Klein
November 5, 1965

Page 2.

No news here at this moment. A committee has been formed, but the committee has not begun its search yet because they are looking for directives from the staff before they start out to look for the man. This should take some time, but I do not know how long.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 5, 1965

Mr. Hayden R. Williams
Orange Coast College
2701 Fairview Rd.
Costa Mesa, California 92626

Dear Mr. Williams,

I am sorry to report that our interest in the systematics of marine algae never really got off the ground and that there is no paper of the type which you mentioned in your letter. Dr. Levin is no longer with us, but is at the Department of Botany, Notre Dame University.

I am sending a reprint which may be of interest to you on the use of computers.

Sincerely yours,

David J. Rogers
Professor of Botany

DJK/ec

Encl. Reprint "A Computer Program for Classifying Plants"

November 5, 1965

MEMO TO: Dr. Ralph R. Baker
Selection Committee for New Chairman of Dept.

FROM: Dr. David J. Rogers

SUBJ: CONSIDERATIONS FOR THE ADMINISTRATIVE HEAD
OR CHAIRMAN OF THE BOTANY AND PLANT PATHOLOGY DEPT.

I. General

The individual selected should recognize that his job is to serve the whole department, not to be a dictator. He should desire the advancement of the departmental staff individually and collectively. He should consider the department as a part of a larger whole, the University. He should place the department and its staff above his own desires for individual research and/or teaching.

II. Requirements Within the Department

1. Manage all administrative details, including curriculum, teaching loads, student assignment and other academic requirements.
2. Keep a close contact with the research endeavors of his staff, being certain that he and the individual staff members are aware of all problems of direction of research, funding of research and responsibilities of the individual staff in employment of students in research projects.
3. Keep a balanced judgement on the productivity of staff, concerning teaching and/or research -- rejecting the "publish or perish" yard-stick for grading the staff.
4. Be certain that all his activities have been discussed with the appropriate committee within the department, and that any action taken concerning the staff be made known by appropriate publication of the action.

5. Make it known to the staff whatever policies he may develop for their participation in administrative decisions -- thus preventing any later misunderstandings.
6. Prepare with staff participation, and approval, an annual budget.
7. Establish guide-lines for new staff, so that each new staff member has a firm knowledge of his responsibilities, administrative channels, budgetary affairs, standing committees, and their activities, etc.

III. Relations With the University-At-Large

1. The responsibility of the Chairman of the Department should be to keep a close liaison with all administrative activities both laterally and vertically. He should be aware of the income of new monies available which could be put to work for the department. He should be constantly attempting to discover the thought patterns of the top administration as these affect the operations of the Department of Botany.
2. Above all, the man must be a diplomat inasmuch as his activities are very much the same as the relationship between our own federal state department and foreign governments.

DJR/ec

November 5, 1965

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

Dear Andy,

This is a combination news letter and request. Although I am pretty sure I sent an announcement around to the effect that I had accepted a job as Professor of Botany here, I should probably tell you more details about the move and why.

We have been fairly successful in our investigations concerning the use of computers for assistance in the taxonomic process. I have had a number of classifications run on data supplied to me by other taxonomists, and the groups of organisms are as diverse as Actinomycetes to tropical legumes of the genus Cassia. Because of the way we have been working (that is, hiring a professional mathematician to work directly with taxonomists and then hiring first-class programmers to work with the mathematician) we felt that it was necessary to get into a location where more active teaching was possible. Colorado State offered me the opportunity to fulfill this desire, so now I have a position here with three assistants -- another taxonomist, a mathematician and a programmer.

We intend to begin our teaching with techniques in classification because I have felt ever since my graduate days that this was one hole in the instruction usually given to taxonomists. When I say techniques in taxonomy, I mean discussions of such items as "What is a character and for what purposes are characters used?" "How does one use the information from a character in order to develop a classification?" "What rules do taxonomists use in putting together individuals into various taxa?" "How can one measure the distances and differences between taxa?" So, we are generating a course which I think is essentially new as far as teaching taxonomy to students is concerned, at least in the U.S. I had rejected the idea prevalent amongst taxonomists that you could not teach taxonomy -- you had to learn it. I may be wrong, but I feel that definitely taxonomy can have some of the aura of mystery removed from it and that its methodologies can be explained to students.

In the course, we will also tell the students that they must be extremely cautious in the selection of mathematical models to reflect their thinking. I don't think that this is a new idea. As a matter of fact, I can cite one of your publications to show that it is not new, but our procedures have adequately demonstrated what you said. We rejected the typical statistical methodology in favor of another type of mathematical approach. There are certain other approaches than the one we have, but at least we can point a direction for students.

One of the things that I want to do in our new course is to actually give the students a problem in classification which they can follow through from the development of characters to the actual process of classification. For this purpose, we need a group of plant materials of one genus where the problems are not necessarily too complicated. It occurred to me that the genus Uvularia would provide an excellent example. I recall our study of these plant materials under your direction when I was your student. I would like very much to use the same specimens for our purposes here, and would like to request the loan of these specimens from you. The specimens will be given extra care, and they will not be mistreated. Do you still have assembled the same materials for the genus Uvularia which we used fifteen years ago?

