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The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

28 January 1969

Defense Documentation Center  
for Scientific and Technical Information  
Cameron Station  
Alexandria, Virginia 22314

Gentlemen:

We would like to obtain a copy of the DDC Bibliography on  
COST/BENEFITS OF TECHNICAL INFORMATION SERVICES AND TECHNOLOGY  
TRANSFER, report number DDC-TAS-68-29, dated July 1968.

If there is a charge for this material, will you please  
bill us (University of Colorado, etc. as per the letterhead).

Sincerely yours,

Gilbert N. Hersh  
Operations Research Analyst

GNH:gm

28 January 1969

Dr. Robert M. MacDonald  
Plant Records Center  
John Tyler Arboretum  
Lima, Penna. 19060

Dear Bob:

For some time now I have had on my desk your various decks of coded descriptors and have meant to acknowledge them previously. Unfortunately (probably by oversight) there were not included any data decks. I wondered if you had intended to omit them or not.

We have been waiting to hear whether or not you wished to continue collaborative efforts with us. In the absence of such word from you, there isn't much we can do. Perhaps by now you can tell me the score.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

,24 January 1968

Mr. Charles R. Popovic  
Customer Relations  
Auerbach Info, Inc.  
112 N. Broad Street  
Philadelphia, Penna. 19107

Dear Mr. Popovic:

We have carefully considered the possible use of the Auerbach literature and have decided that our operation would not make consistent use of this library. We are therefore returning your sample volumes.

Our thanks for your effort and kind consideration.

Sincerely yours,

John W. Wong

JWW:gm

23 January 1969

Miss Carole Jean Kuster  
2420 Arlington Blvd., Apt. A-1  
Charlottesville, Va. 22901

Dear Miss Kuster:

I have forwarded your application to Dr. Meredith Runner, of the Institute for Developmental Biology, University of Colorado, who would be more likely to be doing the kind of research that could use your educational background than anything I am doing.

Sincerely yours,

David J. Rogers  
~~Assistant Professor~~ Biology

CC: Dr. Meredith Runner  
DJR:gm

Taximetrics Laboratory

23 January 1969

Armory 101

Dr. John Popenoe  
The Fairchild Tropical Garden  
10901 Old Cutler Road  
Miami, Fla. 33156

Dear John:

Please thank Mrs. Sweeney for putting us up in Dr. Fairchild's former house. You may have heard from Mrs. Julia Morton, an old friend of mine, that she would like to arrange some time for dinner for us, and has also been kind enough to arrange for a skin diving expedition in Saturday. We will therefore probably spend Saturday and Sunday nights somewhere in the Keys, though this is not at all certain at the moment. I hope this fits into plans.

I have sent two of the introduction permits out, one to Dr. Howard Irwin who is collecting now in Brazil in the states of Bahia and Minas Gerais, and to Dr. Ian Prance who is collecting in the area surrounding Manaus. Both these people are experienced in the area and are former colleagues of mine when I was at the New York Botanical Garden. I have more confidence that we will get something from them than from any of the people mentioned in earlier letters.

The enclosed copies of letters, one in reply to me from Ralph Richardson and the other a letter to Jerry Grant in Colombia are self-explanatory.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm  
Enc.

23 January 1969

Armory 101

Dr. U. J. Grant, Director  
International Center for Tropical Agriculture  
Oficina 601  
Carrera 13, No. 48-47  
Bogota, Colombia

Dear Jerry:

You have probably received a copy of the letter by Ralph Richardson by now. I had written to him inquiring about support for two kinds of studies of yuca, one for myself and one for support of travel for collecting wild species of *Manihot* for a student of mine. As his reply to me suggests I should contact you to determine whether the types of endeavors fall under your interest at CIAT.

For my own requirements I am expecting a leave of absence from the University sometime next year and would like to spend eight to ten months making observations which I have never had an opportunity to do. This would include, for example, some of the following:

Overall development of the plant from initial stages through maturity to discover time of initiation of root enlargement and circumstances surrounding this initiation;

Foliage production (quantitative and qualitative);

Initiation of flowering;

Observation of pollination mechanisms;

Fruit and seed development;

Sites of production of HCN, and variation of production rates.

I expect to work at some experimental site, perhaps at Palmira, if such an arrangement would be agreeable to you. The reason I want to do the study is that we simply have never documented the growth habits of these plants and this information is necessary for me to make a fundamental contribution to the botanical aspects of the crop. To accomplish the work I would need travel funds and salary as well as a small sum for equipment and supplies.

We have an opportunity to get some wild species of the genus for cytogenetic analyses by cooperating with Jorge Leon and his assistant whose laboratory is established in Lima in the IAIAC, Andean Zone. As you may know, Dr. Leon has long had an interest in yuca and he and I have worked informally together for a number of years. We have both recognized that one of the areas of great significance for wild species is in the area of southern Brazil, northern Paraguay and eastern Bolivia and have

projected a trip into that area to bring back living and dried materials of the wild species. Dr. Leon is capable of supporting himself and his assistant on this travel but cannot provide any support for my student. I would like very much to send a Ph.D. candidate of mine on this trip,, and he needs travel and expense support. We would, if we had support from Rockefeller, naturally supply you with material of these species to be brought into a germ plasm garden for CIAT.

As I indicated in my letter to Dr. Richardson, Dr. John Popence of the Fairchild Tropical Garden and I are working together toward the establishment of a collection of species in Miami for purposes of cytogenetic analysis. My student would be responsible for sending material to Dr. Popence as well as to CIAT.

I hope that these requests are within the scope of your interest in yuca and that we might apply formally to you for funds to support these efforts. I will also be interested to hear of the developmental plans for CIAT and whether you are intending to investigate yuca. Looking forward to a favorable reply, -

Best regards,

David J. Rogers  
Professor of Biology

DJR:gm  
DD: Dr. Jorge Leon  
Dr. John Popence

22 January 1969

Dr. Y. Mori, Senior Market Research Officer  
I.T.C. - UNCTAD/GATT  
Ville Laborage  
Palais des Nations  
1211 Geneve 10  
Switzerland

Dear Dr. Mori:

We have received and read with much interest your article summarizing the larger work, "The Market for Manioc as a Raw Material for the Manufacture of Compound Animal Feed Stuffs in the Federal Republic of Germany, the Netherlands and Belgium." Would you be so kind as to send us a copy of this. If there is any charge, please bill us.

We are further interested in any article on Manioc as an economical feed or as a source for starch extraction with respect to Europe. Any assistance you can give us along these lines would be very much appreciated.

Sincerely,

David J. Rogers  
Professor of Biology

DJR (GH) gm

21 January 1969

Graphic Controls Corp.  
Data Processing Forms Div.  
191 Van Rensselaer St.  
Buffalo, New York 14210

Gentlemen:

Please send us a sample copy of "DP Forms News." We are interested in the development of optical scanning devices.

Sincerely yours,

John W. Wong  
Acting Librarian

JWW:gm

20 January 1969

Dr. Arnold Kluge  
Museum of Zoology  
University of Michigan  
Ann Arbor, Mich. 48104

Dear Arnold:

I have seen the "page" from your catalogue and perhaps the following example taken from that page will enrich the more general description enclosed. (Find the document, "TAXIR Define Item Statement".)

Suppose the following descriptors were established for your data bank.

Item Identification Number	=	Catalog No.
Descriptor 1	=	Number of specimen
D	2	= Genus
	3	= Species
	4	= Subspecies
	5	= Collector
	6	= Day of Collection
	7	= Month of Collection
	8	= Year of Collection
	9	= State of Collection
	10	= County of Collection
Comments 1	=	Precise Locality
	2	= Remarks

Realize that this descriptor is by way of example.

Some Define Item Statements would look like:

Define items 128741, 1, *Dosmognathus, Wrighti*, -, S. G. Tilley,  
17,-August, 1967, North Carolina, Macon, Standing  
Indian Wildf Mgmt., \*

128742, 1, *Dosmognathus, aeneus*, -, S.G. & M.L. Tilley,  
11, July, 1967, Georgia, Rabun, Warnoman Dell Rec Area,  
altitude 1920 \*

128747, 1, *Pseudotriton, ruber*, Schenck; S. & M. Tilley  
& Fitzpatrick, 9, July, 1965, North Carolina, Macon,  
Highlands near bio. station, A.O.R. \*

1. If no subspecies is given it might be that the subspecies is unknown, or does not exist. If this is left blank, "Unknown" will appear in the Book. If a subspecies does not exist this would be misleading. If a "-" is entered in the Define Item Statement,, then "-" will appear in the book.
2. You may wish to adopt the convention "Tilley S.G." etc. so that collectors' names will be entered alphabetically on last names. Remember that commas are to be used only to separate character state names and may not be part of a state name. The symbols "&" or "^" or "+" etc. may appear, but if you ever wish to use the TAXID Accessioner with this bank, the isolated word "AND" may not be used in a state name.
3. Commas are used only as state separators.
4. If information is missing, merely leave blank the place where it would go: the commas or asterisk, however, remain.

I hope this is of some help.

Very truly yours,

George F. Estabrook

GFE:gm

Howard Town

U. Brasilia  
Brasilia DF

20 January 1968

Dear Howard:

Dr. Howard through the good offices of Dr. John Popenoe of the Fairchild  
Seccombe Foundation, 10901 Old Cutler Road, Miami, Florida  
Inst. 3154 has had the opportunity to establish a garden of Manihot  
Universidade Brasileira therefore have to burden you with the task of  
Brasilia in some of the wild species of Manihot and sending propa-  
gating material of these (seeds and stem cuttings, if possible).  
I suppose that wrapping the stem cuttings in wet newspaper and  
surrounding them with plastic would be as good a way as any to  
keep the material viable. I would hope that your relations with  
the Brazilian government will make it such that it will not be  
too difficult to export this material from Brazil. Of course,  
any expense on this operation will be assumed by me.

I hope you are having a successful adventure into Minas Gerais  
and other parts. Happy hunting -

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

P.S. I am enclosing a plant quarantine sticker and the material  
should be addressed to Dr. John Popenoe.

20 January 1968 <sup>9</sup>

Dr. G. T. Prance  
INPA  
Caixa Postal 478  
Manaus, Amazonas, Brazil

Dear Ian:

Through the good offices of Dr. John Popenoe of the Fairchild Tropical Garden, address 10901 Old Cutler Road, Miami, Florida 33156, we have the opportunity to establish a garden of Manihot species. I would therefore have to burden you with the task of picking up some ~~of the wild species of Manihot~~ and sending propagating material of these (seeds and stem cuttings, if possible). I suppose that wrapping the stem cuttings in wet newspaper and surrounding them with plastic would be as good a way as any to keep the material viable. I would hope that your relations with the Brazilian government will make it such that it will not be too difficult to export this material from Brazil. Of course, any expense on this operation will be assumed by me.

I am enclosing a plant quarantine sticker and the material should be addressed to Dr. John Popenoe. I hope you are having a successful adventure. Happy hunting!

We have now have Frank Bisby with us for six months. He is a very promising young fellow and we are pleased that Frank White saw fit to send him over. He will, I hope, in the six months here pick up a sufficient amount of our operational procedure to carry on at Oxford. At least that is our objective.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm  
Enc.

20 January 1968<sup>9</sup>

Miss Gladys L. Lytåë  
Department of Zoology  
Arizona State University  
Tempe, Arizona 85281

Dear Gladys:

Thanks for your letter. I suppose the only thing that needs an answer immediately is that I have not yet heard from Dr. Justus. I hope he does not want me for the week of March 17. I would prefer the week of the 3rd.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

20 January 1968

The Secretary, Selection Committee  
Hydro-Québec Bursaries  
75 Dorchester Boulevard West  
Montreal 1, P. Q.

Dear Sir:

Pierre Vaillancourt has an exceptional background for entering the studies of population biology. His mathematical knowledge is extremely important to those who would investigate this new field. Under my direction he has demonstrated considerable ability and skill in a course directed to the combination of biology and mathematics. He has demonstrated an ability and knowledge which we find exceptional.

He is a very personable, likeable young man.

Therefore I am pleased to give him my highest recommendation.

Sincerely yours,

David J. Rogers  
Chairman, Div. of Population  
Studies

17 January 1969

J. C. Gardin

Centre D'Analyse Documentaire Pour L'Archeologie

31, Chemin Joseph-Aiguier

13-Marseille 9<sup>eme</sup>, France

RE: International Symposium on the Use of Computers  
in Archaeology, Semiological and Mathematical  
Problems (April 7 - 12, 1969)

Dear Dr. Gardin:

I am pleased to tell you of my intention to participate in the International Symposium. Dr. David J. Rogers, to whom a formal (funded) invitation has been extended and accepted, and I intend to present a joint paper on Information Structure for Storage and Retrieval. As Dr. Rogers intends for his wife to accompany him to Marseilles it is essential for him to know what travel arrangements have been made for him; specifically airline, flight numbers, connections and departure dates and times, so that reservations for his wife and myself can be secured on the same flights.

We would be grateful for a prompt reply.

Very truly yours,

George F. Estabrook

17 January 1969

Dr. S. M. Dietz  
USDA - ARS  
Regional Plant Introduction Station  
Johnson Hall 50  
Washington State University  
Pullman, Washington 99163

Dear Sam:

Thanks for your recent letter. I enclose herewith a set of directions for setting up the input data which I believe is a little more explicit than we have had before. You may want to use this in thinking about how to set up your data bank.

I agree with you that the best possible acceptance mechanism is the demonstration of an operating system. So I shan't expect any more to be forthcoming from headquarters in Beltsville until we have together put out a working system.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

14 January 1969

Vice Consul for Economic Affairs  
Embassy of Nigeria  
Washington, D. C.