Our family is as might be expected well on the road towards maturity with the oldest daughter, Marilyn, now a freshman at the University here, son John is a sophomore in high school, and son Richard is a 5th grader. They all seem very pleased with the move and we are much happier here in Colorado than we ever were in New Yrk. I hope things are going well for you and will be pleased to hear from you.

Very sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 8, 1965

Dr. Carl C. Moh
Instituto Interamericano de Ciencias
Agrícolas de la CEA
Centro de Enseñanza e Investigación
Turrialba, Costa Rica

Dear Dr. Moh,

Thank you very much for your prompt answer to my request for
Manihot cuttings.

I have attempted to get clearance from the U.S.D.A., but have
found that I have to write to Washington to get this. If this
does not come through within a week, I will write you again
suggesting that you send the cuttings directly. I deeply
appreciate your kind offer.

Very sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 8, 1965

Dr. Howard L. Hyland
New Crops Research Branch, A.R.S.
U. S. Department of Agriculture
Beltsville, Md.

Dear Dr. Hyland:

Dr. James of the National Seed Storage Laboratories here at Colorado State University recommends that I write to you for the appropriate forms and so forth needed for the introduction of living plant material from abroad.

I would like to import propagating materials (that is, cuttings) of several varieties of Manihot esculenta from Costa Rica. I have been interested in the studies of Manihot for a number of years, and would like to have some living materials of these specimens to grow here in our greenhouses. The object of this is to do cytological studies on this genus, and particularly on the cultivars of Manihot esculenta.

So far as I know, Manihot esculenta is not cultivated anywhere in the United States except as oddities in such places as botanical gardens. It is nowhere a commercial crop, and there are no relatives of this genus or species that are grown commercially in the United States. The plants that I wish to import are presently being raised at the Interamerican Institute of Agricultural Sciences at Turrialba, Costa Rica. The plants, therefore, should be in good vigor and health as they have been under examination and test by the Interamerican Institute. *close*

Will you please forward to me the necessary forms for introduction and instructions about the introduction of the plant materials?

Very sincerely yours,

David J. Rogers
Professor of Botany

- Taxonomy Laboratory

November 8, 1965

Chief Naturalist
Big Bend National Park
(near) Terlingua, Texas

Dear Sir:

We are monographing plants of the genus Manihot, a member of the Euphorbiaceae. The distribution of the species of the genus is of critical interest to us. This neotropical genus has several Mexican species, and one species has been reported in Texas in the Brownsville area. We wondered if one of your rangers who had an interest in botany has reported any Manihot within the National Park. We would appreciate any information you have, whether in the affirmative or negative.

Thank you for your consideration.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 8, 1965

MEMO TO: CSUF - Attention Jim Grace
FROM: David J. Rogers
SUBJ: NIH Grant Reference No. 7 KOI GM 13974-01

We wish to change the budgeted figures to read:

Personnel	\$14,351.00
Other	5,586.00

This adjustment will provide for the payment of \$5,000.00 to Henry Fleming for the six-months period commencing on Dec. 1, 1965 to May 31, 1966 at the rate of \$10,000.00 per year plus 6 percent P.E.K.A.

David J. Rogers
Principal Investigator

DJR/ec

Jim Grace, CSURF

11/8/65

David J. Rogers

Attached memo re NIH Grant Budget

I understand that this authorization is all you need to effect the payment of Fleming's salary from C.S. U. and that your office will route it through the necessary channels so that University salary will start as of December 1, 1965.

DJR/ec

- Taxonomy Laboratory

November 8, 1965

Mr. Edward C. Moore, Dean
Graduate School
University of Massachusetts
Amherst, Mass.

Dear Dean Moore,

Thank you for considering my application to the Graduate School for fall of 1966. I have completed no formal coursework since first applying to the University of Massachusetts Graduate School in 1964. I have spent this time working with Dr. David Rogers on a research project in Mathematical Biology; thus you have my complete transcript at this time.

Very truly yours,

George F. Estsbrook
Junior Botanist

GFE/ec

- Taxonomy Laboratory

November 9, 1965

Dr. George H. M. Lawrence
Hunt Botanical Library
Carnegie Institute of Technology
Pittsburgh, Pa.

Dear George,

I have just received the publication, "History of Botany", by you and Baker which I appreciate receiving.

I just happened to think that I probably did not let you know the change of address, and herewith this notice that I am now to be found in this wonderful state of Colorado at Colorado State University.

Here we are working towards that goal I have been involved with for a number of years -- the proper application of computers in the field of plant taxonomy. I hope that you will have an opportunity to stop by and see us sometime. We will be happy to put out the red carpet.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 10, 1965

Mr. Clark T. Rogerson
The New York Botanical Garden
Bronx Park
Bronx, New York 10458

*File copy in
folder in Dr. Rogers' desk
under Irwin & Rogerson*

Dear Clark,

Thanks for your letter of November the 3rd. I will supply herewith the information requested.

1. Statement of your contribution to the manuscript.

In this publication, the information concerning the plants of the section Apoucouita was provided by Dr. Howard Irwin. Dr. Irwin prepared his data for computation in our classification program according to the directions given by me. After he had collected his data and coded it, his data was run on our graph clustering program. The results of the computer run were interpreted for him by me. He was instructed in the procedures as to how to set up the subgraphs from which he was able to decide which taxa he wished to recognize. In other words, all of the computational aspects of this study were under my direction. All of the interpretation of these results was that of Dr. Irwin.

2. Background of your research work on the data included in the manuscript.

For the past five to seven years, I have been intensively investigating the processes of classification, attempting to discover how a computer might be used to follow the thought processes used by a taxonomist as he goes about the decisions necessary to make a classification of a particular group of organisms. This has required a considerable amount of collaborative work with mathematicians. The mathematicians had to be instructed in the nature of taxonomic work and the desires of taxonomists before it was possible for them to devise a mathematical procedure which could then be programmed for the computer. In each part of the process of programming the computer it has been necessary to do original research investigation inasmuch as this is essentially an untouched field.

Letter to Clark T. Rogerson
November 10, 1965

Page 2.

Our endeavors have been partially successful as is demonstrated by this paper which we have written. That it is not a cure-all nor a panacea should be recognized by all. It has been our intent and goal throughout all of our efforts to use the computer, to recognize the computer's place as nothing more than a tool for the taxonomist rather than a decision-maker which excuses the taxonomist from his duties and activities in the decision-making process.

Answers to Items 3, 4, and 5 in your request are I think given well and summarized herein.

You ask for a good and convincing statement as to why NSF should sponsor the publication of the paper. My answer to that is that this is the first time that such an endeavor as this one has been performed on an actual group of plants. Nowhere in the literature may one find as complete an application of a computer to plant classification as is given in this paper. It is somewhat of an experimental nature. The actual decisions concerning the taxa are not -- and I repeat this -- are not experimental. The part that is experimental, however, is the presentation of the results such that they could be changed and modified by investigators after they have had an opportunity to read this particular paper and suggest modifications now that are not known to us. The fact that the paper is, at least to the extent of the computational activities, experimental, it seems to me, that the presentation of this information and the support of it by NSF is justified.

All is going well for us here. We are just about established. Obviously it takes longer to get reestablished in a new place than you ever hope that you will have to spend in it. We have not yet received our herbarium cases and are, therefore, not really yet in business as far as studies of Manihot are concerned. However, we have twelve new cases on order, and they should be coming along soon.

Best regards to one and all there.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec
Encl.

RON ROBERTS

DAVE ROGERS

NOV. 10, 1965

INSURANCE IN OLD MEXICO

Thank you for your reply on this subject. We will keep the information on file here.

At present it seems that our Mexico trip will be impossible until sometime next year. We will reschedule it as soon as we can and keep in mind that we will need Mexican insurance.

DJR/ec

- Taxonomy Laboratory

November 11, 1965

Dr. Richard M. Klein
New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear Dick,

I am sending off today Fred Wellman's manuscript. The manuscript includes some of the illustrations, all the plates. It is still my opinion Jake Page kept the original drawings and that I did not get those back from him. Please check this with him.

It is my feeling that Fred has done a really good job this time, and that he has what I think is a first class manuscript. There are some rough points in it, and I have marked most of those that at least struck me. These deal mostly with style and not with content. I have not felt the need to worry about the punctuation in this manuscript, feeling that copy editors have a much better chance of doing this correctly than I do. He has some uses of commas that strike me as rather unusual and unnecessary, and it is these mostly that bother me. However, I think that Jake Page and his crew will do a better job on this sort of thing than I can. I followed the procedures as far as the colors of marking which will give us some differentiation as to who did what. I am also writing to Fred today to tell him that his manuscript has left my hands.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 11, 1965

Dr. Frederick Wellman
North Carolina State University
P. O. Box 5397
Raleigh, N. C. 27607

Dear Fred,

Today I am mailing your manuscript and all associated illustrations to Dick Klein at the New York Botanical Garden.

I am very much impressed with the manuscript. I think you have done a very fine job with it.

There are a few places in the manuscript that I have marked with red pencil. We are using the idea that each editor has his own color of pencil -- mine just happens to be red. The places that I have marked are places that I think suggestions, or some slight rewriting, needs to be done. These are minor, however, and I have really not touched the body of the text at all.

Thank you very much for your consistent and very rapid attention to this work. I certainly do appreciate it, and think that you have really done an outstanding job here.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

DR. JESS FULTS

DAVE ROGERS

11/11/65

ARTICLE IN AGRICULTURAL SCIENCE REVIEW ON THE SUBJECT,
"WHAT IS SCIENCE?"

Thanks for bringing to my attention L. Pearce Williams' article "What is Science". I note you have underlined some points in here which are quite interesting, particularly the quantification of qualitative endeavors. This article gives me a good take-off point for my argument that the computer must be considered only as a tool and must be thoroughly understood as to its role that can be played. It can bolster decisions, but it cannot make them.

If you don't mind, I would like to hang onto this paper for just a little while before I return it ~~to~~ you. If you need it, I can have this article Xeroxed. Thanks.

DJR/ec

- Taxonomy Laboratory

November 15, 1965

Dr. Robert R. Sokal
Department of Entomology
The University of Kansas
Lawrence, Kansas

Dear Bob,

Enclosed herewith is the reworked manuscript following the plan suggested during your visit here. We trust that this paper is now in order and that it will be acceptable.