Dear Sir:

We are doing research on the economic aspects of the products of Manihot esculenta (manioc, cassava, tapioca, etc.).

We are in need of the following:

1. A list of major producers of the crop in Nigeria (if possible their location, area cultivated and yield in tons/year).
2. A list of major industrial consumers of manioc products in Nigeria.
3. A list of agriculturists, agronomists or scientists working with manioc in Nigeria.

Any other information you may have, or lists of persons with whom we may correspond will be helpful.

This information is being compiled as supporting data in an application for a research grant. The findings of our research should be of great help to all cassava producing areas.

We read and write English, French, Spanish and German.

Your earliest response would be gratefully appreciated.

Sincerely yours,

Gilbert N. Hersh

GNH:gm

13 January 1969

Dr. Theodore Crovello  
Department of Biology  
College of Science  
University of Notre Dame  
Notre Dame, Indiana 46556

Dear Ted:

If nominated, I will run; if elected, I will  
serve.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

13 January 1969

Mr. Dean A. Ward, Sales Manager  
Dakota Microfilm Services and Supplies  
9655 West Colfax Avenue  
Denver, Colo. 80215

Dear Mr. Ward:

We appreciate the time and suggestions that you gave us regarding our needs in microfilming our moss specimens. The price quoted ~~to~~ is extremely fair.

However, in discussing it thoroughly with the directors of the project, the decision was reached that we should by-pass this method of reproduction for the present - not because of price primarily but because of lack of personnel and staff organization which would be needed to fully appropriate the time savings microfilming would afford. Because this is a new and unprecedented research endeavor, we have had to explore various means which would best suit our needs. I do believe that microfilming such as your service provides would be a definite aid, but in our present situation I'm afraid it would not be completely feasible for the reasons mentioned.

However, please remember that we are interested in your services and should any opportunity arise in which we think you could be of help, we'll be sure to contact you.

With many thanks for your kindness and consideration,

Helen A. Perkins  
Research Technician  
Taximetrics Laboratory

HAP:gm

10 January 1969

Dr. Carl L. Withner  
Department of Biology  
Brooklyn College of CUNY  
Brooklyn, New York 11210

Dear Dr. Withner:

Responding to yours of January 3, we are pleased to hear of your work and your desire to use our program on *Oncidium* flower data. I would like to propose that you follow an alternative route to satisfy your needs, in as much as the conversion from one machine to another is very complex, costly and time consuming. We would be happy to run your data on our machine here and send you the printout. To accomplish this we would ask you to prepare the data following the description given in the two enclosed papers. The mimeographed paper tells you the actual physical details of setting up the run, and the printed paper gives you details of the method for using the characters.

The cost on the computer use will probably be so small that we can absorb it ourselves. You will have the information back much more rapidly this way than if you have to bother with mounting the program on your own machine. I trust that this will be a satisfactory procedure for you and hope to hear from you soon.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:qm

Taximetrics Laboratory  
Biology Department  
Armory 101  
University of Colorado  
Boulder, Colo. 80302  
10 January 1962

Mr. John Lewis  
Botany Department  
British Museum (Natural History)  
Cromwell Road  
LONDON, S.W.7, England

Dear Mr. Lewis:

Dr. Frank Hawksworth forwarded to me a copy of your letter of 2 January with your kind thoughts on the character study we did on Arceuthobium. We thought you might like to have the companion paper published earlier which sets out the thought processes we employed to study characters. This paper gives more of the conceptual basis for the process. It is being mailed separately.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

8 January 1969

Lt. R. A. Stockwell  
66th USA Arty. Det.  
APO New York 0907 8

Dear Dick:

Thank you very much for your Christmas card from Germany. It was good to be remembered by you. I hope you are having a lot of opportunity to visit the interesting biological activities going on there.

Lots of luck.

David J. Rogers

7 January 1969

Stanwyn G. Shetler  
Smithsonian Institution  
United States National Museum  
Washington, D. C. 20560

Dear Stan:

I had intended to reply earlier but got caught with the "bug" and got badly behind in all things. I did enjoy our exchanges though if you think we crossed swords there, you should someday get involved in disagreements that occur in our own shop. We seldom draw blood, but get plenty close at times.

I hope I have been an honest broker for FNA in various descriptions around the country. There exist a number of pockets of discontent who misunderstand the intention of FNA and wherever I can I try to boost the projects score. When arguments arise over personnel or ideas, with respect to it, I simply say "Have you got anything better," which most frequently cools them off.

The family lists are useful to us in terms of checking out the ones that we are using for a pilot study on chromosome number reporting for phanerogams. We have, of course, to worry about families not included in your list and all those families whose reports do not come from the U.S. The tropical families clearly give us the devil. Henry Fleming is in charge of these lists and I have asked him to give a more detailed analysis of the family names than I give you here. I think that when we have finished our investigation a list of family names in the various systems will have been compiled and this will be a part of a data bank in TAXID and control vocabulary of the family names according to the different systems will be an automatic byproduct. Since the different family names in the different systems exist in the data bank we shall be able to manipulate these lists in a number of useful ways.

You might give Mason the word that we are at work on the tape of types which he was kind enough to give us. The damned computing machinery is not very smart here so we have had to get a Honeywell computer in Denver to read the tapes. That should be done this week. Once done, we should then be able to play around with the data.

7 Jan. 1969

I expect to give a seminar at NSF on 7 February which will probably be no news to you. The seminar will say things about TAXIR in a very superficial manner which you know already but I hope that the NSF is sending an invitation to you.

I hope to see you then.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

7 January 1969

Dr. Sam Dietz  
USDA Plant Introduction Station  
Johnson Hall  
Washington State University  
Pullman, Washington 99163

Dear Sam:

I am sorry that there hasn't been an opportunity before to talk about the results of the Beltsville meeting. I got caught by the "bug" and have been badly snowed under since.

From my point of view we had a very successful meeting but it is difficult for me to know exactly how effective we were in getting ideas across about TAXIR. I suppose that the best kind of thing is to actually demonstrate what we can do, rather than to wave our hands about some potential method. At this end, you know that Bill Walden has now gotten our official signal to change us for programming and that he has received a box full of program cards from us. I hope you are in close touch with him on this and can keep us abreast of his efforts. As I understand it he will be coming through here sometime soon for some more details on the programming problems.

I hope in the meantime you can begin to work on the actual details so that we can iron out all the problems so that when the system is up and running you will be able to load the box with data. If you have time to prepare a full set with some actual DEFINE ITEM statements perhaps the problems will become evident and we can begin to iron them out.

Things progress well here for the system and we feel certain everything will be ready when you need it.

I'd like to have your reaction to the meeting in Beltsville and what this portends for us, you and me.

Happy New Year!