We unfortunately do not have on our campus the reference that you strongly recommend by Busker and Saaty. We would be pleased if you could let us have the book for a few days. It will be easy enough to add that citation, such that it will not be necessary for us to have the paper back. I hope that your ongoing trip from here down to Boulder was successful and that you accomplished the mission that you had told us you intended to.

Sincerely,

David J. Rogers
Professor of Botany.

DJR/ec
Encl.

- Taxonomy Laboratory

November 15, 1965

Mr. Seymour Schner
Department of Botany
The University of Tennessee
Knoxville, Tennessee

Dear Sy,

I have your letter of the ninth with your request for advice. These decisions about which you are asking my opinion are things upon which I can only make suggestions, and you eventually will have to make up your own mind depending upon the best possible deal for you.

First of all, I don't know but what a Ph.D. from the University of Tennessee is about as good as a Ph.D. from anyplace else. That is, you will probably get as much of an education there because of your own push as you might at any other institution. The only drawback to a Ph.D. at Tennessee is that it is not a "name" institution as far as botany is concerned. A name institution will serve you well for the first few years past your doctorate. That is, you can ride the reputation of the Ph.D. if it is from one of the "big stick" schools. Big stick schools in botany are Harvard and California at Berkeley or California at Los Angeles. Wisconsin has a pretty good one. The University in St. Louis -- the one I graduated from -- is no longer a good institution because the staff has completely fallen apart there. You can get a good degree and a good name school by going to the University of Indiana. Charley Heiser there would be able, I believe, to give you the best kind of advice on the subject that you are interested in. He is, as you probably already know, a taxonomist interested in biosystematics. And also, he is interested in cultivated plants. His thinking on this subject is very good.

An alternative that I can suggest is that you come to S.S.U. where you will be able to get the advice that you need, not only from me about the classical taxonomy of Manihot but there is also on our faculty now a young man trained in biosystematics working for his own interest on Oenothera. His name is Bill Klein. The drawbacks

Letter to S. Schmer
November 15, 1965

Page 2.

to this institution as far as a Ph.D. is concerned is the same as you would have at the University of Tennessee, namely it is not considered as a big stick institution for training of taxonomists. That is, not yet -- we are building our taxonomic group up here, and I think that it will give a respectable education but the name as you know, has not spread far and wide. The reputation for an institution takes a long time to build and usually the reputation is built after a considerable amount of work by the staff.

If you wish to consider a degree here, I would suggest that you right away write to the Dean of the Graduate School here at Colorado State University, Fort Collins. The Dean's name is Dr. Wendell H. Bragonier. You should ask Dean Bragonier for entrance forms, information and applications for graduate assistance. The sooner you get this application in, the better. I frankly would be very pleased to have you come here and will do all I can to see that you get financial assistance commensurate with the position of graduate assistant or whatever else -- we may make it a research assistant, I'm not sure. You see, I'm new here myself and don't know all of the possible arrangements. As you point out, another year will be whacked out of your life if you transfer from U.T., but frankly I don't think that this will be too much of a strain. My recommendation to you is that you get a Master's there at U.T. and move to another institution of your own choice. I hope this helps -- I am not certain that it does.

Sincerely yours,

David J. Rogers
Professor of Botany.

- Taxonomy Laboratory

November 18, 1965

Dr. F. James Rolfe
Department of Biology
University of California
Santa Barbara, Calif.

Dear Dr. Rolfe,

I was very pleased to receive the collection of your reprints.
Thank you very much.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 18, 1965

Dr. David B. Dunn
Department of Botany
University of Missouri
Columbia, Missouri

Dear Dave,

At the suggestion of Edgar Anderson, I am writing to request the loan of material representing the genus Dvularia in your herbarium to this department, and specifically to me. The reason for this request is that I would like to have a good, clear-cut genus to run as a test case for our computer methods. I recall that this particular genus has several fine examples of clear-cut species as well as good examples of introgressive hybridization. If all goes well, the need for this material will be completed in the next nine months. I will be happy to have any specimens you have.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec
CC - Dr. Harold Harrington, CSU, Dept. of Botany

P.S. I recently received a set of your reprints, and I am very appreciative of them.

- Taxonomy Laboratory

November 18, 1965

Dr. Lloyd Rosenberg
Hudson Laboratories of Columbia University
145 Palisade Street
Dobbs Ferry, N. Y.

Dear Dr. Rosenberg,

I have just received a copy of your letter to Mr. John G. Field. I am prompted to write to you because of the information related in your letter to Mr. Field. I have not seen the paper referred to in your letter "Taxonomy Program for Classification of Data". If you have a copy of this paper, or if you can find out where I may obtain one, I will be pleased to have this information.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 19, 1965

Blaisdell Publishing Co.
135 W. 50th Street
New York, N.Y. 10020

Gentlemen:

Please send me an approval copy of Theoretical and Mathematical
Biology edited by Talbot H. Waterman and Harold J. Morowitz.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 22, 1965

Mr. J. J. Walker
Encyclopaedia Britannica Films Inc.
Wilmette, Illinois

Dear Mr. Walker,

Your letter of November 16th arrived here today. I am sorry that I did not notify you of my change of address. I trust that it is not too late to do so before the film is shipped. Please send the film to:

Dr. David J. Rogers
Taxonomy Laboratory
Department of Botany and Plant Pathology
Colorado State University
Fort Collins, Colorado 80521

I will be pleased to follow through from here.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

November 22, 1965

Mr. E. A. Burns
Import Permit Section USDA
Plant Quarantine Division
209 River Street
Hoboken, New Jersey 07030

Dear Mr. Burns,

In recent correspondence with Dr. Howard L. Hyland (copies of which I think have been sent to you) he suggested that I arrange with you for a special import permit for Manihot cuttings from Costa Rica. It is not clear exactly what procedure I should follow and so I appeal to you to set up the prescribed procedure.

As I explained to Dr. Hyland, it is my intention to bring into the greenhouses here at Fort Collins several cultivars of Manihot esculenta. We will use the plants grown from these cuttings in basic cytological studies of the species. To date it has not been possible to get adequate pictures of the vegetative chromosomes of this genus, and we are most anxious to develop methodologies for these cytological studies. As you may know, I have been interested in the study of Manihot for a number of years and am now embarking on a program of cytological investigations in hopes that we may learn something about the classification of these tropical plants.

Since it is unlikely that Manihot species have any opportunity to become adapted to this climate, there is little likelihood of them spreading beyond my greenhouses. There are no commercial plantings of Manihot to my knowledge in the continental United States; and it is unlikely, therefore, that if there were any serious diseases or pests they would be spread to plantings in this country.

The cuttings for propagation are to be sent to me by Dr. Carl C. Moh of the Interamerican Agricultural Experiment Station in Turrialba, Costa Rica. The cuttings will be taken from healthy

Letter to Mr. E. A. Burns
November 22, 1965

Page 2.

plants in Dr. Moh's experimental plots, and so it is unlikely that I will be receiving plants with any disease problems.

I trust that you will be able without too much difficulty to arrange for a special permit for me. We will have one problem, and that is that these are cold-sensitive plants and any very long exposure to cold weather will have a deleterious effect on them. If you can suggest some means by which the plants may be permitted into the United States with the least length of cold exposure, I will appreciate that information as well.

Sincerely yours,

David J. Rogers
Professor of Botany
Formerly Curator of Economic Botany
New York Botanical Garden

DJR/ec

- Taxonomy Laboratory

November 23, 1965

Dr. Richard M. Klein
New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear Dick,

Enclosed is a foreword submitted by Wellman, written by the head of the department in Raleigh. I didn't anticipate that he would add this. As I recall, part of our contract calls for writing such a preface or foreword.

This book might turn out to be top-heavy with front material if we do a "prologue", this is followed by a foreword, and then following that goes Wellman's preface. We have to do a lot of reading before we get to the "goodies" of the book.

I wrote Fred and told him that we would look at the problems and see whether or not this foreword is appropriate or will be used. Just one more problem.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec
Encl. - Ellis Foreword/Wellman Ms.

- Taxonomy Laboratory

November 23, 1965

Dr. Frederick L. Wellman
Department of Plant Pathology
North Carolina State University
Raleigh, North Carolina 27607

Dear Fred,

Your letter of the 19th with a foreword written by Professor Ellis has arrived.

We will have an awful lot of introductory comments to make about this book; because in addition to your preface and foreword, we expect to write some explanatory paragraphs in front of this. It looks as though the book is going to be top-heavy with a prologue, a foreword (yours), and a preface. This is a problem I am not going to worry about, however, and let the editor for Doubleday blow the whistle or make the decision. We will let you know what happens, at any rate.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

Dean Hotchkiss

Nov. 23, 1965

D. J. Rogers, Botany Dept.

I'll be glad to buy that cup of coffee for an explanation vis-a-vis PERA vs. TIAA-CREF.

My major concern in this respect is that though CREF, we had a hedge against inflation, which I cannot see in PERA. I'm also not sure about survivor benefits. After "giving my all" to CSU, I'm pretty sure to run down faster than my wife will. What sort of deal will there be for her in the event she lives past her slotted four score and ten?

Anytime you want a cup of coffee, we'll be glad to provide one -- we make our own in the Old Music Building.

- Taxonomy Laboratory

November 29, 1965

Dr. William C. Steere, Director
New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear Bill,

I received your gentle reminder about our requirements for the chapter for Evolutionary Biology last week. You are right in surmising that it has taken us a little longer to get going here than we might have anticipated, and the move indeed took longer than we expected. However, we have not forgotten and are busily working on this chapter at the moment.

If the deadline is the first of December, we certainly will miss it, but we will hope that within the first two weeks of December you will have the manuscript in your hand. Part of the reason for this delay is my own difficulty in deciding the direction that this chapter should take, and only within the last couple of days after considerable amount of scratching around, have I settled upon the basic philosophy for the take-off in this chapter. I now have what I want, and I trust that this will be something useful. You and the other editors are, of course, the final judge of the suitability of this material.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec



- Taxonomy Laboratory

November 29, 1965

Dr. S. D. Tapak
President of SHARE
Rand Corporation
1700 Main Street
Santa Monica, California 90406

Dear Dr. Tapak,

We would like a list of the rules and regulations for submitting
a classification program for the I.B.M. 7094 to the SHARE library.