David J. Rogers  
Professor of Biology

DJR:gm

TROPICAL ROOT CROP NEWSLETTER

Dr. Frank Martin. (USDA, PESTA., ARS, CRD, P.O. Box 70, Mayaguez, Puerto Rico). Dr. Alfred Jones, USDA Georgia Coastal Plain Experiment Station, Tifton, Ga. 31794) and Dr. David J. Rogers (Dept. of Biology, Univ. of Colorado, Boulder) have commenced a collaborative project to study the evolution and classification of Ipomoea batatas. To this end a number of propagating materials of species of section Batatas have been grown at Mayaguez ~~and~~ at Tifton. Data collected from these materials will be run through a computer classification program.

7 January 1969

Dr. T. M. Barkley  
Division of Biology  
Kansas State University  
Manhattan, Kansas 66502

Dear Ted:

Please tell Loran Anderson that we would be happy to have him as a post-doc. I think we can probably scratch out the funds to meet a half year salary. We are now in the process of grant application which will support him. Unfortunately we will not know the success of the application at this stage of the game. The University has no funds for post-docs.

Happy New Year,

David J. Rogers  
Professor of Biology

DJR:gm

JAN 7 1969

Dr. Frank Martin  
Department of Horticulture  
College of Tropical Agriculture  
University of Hawaii  
Honolulu, Hawaii 96822

Dear Frank:

Sorry I've taken nearly a month to get around to answering your letter of the 9th. I am sending a short note to your Puerto Rico address to be used for the newsletter. It is good to hear that things are moving along on the studies. The isozyme analysis sounds interesting. I'd like to hear more about it.

Happy New Year!

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

JAN 7 1969  
7 January 1968

Dr. Jorge Leon  
FAO of the UN  
Via delle Terme di Caracalla  
Rome, Italy

Ref: PL 10/19

Dear Jorge:

I enclose a letter written to the Rockefeller Foundation for help to support a trip to the regions mentioned in your letter. You will note that my request was for the travel for one individual. However, if additional funds for you are needed for equipment or other necessary expenses to make this trip a useful one, I am certain that I can expand the request to include those items as well. I think the Rockefeller Foundation now is more willing to support efforts in the direction of Manihot than they have been in the past. I hope that this is true.

You will note that in the copy of the letter also that Dr. John Popence, Director of the Fairchild Garden in Miami, has become interested in Manihot ~~also~~. I am hoping that he will be able to establish a considerable collection of wild species and we are attempting to work together now toward the establishment of some good work in cytogenetics. Incidentally I have also seen the work done by Varón at Palmira. There is certainly good work there but the Cauca Valley is so rich in soils that almost any good program would be successful. I am also interested in the experimental work in Colombia done at Villavicencio for the llanos.

It is certainly a pleasure to see FAO's new interest in Manihot. I recall in my early days of investigation that FAO took a dim view of the crop. That it has changed its attitude is praise-worthy. I will keep you informed of the results of the Rockefeller Foundation's decision.

Thanks for your letter. With best wishes for the New Year,

Sincerely,

David J. Rogers  
Professor of Biology

DJR:cm

6 January 1969

Dr. John Popenoe  
The Fairchild Tropical Garden  
10901 Old Cutler Road  
Miami, Florida 33156

Dear Dr. Popenoe:

I enclose herewith a copy of a letter recently mailed to Dr. Richardson of the Rockefeller Foundation. I have also heard recently from Jorge Leon, whom you may know, who regularly is in the Instituto Interamericano de Ciencias Agrícolas de la OEA, Andean Zone, Lima, Peru. Dr. Leon and I have had long contact on problems of Manihot and he has now written that he wants to send out an expedition in the area mentioned in the copy which should pay off in very rich dividends in Manihot, so I took this opportunity to wrap up some interests of yours and mine as well.

From your letter of December 17, I will identify myself to you at the airport in February by a nametag on my jacket. It is all right to reimburse me after the whole thing is over. I will get letters off to some of the people mentioned by Dr. Teixeira to send materials directly to you. Do you have USDA plant introduction permits? If so, perhaps I could send some along to them. With respect to importing cultivars I would not recommend it and for reasons which I will tell you about when we are together.

I would like to get down to the keys to do some skin diving if at all possible, on Saturday or Sunday, following my lecture. Have you any idea about the best way to do this?

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

Enc.: Letter to R. Richardson

January 3, 1969

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

Dear Dave:

I haven't been very good in broadcasting my  
change from Ft. Collins to Boulder, a move we made  
in the summer of 1967.

Since the Lupinus specimens were probably intended  
as exchange, is it acceptable to you to exchange  
them with the University of Colorado Museum rather  
than with Colorado State University at Ft. Collins?  
I have checked with Bill Weber, and he would like  
to have the specimens you sent. He probably will  
also be a more active exchange partner than the  
herbarium at C.S.U.

But, let me know if you do not want this re-  
arrangement.

Happy New Year

David J. Rogers  
Professor of Biology  
Project Director

DJR:sw

January 3, 1969

Dr. Ralph W. Richardson, Jr.  
The Rockefeller Foundation  
111 West 50th Street  
New York, New York 10020

Dear Ralph:

I write to inquire about the possibilities for a grant to continue research with Manihot esculenta. I am just finishing up the basic classification of the cultivars, and now am ready to proceed with other studies on the species. I hope to be able to get a leave of absence from the University one year from now, and need assistance to spend eight to ten months in Latin America (site not yet definite) working directly with the plants in their normal growing regions.

In addition to my own support, I would like to help with work now developing at two other institutions, both of which want to establish germ-plasm gardens. Dr. John Popenoe and I have begun to consider possibilities of establishing a more intensive investigation of cytogenetic problems in Manihot, and need to bring viable materials to the Fairchild Tropical Gardens. Likewise, Dr. Jorge Leon (now on leave from his regular post in Lima, working as Plant Introduction Officer in FAO, Rome) and I have long desired to bring in living materials from northern Paraguay, southern Brazil and eastern Bolivia, an area rich in species and cultivars. Dr. Leon has an assistant whom he wishes to send into the aforementioned areas, and I would like to send a graduate student of mine with this expedition. He could bring materials back to both of the institutions mentioned, providing thereby a much better chance to compare growing plants and study varied problems. Funds needed in this case are to provide travel and subsistence funds for the graduate student.

I hope that you have funds available for this work. Incidentally, I haven't heard any more about the development of CIAT. How is it progressing?

Sincerely,

Dr. David J. Rogers  
Professor of Biology  
Project Director

DJR:sw  
CC: Dr. John Popenoe  
Dr. Jorge Leon

January 3, 1969

Computerworld  
14 A Elliot Street  
Cambridge, Massachusetts 02138

Gentlemen:

Will you please enter us for a one-year  
subscription to Computerworld? It should be  
sent to:

Taximetrics Laboratory ATTN: John Wong  
Armory 101  
University of Colorado  
Boulder, Colorado 80302

We would appreciate it if you would bill  
us at this address.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:sw

January 2, 1969

The Secretary  
University Chest  
16/20 Wellington Square  
Oxford, England

Dear Sir:

This is to certify that F.A. Bisby has taken  
up academical residence at the University of  
Colorado, Boulder, Colorado, U.S.A.