Our last contribution to SHARE was an I.B.M. 704 program in 1959.

We thank you for your trouble.

Sincerely yours,

~~David J. Rogers~~
~~Professor of Botany~~

Henry S. Fleming
HCF
DJR/ec Assoc. Prof.
of Botany

November 29, 1965

Mr. Harold K. Voris
Division of Reptiles
Chicago Natural History Museum
Roosevelt Road and Lake Shore Drive
Chicago, Illinois 60605

Dear Mr. Voris,

I read your letter of November 9th with interest. I look forward to speaking with you personally soon. I expect to arrive in Chicago from Indianapolis on January 5th at 6:53 P.M. via American Airlines flight #199. I expect to leave Chicago on January 6th at 8:15 P.M. I trust that we will be able to hold a meaningful discussion of coding procedures in that time. I would indeed appreciate it if you would make arrangements for my stay in Chicago as I am totally unfamiliar with the city.

I can say little at this point of what data you should collect and how you should collect it. These few fairly obvious points can be made:

1. Any information which you might conceivably wish to incorporate into your classification should be gathered if at all possible. as it is easier to ignore collected data that is later judged not useful than it is to rediscover information which was initially ignored and later judged to be desirable.
2. As much as is possible, the same type of information should be collected for each object you wish to classify. If a character is known to be useful in differentiating some group in your study but not others, even then is it necessary to collect information for that character for as many objects as is possible.

Letter to Mr. H.K. Voris
November 29, 1965

Page 2.

3. For some character it may not be possible to collect information for some object. It is important to classify the reasons for this into two types: (1) The collection for the object is incomplete e.g. "Body Length" (#6 in your letter of Nov. 9th) for some object where the entire body of the object might not be in the collection; or (2) Availability of information logically depends on some other character. e.g. "Scale Shape" (#5 in your letter of Nov. 9th) would not apply to an organism without scales. (This, as a matter of fact, may be impossible in your group, but I think the example explains what is meant by this type of missing information.)

I hope your work progresses well, I look forward to our meeting.

Very truly yours,

George F. Estabrook

- Taxonomy Laboratory

November 30, 1965

Dr. Ean Prance
New York Botanical Garden
Bronx Park
Bronx, New York 10458

Dear Ean,

Just a short request this time -- I will write more details later. I would like to cite your paper entitled, "Quantitative Studies of the Genera Chrysobalanaceae", in a forthcoming article we are preparing for a book on evolutionary biology. I don't recall whether or not the paper has been submitted for publication. I have a draft of the paper, as you know, but don't know what disposition you made thereof. Do I recall that it was to be submitted to the New Phytologist? If it were to be submitted to that journal, have you done so and, hopefully, has it been accepted?

I hope this letter catches you in New York and not somewhere in the wilds of Amazonia. All is well here.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

December 1, 1965

Mr. William Anderson
Chief of Data Processing Services
Western Data Processing Center
Graduate School of Business Administration
University of California
Los Angeles, Calif. 90024

Dear Mr. Anderson,

Being a new user of the facilities of W.D.P.C. and having the opportunities to stop in Los Angeles on December 30th after the meetings in Berkeley, I thought it would be a good opportunity for me to stop in to become acquainted with the center. While I have no specific problems (we seem to be working smoothly through the teleprocessing unit) I thought it would be useful if I became more acquainted with the operations there.

Will it be convenient to you to see me on Thursday afternoon, December 30th? If it is, please let me know what time is most convenient to you. Perhaps if you are busy during that period, you might suggest someone else whom I may see.

I would appreciate it if you would let me know the most convenient way to reach the center from Los Angeles International airport. Also, what is the street address of the center? I am looking forward to hearing from you.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

FORT COLLINS, COLORADO
December 2, 1965

Timex
U.S. Time Corporation
P. O. Box 2740
Little Rock, Arkansas 72203

Gentlemen:

Today I am mailing my watch to you under separate
cover for needed repairs.

When repairs have been completed, please return to
me at the address below.

Very truly yours,

D. John Rogers
1809 Orchard Place
Fort Collins, Colo.
80521

DJR/ec

December 6, 1965

- Taxonomy Laboratory

Dr. Jack L. Beal, Professor of Pharmacognosy
The Ohio State University College of Pharmacy
1958 Neil Avenue
Columbus, Ohio 43210

Dear Jack,

Your letter addressed to me at the New York Botanical Garden was forwarded to me at my new address here I thought that I had circulated enough information about my change to Colorado, but apparently have not done so. You can see my address on this letterhead.

With respect to your request for seeds of Thalictrum, I had thought that our National Seed Storage Laboratory here at Colorado State might be of some help. However, I have checked with them and find that they have not any possibilities. They suggest, however, that you write to the following address, and maybe they will have some information for you there.

Dr. L. M. Pultz
Oil Seed and Industrial Crops Research Br.
Plant Industry Station
Beltsville, Maryland

If you write to anyone at the New York Botanical Garden, perhaps the best man to address your letter to is Mr. Louis Politi who is in charge of seed exchange. I do not know whether you will have any success with him or not.

I have a couple of other suggestions, but unfortunately they are not complete as far as address is concerned. You might try some of the European Rock Garden Society places. One is the Scottish Rock Garden Society in Edinburgh. I am sorry I don't have a specific address for these people. Another you may wish to address

Letter to Prof. Beal
December 6, 1965

Page 2.

is the American Rock Garden Society. You will probably be able to find in your library a publication by the American Rock Garden Society, and in there you will probably find an address for seeds exchange.

Other than these, I'm afraid I'm not going to be much help to you.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec

- Taxonomy Laboratory

December 6, 1965

Dr. Charles B. Heiser, Jr.
Department of Botany
Indiana University
Bloomington, Indiana 47405

Dear Charley,

Since my letter to you, George Estabrook has gotten his schedule worked out, and now it appears that he will be showing up in Bloomington about 7:30 or 8:00 o'clock on the night of January 4th. He expects to be able to be there all day January 5th and leave in the evening. I hope this time is convenient to you and to anyone else who is to be included.

Since he will be staying over night, he would appreciate it if you could reserve a room at the hotel in the student union for him on the night of the 4th. His plane arrives in Indianapolis at six, and he will go on down to Bloomington in a rented car. I will tell him to go directly to the student union, and then contact you after he is set up there. I hope you can arrange the reservation for him.

Sincerely yours,

David J. Rogers
Professor of Botany

DJK/ec

December 7, 1965

To whom it may concern:

This is to notify you that Eleanor V. Cram submitted her notification of intention to leave her position as Int. Clerk Steno. in the Taxonomy Laboratory of the Botany Department, Colorado State University on Monday, Nov. 29th, 1965. At that time no specific termination date was set, pending the finding of a replacement.

Reason for leaving is that Mrs. Cram is moving from Fort Collins on January 1, 1966.

As a replacement has now been found, December 8th has been settled as the termination date.

David J. Rogers
Professor of Botany

Eleanor V. Cram

- Taxonomy Laboratory

December 7, 1965

Mr. John J. Walker, Producer
Encyclopaedia Britannica Films
Wilmette, Illinois

Dear Mr. Walker,

I am returning herewith the script for the film A PLANT THROUGH THE SEASONS: APPLE TREE. The film itself is fine, and I have the following comments on queries from you. I have noted on Scene 21 that your statement is all right -- that there is no need to say anything about compound pistils and carpels.

In Scene 53, the moth larvae is not the one that infests the fruit. As a matter of fact, the bugs inside the fruit were probably laid as eggs by the adult insect in the flower. At any rate, your suggestion to take out the scene of the larvae on the leaf is good.

Your statement in Scene 81 is all right. There is, indeed, some controversy that needs a lot of explaining to distinguish between drying out and freezing; and in the context of this film, I think that your statement will be all right.

You will note some other places in the script that I have suggestions which you may wish to take under consideration. I am not certain whether I passed these over earlier, or whether these were things that have just come to mind since that time. At any rate, I hope they are useful to you.

Sincerely yours,

David J. Rogers
Professor of Botany

P.S. I have looked through the materials on the Basic Life Science program for the elementary grades and noted in the program outline, under III. The World of Plants, that you have listed Plants Useful to Man. Inasmuch as I was once titled Curator of Economic Botany at the New York Botanical Garden, this particular title interests me. What is the status of that particular film? It would be interesting, if it's already done, for me to see it, and if it is not, I'd like to know more about it. That is, are you planning to put that one out soon? Have you written up any script for it? Has anybody done any filming, etc.? If need be, I would like to serve as a consultant for that film.

- Taxonomy Laboratory

December 8, 1965

Mr. Harold K. Voris
Division of Reptiles
Chicago Natural History Museum
Roosevelt Road and Lake Shore Drive
Chicago, Illinois 60605

Dear Mr. Voris:

I am looking forward to our meeting. I appreciate your offer to meet my flight (A.A. 199, 6:53 P.M., Jan. 5). You should have little trouble recognizing me as I am tall and thin and will be wearing a sweater (probably).

Your choice of hotels sounds fine to me. Why do you not reserve the single room and bath?

I would be delighted to participate in an informal seminar, the morning of the sixth, with as many as wish to attend. You might choose a room with a blackboard for this, as I am sure we will find it useful. A blackboard might also be useful in our subsequent discussions.

As my flight from Chicago to Denver does not leave until 8:15, we should have plenty of time in the afternoon of the sixth to establish a good coding for your material.

Very truly yours,

George F. Estabrook

- Taxonomy Laboratory

December 10, 1965

Dr. Herman H. Goldstine
Data Processing Division
112 East Post Road
White Plains, New York 10601

Dear Herman:

We are about finished debugging our first program for the 7094 at WDPC. It has progressed unusually smoothly.

Dave Rogers and I thought you would be interested in the enclosed newspaper clipping. The same article appeared in the November 30 issue of the Fort Collins Coloradoan as well. You will notice that we managed to get I.B.M. into the act.

Dave and I wish you a Merry Christmas and a Happy New Year.