Sincerely,

David J. Rogers  
Professor of Biology  
Project Director

January 2, 1969

Dr. G.R. Noggle  
Institute of Biological Sciences  
Department of Botany  
Box 5186  
North Carolina State University  
Raleigh, North Carolina 27607

Dear Ray:

Thanks for your letter of December 19. I am pleased to accept your invitation, and suggest as possible dates the week of March 17-21. If this week is acceptable to you, any two-day period in that week is fine for me. After you okay the dates, I'll tell you of travel schedules, titles, projection requirements, etc.

Sincerely,

David J. Rogers  
Professor of Biology  
Project Director

DJR:sw

28 February 1969

Dr. Mason E. Hale  
Department of Botany  
Smithsonian Institution  
Washington, DeC. 20560

Dear Mason:

We have taken the tape of sample data you sent, extracted a few of the more interesting descriptors, converted them to our input format and built you several sample data banks a la TAXIR. Under separate cover we are returning your original tape and enclosed here you'll find some annotated TAXIR output to look at.

The biggest headache, delay and expense was the conversion of data. Our CDC 6400 was not able to read your Honeywell generated tape. Reason: your tape is organized into 152-character records and our machine can't swallow that big a record. After some experimenting, we finally found a machine that could stomach the tape, a nearby IBM 360. We programmed the 360 to read the tape and write a 2nd tape with twice as many 76-character records. Then we programmed the 6400 to read this 2nd tape, select your item number and 6 descriptors, organize them into TAXIR Define Item statements and write these onto yet a 3rd tape. This 3rd tape served as input to the TAXIR system.

Let it be noted that a great portion of the contents of your tape are, from our point of view, meaningless noise. We realize that these are signals to Reggie's programs which identify your data, but they are unnecessary for TAXIR and our conversion program had a lengthy job separating the wheat from the chaff. You'll note that our Define Item statement demands only the information you wish preserved, separated by commas and terminated by an asterisk. In TAXIR it is the Accession Module statement (in the Accession Module) and the Book Module statement (in the Book Module) which impose the desired structure on the raw data and take the place of Reggie's codes.

In addition you will notice that the conversion was not mechanically perfect. During the trip from Honeywell to IBM to CDC the character "- ", for example, became transformed to "v".

All in all, this data conversion part of the operation ran us \$254.66 for computing costs alone (not including 1¢ per page of output printed), not to mention programming and other labor costs, and was a pain in the neck. If we agree to a collaborative effort on the type

28 February 1969

collection, let's work out a more convenient and inexpensive data preparation method. This is the bottleneck. Total computing costs for building your TAXIR banks, querying, printing of books, etc. was \$8.44 (not including 1¢ per page of output printed). None of these costs will be charged to you. I include them to show where the trouble areas are.

In closing let me point out that there are comments scattered throughout the enclosed output for your attention. We would very much like to get your reaction to these results.

Sincerely,

Robert C. Brill

RCB:gm  
*RCB*

27 February 1969

=

Mrs. Julia F. Morton  
Box 8204  
Coral Gables, Florida 33124

Dear Julia:

Just a note to let you know how very much we appreciate the great effort you went to and time spent with us. Altogether it was lovely experience and both Richard and I do very much appreciate it.

Sincerely,

David J. Rogers

DJR:gm

27 February 1969

Mrs. Edward C. Sweeney  
4013 Douglas Road  
Cocomut Grove, Florida 33133

Dear Mrs. Sweeney:

It is difficult to express the appreciation that Richard and I have for the opportunity to stay with you at Kampong. Needless to say the whole period was a real joy to us and we are very happy to have the continuing remembrances of the pleasure; and the two jars of African ~~orange~~ marmalade.

I do hope that you may have the opportunity to see us sometime when you are in Colorado.

Very sincerely yours,

David J. Robbs

DJR:gm

27 February 1969

Dr. John Popenoe  
Fairchild Tropical Garden  
10901 Old Cutler Road  
Miami, Florida 33156

Dear Dr. Popenoe:

First let me thank you for your great hospitality and enjoyable stay in Miami. I was glad to have the opportunity to talk to you about Manihot. I hope that we will soon be getting more propagating materials in from the tropics and will have more material to work with.

My stay with Mrs. Sweeney was very pleasant and she was a gracious and good hostess.

I enclose the expenses for my trip, which does not say anything about the fee for the lecture. Because of the generosity of people there, there were no other expenses.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

UNIVERSITY OF COLORADO  
Biology Department

27 February 1969

EXPENSES: David J. Rogers

Round trip Airfare	\$239.00
Ground transportation - Boulder to Stapleton Airport, Denver and return	18.00
	<hr/>
	\$257.00

February 25, 1969

Professor Robert W. Goltz, M.D.  
Dermatology Department  
University of Colorado Medical School  
Denver, Colorado

Dear Dr. Goltz:

This is just a short note to thank you for the cordial time we had at your office Monday. I was about to ask you as we left whether or not the rustic westerns were by you or your wife.

Enclosed is an announcement of, and invitation to, a coming series of seminars on the TAXIR system to be given by our systems analyst (one of the chief designers) and our research mathematician (the other chief designer). I know you are very busy; should one of your students wish to attend, however, he would be most welcome. This invitation is also heartily extended to Dr. Weldner.

Again, thanks for the pleasant interview. If we do, in fact, pursue the skin cancer problem, we will find it most satisfying from both a technical, as well as an administrative, point of view.

Cordially yours,

John Wong, Jr.  
Computer Programmer, Operations

srh  
Enc.

February 25, 1969

Dr. Charles Austin, Director  
University of Colorado Medical School  
Computing Center  
Denver, Colorado

Dear Dr. Austin:

Just a short note to indicate that A) I am most appreciative of your taking time to show me your 8130 setup and B) we are having a series of short seminars on our IR system -- see enclosed mimeographed sheet -- to which both you and/or Mr. Entzinger are cordially invited.

We have talked briefly with the Dermatology people and we feel that there is a high probability of future collaboration, should Dr. Meldner<sup>®</sup> wish to expand his proposal.

My regards to Mr. Entzinger.

Cordially yours,

John Wong, Jr.  
Computer Programmer, Operations

srh  
Enc. 1

February 25, 1969

Dr. Kenneth Meldner  
Dermatology Department  
Colorado University Medical School  
Denver, Colorado

Dear Dr. Meldner:

Thank you for spending time with us in a most pleasant interview. We enjoyed talking with you and Drs. Goltz and Kahn.

If you are able to break away for a few hours Monday afternoon, March 3, we shall be starting the first of a series of hour-long seminars on "Using the TAXIR Information Retrieval System" at 3:00 p.m. in the Armory Building, Room 103. We have sent a mimeographed sheet concerning these seminars to Dr. Goltz; you and/or your students are most welcome to join us.

Should you decide to expand your proposal, we will be more than happy to help you in any way we can. With respect to the "Interviewer Problem," incidentally, Mr. Hersh and I feel we can be of special assistance.

We hope to hear from you soon.

Sincerely yours,

John Wong, Jr.  
Computer Programmer, Operations

srh

file

February 25, 1969

Mr. Thomas C. Taveggia  
London Graduate School of Business Studies  
28 Northumberland Avenue  
London WC 2  
England

Dear Mr. Taveggia:

Enclosed are the reprints you requested. The mimeographed paper, entitled "General Write-up for Similarity-Clustering Program," should be of help in describing procedures for use of GRAPH. Also enclosed is a copy of "I/R in Biology," describing the latest operating systems developed here. TAXIR is a high-powered, low-cost information retrieval system which is available for users at this time.

We are investigating the applications of these various methodologies for economic research, especially in the areas of information cost effectiveness, regional analysis, ecosystems analysis (man/environment), and economic development. These programs are excellent tools for investigating finite, qualitative data.

Needless to say, we would be very interested in your research and would be more than happy to assist in any way we can.

Dr. Rogers feels that it would be inappropriate at this time to mail flow charts and source program listings. The program listings would be meaningless unless you want to use the same computer hardware in which these programs were written (the Control Data 6400 series). The flow charts would be meaningless unless it is your intention to reprogram them for your computer. Our systems analyst suggests it would take a long time and a lot of money to accomplish this complex task. If you wish to make this commitment, please let us know for which machine and your expected frequency of use, and we will send you what you need.

If you wish to run your data through these programs, we would be very happy to do it for you and bill you for the computer time.

These programs run quickly, and we expect this would not be too expensive. We would provide the computer assistance you would need.

Mr. Thomas C. Taveggia  
February 25, 1969  
Page 2

Dr. Rogers will be in England from April 17 to April 22 (London April 17+?) and would be glad to meet you if you wish to see him. Please make arrangements for any meetings with Dr. John C. Gray of the Office for Scientific and Technical Information. If we can provide any further assistance, please write.

Sincerely,

Gilbert N. Hersh  
Economic Analyst

GNN:srh

February 21, 1969

Dr. Richard Bellman  
Department of Mathematics,  
Engineering and Medicine  
University of Southern California  
Los Angeles, California 90007

Dear Dr. Bellman:

Please find enclosed a manuscript entitled,  
The Theory of the TAXIR Accessioner. Dr. S.  
Ulam, Chairman of the Department of Mathematics,  
University of Colorado, Boulder, has seen this  
manuscript and recommends that it be submitted  
to you for publication in Mathematical  
Biosciences.

Your consideration is appreciated.

Very Truly Yours,

George F. Estabrook  
Research Biomathematician

GE:sw

MEMO TO: Dr. Meredith Runner  
FROM: David J. Rogers  
SUBJECT: Seminar  
DATE: 19 February 1969

Thursday, March 13, looks like a good time to give a seminar!

19 February 1969

Miss Barbara Field  
Department of Geography  
University College London  
Gower Street  
LONDON W.C.1, England

Dear Miss Field:

Thank you for your letter. I am sending separately reprints of the articles you mentioned. The next paper on Manihot will be a new computer-aided classification of M. esculenta.

The best source of references is the "Bibliografía de Raíces y Tuberculos Tropicales" by Alvaro Montaldo, Alcance No. 13, Dic. 1967. Universidad Central de Venezuela, Facultad de Agronomía, Maracay, Venezuela. This is organized by crops, and subdivided into various topics; but not annotated; in both English and Spanish.

Another source is "Bibliografía da Mandioca", compiled by Luiza S. E. Hermann, Boletim No. 182, Instituto Agronomico do Estado Sao Paulo (Caixa Postal 28) Campinas, Sao Paulo, Brasil, Febreiro de 1968. Both of these bibliographies cover the international literature.

I hope that you will be able to find the materials you need.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

19 February 1969

Dr. Alfred Jones  
USDA - ARS - Crops Research Division  
Georgia Coastal Plain Experiment Station  
Tifton, Georgia 31794

Dear Al:

Thanks for your letter of the 11th. It's great to hear you are going ahead with the Ipomoea job on schedule. I just wish I could hold up my end of the bargain on a graduate student. Living as we have from hand to mouth on grants I am in very bad shape right now. If I can get a graduate student free (which is doubtful these days) and if I can find some funds for student travel, maybe I can get back into the swing on our mutual project. What with budgets being what they are, I don't have much hope.

Does ARS have any way to receive applications for graduate research assistants where the graduate student would be at a university such as ours but work on a project of mutual concern to the USDA? Let me know if you know of any such route and I will apply through it.

I would suggest very strongly that in the data gathering process which you and Frank will be planning together that we work pretty closely on the structure of the data gathering. I would like to see our information retrieval system put to work on these data in addition to our various classification procedures. If you could send me some worksheets on your data gathering process, then maybe we can facilitate putting it into the computer.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

19 February 1969

Dr. Robert J. Menzies  
Department of Oceanography  
Florida State University  
Tallahassee, Florida 32300

Dear Bob:

As you know, three of us are descending on you Monday, February 24. The schedule is as follows:

Dave from Miami on Eastern 292, due to arrive in Tallahassee at 3:33 P.M.

George Estabrook and myself by the Executive Air Taxi from Atlanta due to arrive in Tallahassee at 5:10 P.M.

Expect we will be leaving on Wednesday. See you and Lucille soon.

Sincerely,

Henry S. Fleming

HSF:gm

18 February 1969

Mr. Isiah Ruffin  
Department of Agronomy  
College of Agriculture and Home Economics  
Lincoln, Nebraska 68503

Dear Mr. Ruffin:

Your letter addressed to me in New York has just reached my desk. I am sending some papers which describe the classificatory procedures.

I note your development of an information storage and retrieval system. I wonder if you would be interested in a system we have developed here which has some power for purposes you have indicated. If you do have interest in this, may I suggest it would be useful to get together to see if our IR system, called TAXIR might save you some trouble. Unfortunately there is no descriptive literature on that subject yet available. We would be glad to describe it to you if you are interested.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

*Enc 3 reprints*

18 February 1969

Dr. Frans Stafleu  
International Association for Plant Taxonomy  
106 Lange Nieuwstraat  
Utrecht, Netherlands

Dear Frans:

I have made a few changes now to accomodate the meeting time in Amsterdam. These changes are as follows:

1. I will arrive from Marseille in Amsterdam on Saturday, April 12.
2. My wife will accompany me, and therefore we will need a room for two in Amsterdam.
3. My wife will leave Amsterdam on Tuesday, April 15. I will stay through Wednesday, April 16.
4. George Estabrook, the mathematician on our staff, will be arriving in Amsterdam by ~~Monday~~ Monday, April 13. He would appreciate an hotel reservation for Sunday, Monday, and Tuesday nights, April 13, 14, and 15.