Sincerely yours,

Henry S. Fleming
Taxonomy Laboratory

HSF/pc

enclosure: 1 newspaper article

- Taxonomy Laboratory

December 14, 1965

Mr. S. H. Sohmer
c/o Dr. Gomez-Pompa
Jardin Botanico
Universidad Nacional de Mexico

Dear Si:

Thanks for your Christmas card. I hope this letter reaches you, but I have my doubts. In case it does, be sure to include some propagating material of any Manihot that you run across. We can use it all here.

Merry Christmas, Happy New Year,

David J. Rogers
Taxonomy Laboratory

DJR/pac

- Taxonomy Laboratory

December 16, 1965

Dr. P. F. Knowles
Agronomy Department
University of California, Davis
Davis, California 95616

Dear Paul:

I have just made my final schedule for the AAAS meetings. As yet I am not certain of my room assignment, but I hope to be in the dormitory.

I plan to arrive at Berkeley by 5:30 P. M. Sunday the 26th. I would like to spend as much time as possible with you, going over the possibilities of coding and running a classification of your safflower data. This would probably take an afternoon or part of an afternoon of discussion.

Let me know what day will be convenient to you. There are no parts of the program that are so important to me that I can't skip them. I do have to leave by noon on the 30th.

Sincerely,

David J. Rogers
Professor of Botany

DJR/pac

- Taxonomy Laboratory

December 17, 1965

Director of Information
Agricultural Experiment Station
University of Florida
Gainesville, Florida

Dear Sirs:

I understand that Manihot esculenta (cassava or manioc), are now being raised, to a small extent, on a commercial scale in southern Florida. I would appreciate it very much if you could tell me which authority and his address I might write to, to obtain valuable cuttings from this plant for experimental purposes here at Colorado State University.

Thank you for your assistance.

Sincerely,

David J. Rogers
Professor of Botany

DJR/pec

- Taxonomy Laboratory

December 17, 1965

Dr. Carl C. Moh
Instituto Interamericano de Ciencias
Agrícolas de la OEA
Centro de Enseñanza e Investigación
Turrialba, Costa Rica

Dear Dr. Moh:

At last we have arranged for the necessary documents which will allow you to send cuttings of (cultivars) of Manihot esculenta. I would like to have about six cuttings each of three cultivars. I leave the selection of the individual cultivars to you. If there are any that you have found particularly interesting from a cytological standpoint, you might consider sending these.

The instructions as we understand them are as follows:

- _____ Do not pack the materials with any vegetable material or soil.
- _____ Pulp free fibers such as coconut fibers, wood shavings, or vermiculite can be used.
- _____ This material should not be wrapped in plastic, but in paper.
- _____ Place the yellow and green labels on the outside of the package (please note the information required on the back of each of the green and yellow labels).
- _____ Place the three shipping labels with my name on the outside of the packages.
- _____ Send by Air Parcel Post.
- _____ Please mark on the packages - PERISHABLE - KEEP FROM FREEZING.

I will be pleased to reimburse you for all the expenses involved in all of this, and I deeply appreciate your willingness to send it to me.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/pac

December 17, 1965

Dr. T. M. Sutherland
Department of Animal Science
Colorado State University
Fort Collins, Colorado

With regards to some of the questions - it was impossible for me to give a "yes" or "no" answer. As a result, I have put a check between "yes" and "no" to indicate my ambivalence with respect to the particular question.

Concerning student ratings as an effective means of evaluating undergraduate teaching: This is a double edged sword. It depends upon how you set up your evaluative technique as to whether or not you get a gripe session or an active evaluation of the results of the teaching. Being new on the staff, I have not participated yet in any undergraduate teaching at this institution. Wherever I have been able to answer depends upon the experience at another institution. Therefore, my answers to questions about the ability to evaluate other people in this department, and in general at this university, is not worth very much. A question mark with no check in either "yes" or "no" indicates that I have not been able to answer this question one way or the other for this institution. Concerning my own ability to teach and whether I am better than others, is a question that I have thought about for many years. This question is one that I have addressed to others about my teaching. Such questions as:

- _____ am I getting across,
- _____ is this beneficial to the student,
- _____ is the course matter appropriate to the needs of the student and the needs of the field.

To date no one has been able to give me a satisfactory answer to this set of questions and yet I have addressed some people who are, in general, considered to be excellent teachers themselves. One of the best answers that I ever received was from a very highly sensitive teacher who told me that the best way he ever had to evaluate his particular courses was to find out whether the dean had heard many complaints about the course. If there were no complaints, or few, then this was the only measure that he knew of that indicated that his course work was all right.

Concerning a reward for teaching -- unless there is an atmosphere in the institution which actively encourages teaching, no matter how much salary or rank is given to an individual, there will be little opportunity for a really great teaching program. Unless the chairman of the department, the dean, and all other administrative officers themselves take up the business of making an environment for teaching, then no good teaching will be done. If it is clearly indicated by all that we desire to have good teaching, then good teaching will be done.

- Taxonomy Laboratory

December 22, 1965

Professor Jacques Barrau
Department of Anthropology
Yale University
New Haven, Connecticut 06520

Dear Jacques:

I am terribly sorry that it is only now that I have been able to get at my specimens and slides. Are you still interested in having them? If so, I will send them to you.

Sincerely,

David J. Rogers
Professor of Botany

DJR/pam