We are looking forward to seeing you and to the opportunity to meet with the Dutch systematics community.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

18 February 1969

Miss Susan Emley  
6622 Del Playa #2  
Goleta, Calif. 93047

Dear Miss Emley:

Thank you for your letter of February 10. Please note that my address has changed again.

I have one or two general comments before attempting to answer your specific questions. First, the decision that Manihot esculenta was first cultivated in Mesoamerica was derived primarily from botanical evidence, and secondly from archeological evidence. Second, manioc, or cassava, or yuca, which we know today is probably a far different plant than when it was first cultivated, and certainly there must have been contributions over time from various parts of Latin America which make up parts of the complex gene pool, now called "M. esculenta." So the problem of origins is not a simple one-time happening, such that the crop of today came into being all at one point and time. Similarly, Zea mays when first cultivated in Mexico was a very much different crop than today's cultivars, and only by hybridization, mutation, and selection over long periods of time do we have the modern crop. Contributions to corn's evolution came from several parts of tropical America, and I'm sure that when we have equivalent knowledge about M. esculenta, we'll have a similar picture, differing in details, but generally much the same. I feel that much more sophisticated archeological and anthropological work in Latin America will be necessary to combine with botanical knowledge to fit the puzzle together.

We are now putting the final touches on a classification of the cultivars of Manihot esculenta. This classification was derived with the aid of some very powerful computer procedures, and is, we feel, the sort of solid rock work needed before any of the more complex problems are solved.

From the above paragraphs, I believe that you can see my answer to your question about possible origins (or first cultivations) of M. esculenta. I simply don't know the answer.

Concerning Gertrude Dole's work: she extracted most of the information for her paper from the seven volume Handbook of South American Indians. If the reports in those volumes are accurate, so are her facts accurate. But she recognized the short-comings in that work, as we all do, knowing that the information is very fragmentary, and was a compilation merely of what was known at that time. I think Dole did good work in pointing out some possibilities

but think that we all agree that much more evidence is needed to make any real decisions. I discussed this paper with Dr. Dole when I was in New York, and we were both of the opinion that she did the best she could with the data available, but that we would not call that paper the final, definitive answer. So my answer is: yes, that is useful work, and certainly the anthropologists can't wait forever to get the back-up botanical knowledge. But maybe we should try to push the ethnobotanists' work a little harder.

This ties with your last question, and I can only make some suggestions, not lay out a pathway. Any anthropologist who enters these fascinating areas ought to be cognizant of botanical efforts, should make all efforts to either become familiar with botanical procedures, or tie up very closely with a botanical expert. The synergistic effects of such collaboration improve both botanical and anthropological endeavors.

If you're looking for a good problem, I can suggest one where you have the opportunity for very interesting combined work with geneticists, taxonomists, and anthropologists; where some preliminary work has already been done, and a chance to produce some very valid studies. But the problem is one that I want to have some control over, and I'm not sure that is what you want. If I knew your status, I could be more definite, but since I do not, I hesitate to come out with it.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

14 February 1969

State Advisory Officer for Animal Nutrition  
Bornsesteeg 45  
Wageningen, Netherlands

Dear Sir:

We are doing research on the use of manioik (any part of the plants of the genus Manihot esculenta in any condition) in livestock feeding in Europe.

Any information, references or direct assistance you may afford us will be most appreciated.

We can read and write French, German and Spanish, but alas, not Dutch.

Sincerely,

Gilbert N. Hersh  
Staff Economist

GNH:gm

14 February 1969

Director  
Agricultural University  
Department of Animal Nutrition  
Haagsteeg 4  
Wageningen, Netherlands

Dear Sir:

We are doing research on the use of manioc (any part of the plants of the genus Manihot esculenta in any condition) in livestock feeding in Europe.

Any information, references or direct assistance you may afford us will be most appreciated.

We can read and write French, German and Spanish, but alas, not Dutch.

Sincerely,

Gilbert N. Hersh  
Staff Economist

GNH:gm

14 February 1969

Mr. P. Businger  
Office of the Agricultural Counselor  
4200 Linnean Avenue, N.W.  
Washington, D. C. 20008

Dear Mr. Businger:

Thank you for your letter of 11 February 1969  
(Ref. L/153).

I am indebted to you for your continued attention.  
It is very much appreciated.

Sincerely,

Gilbert N. Hersh  
Staff Economist

GNH:gm

Armory 101  
University of Colorado  
Boulder, Colo. 80302  
14 February 1969

Mr. L. Bush  
Customer Service Representative  
Credit Card Division  
American Express Company  
Post Office Box 3620  
New York, New York 10008

Dear Mr. Bush:

Credit Card No.: 042-689-357-4

My check in the amount of \$174.06 was mailed to you about 20th January. It was our check #466 and you should have received it by now, If it has not arrived, see the U. S. Mail. We have held up our end\$ check yours.

Sincerely,

David J. Rogers

DJR:gm

February 13, 1969

Miss Mary Massara  
Washington State Universtiy Computing Center  
Pullman, Washington 99163

Dear Miss Massara:

The subroutines you mention in your letter fall into two types. IAM, WRT280, FRAME, CMNHLD, CMHLD, IADROP, and INITIA are part of a larger set of subroutines which permit us to query a TAXIR data bank from a console keyboard and to receive responses on a console display tube. You are not aware of the balance of the subroutines in this set because they are called in their turn by the subroutines named above. The total package is, of course, inapplicable on your machine. If you have a similar console device, you probably also have a similar set of subroutines (which you can use as is or have tailored for your use). Note that in the neighborhood of the calls on these subroutines you will find calculations of parameters to these subroutines. These calculations will have to be rewritten to supply parameters for your console subroutine package. If you do not have a console device, then it will be necessary to remove from the program all coding that is reached after successfully testing the value of the variable INTYPE to be equal to 3.

The other two subroutines mentioned in your letter, DATE and INFO, are routines in our system library for reading the current date and for reading elapsed time on the central processor and peripheral processor. I don't know if the concept of central and peripheral processor means anything on your machine, but here we are charged at different rates for central processor time (calculating) and peripheral processor time (input/output). You will have to substitute your own routines for these.

As for flowcharts, the only one we wrote is the one which covers the query section and we sent this to Dr. Walden recently. I would suggest that we have some technical sessions together during which I can answer your questions and give you further explanations. I believe that Dr. Walden expects to be passing through our shop fairly soon. In the meanwhile, if you have problems that can't conveniently wait till Dr. Walden's visit, please call me at 303-443-2211, ext. 6712, and I will be glad to help you.

Sincerely,

Robert C. Brill

13 February 1969

Dr. James L. Carmon, Director  
Computer Center  
The University of Georgia  
Athens, Georgia 30601

Bear Dr. Carmon:

When I first sent out the invitations to join in an informal meeting of IR systems developers, I was not aware that there had already been a group of you involved in such types of conferences. I discovered from the group at ITT that you have already been meeting, and I want you to know that my own invitation was not intended to impose upon the already active group. My list of proposed members of the conference was given to me by Dr. Ed. Weiss. In conversation later with Dr. Weiss we felt that there was still need to have a conference with a few additional people representing other disciplines, as well as those whose primary concern is chemical information.

I appreciate your invitation to join the group at Athens on February 27-28. Unfortunately my schedule will not permit me to attend, and I am sorry.

I will be pleased, however, if you could discover the interest of that group to have a meeting here in Boulder with a few other systems developers not concerned primarily with chemical information. It was Ed Weiss's concern to find by informal conversation, the similarities and differences between different disciplinary approaches to IR systems.

~~I look forward to yours, and that of the assembled scientists, of the need or interest in such a Boulder meeting next summer.~~

I will be interested to know if you, and the others meeting there, feel the need ~~for~~ for (or are interested in) such a gathering here next summer.

David J. Rogers  
Professor of Biology

DJR:gm

12 February 1969

Dr. Carl Oppenheimer  
Department of Oceanography  
Florida State University  
Tallahassee, Florida 32304

Dear Dr. Oppenheimer:

In a phone conversation with Bob Menzies (with whom we have already collaborated on a problem of classification of marine isopods) I proposed that we continue collaboration on problems of oceanographic information retrieval. Bob suggested I write to you, outlining some possible collaboration, particularly so since we have just been encouraged by the Office of Scientific Information Service, NSP, to submit a proposal for applications of our TAXIR information retrieval system to oceanographic data.

Bob mentioned your interest at FSU to do a pilot study on information retrieval, particularly for the upcoming collaborative studies on the Gulf of Mexico. We in our laboratory would welcome the opportunity to work with you on such a pilot study, and would welcome the opportunity to visit you to discuss such a project in detail.

TAXIR, mentioned above, is an acronym for Taxonomic Information Retrieval. It is an open-ended system built to serve the scientific community. The system was designed to allow the incorporation of data structured in the manner most meaningful to the individual science, and to produce output in several ways, either directly from a CRT, or hard-copy printout. I won't bother in this letter to tell any details of the system, but we would like to have an opportunity to visit with you to provide a much more meaningful description of the system. I think Bob can fill you in on some of our background and interests.

Our group, composed of biologists, mathematicians, systems analysts, programmers, and an economist, is set up to provide services to you in terms of operating instructions, management problems, personnel needs, and cost/effectiveness analyses.

Since I have to be in Miami February 20-24, I could conveniently stop in Tallahassee on the return leg of the trip, and meet with you Monday afternoon, February 24, and stay for a day or two to discuss possible collaborative efforts. I would hope to have with me one of my staff who can help in understanding the types of problems we might face, given the chance of a joint proposal. Could you call me soon to let me know if you can make it on those dates? I'd also like to see Bob if he's going to be there during that period.

Looking forward to hearing from you.

Sincerely,

12 February 1969

Resources for the Future  
1755 Massachusetts Ave., N.W.  
Washington, D. C. 20036

Gentlemen:

We would like to have a copy of your Annual Report 1968.

Would you also send information about applying for  
grant aid?

Thank you for your courtesy.

Sincerely yours,

Gilbert N. Hersh  
Staff Economist

GNH:gm

11 February 1969

Dr. William F. Raub  
Health Scientist Administrator  
National Institutes of Health  
Division of Research Facilities and Resources  
Bethesda, Maryland 20014

Dear Dr. Raub:

It has come to the attention of our acting-librarian that the Division of Research Facilities and Resources of the National Institutes of Health has issued a competitive procurement in the area of mathematical models for computer-based research involving information retrieval.

We of the Taximetrics Laboratory have developed a Boolean information retrieval system in which any combination of items from a given data bank which is expressible in Boolean terms, can be calculated. We do not search for information in the conventional sense; we calculate information. This we are able to do insofar as Boolean structuring, in a sense, makes information content-independent. In this way, biological information of any kind can be mounted.

Enclosed is a copy of a brochure describing the Taximetrics Laboratory. Therein one should be able to find relevant information concerning our goals, our resources, and our history as an integrated interdisciplinary team.

If you feel that we may be of help to you, please send us literature concerning the scope and objectives of your information retrieval problem.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

11 February 1969

Dr. T. M. Barkley  
Division of Biology  
Kansas State University  
Manhattan, Kansas 66502

Dear Ted:

Bad news! I went in to see those people in Washington last week and it appears that our funds have dried up almost completely, so now we're looking for survival funds for us, let alone for other guys to come here to study with us. I would recommend very strongly that Loran Anderson apply for a senior post-doc from NSF, I do not know how they are going with these things but maybe coming directly from him, and with our stamp of approval it would fly that way. Let me know if this falls on deaf ears with Anderson.

Sorry about that. C'est la God-damn' vie!

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

11 February 1969

Dr. Nelson Hairston  
Museum of Zoology  
University of Michigan  
Ann Arbor, Mich. 48104

Dear Nelson:

I deliberately delayed answering your letter of February 3, with enclosed statement of expenses, until I had an opportunity to discuss in Washington the prospects of a continuation grant to support our activities. I talked specifically with people in the Office of Scientific Information Service, and specifically about support for our team as a research and development group. Frankly, I was shot down. After I had had some rather vague encouragement from one member of OSIS just prior to my visit with you last December, I felt that they were indeed willing to continue our grant. It was that vague assurance that encouraged me to say to you that we would take some of our computing funds to allow you to get on with mounting of your data bank on the "herps".

Last Friday, I went in with a draft of a proposal to continue our work, and then the "fit hit the Shan." OSIS is not willing to fund us to help you, or any other of our collaborators, in mounting TAXIR data banks. What they want, apparently, is for the whole biological community to commit itself to one or another system, and all agree to use it. And somehow, they want me to sell "the community" on our system, and then have "the community" come in and say - "we have agreed that TAXIR is the system we all will use." When I pointed out the enormity of the task to get the community to accept something - anything - they pointed out that it was not their task to support the community with something it doesn't want. When I said something about demonstrating the value of this system, they replied that they have supported demonstrations of several systems for the past ten years, and from their viewpoint, none of these demonstrations had made a dent in the biological community's ways of doing things. Their arguments were completely valid, and all I could do was admit the correctness of their position, even though I and my team are left high and dry, with no direct way of continuing our efforts.

Not the least of our problem, of course, is the fact that we are not recognized, officially, as a team by anybody, not even our own University. We have lived hand-to-mouth on various grants first from one granting agency and then another. I know that this true for many groups across the country, and all those that have bit the dust because of the recent budget squeeze in Washington will say to me is "welcome to the group."

This so far is not to say that we must cut you off now, and not fulfill the agreement we made. What I intend to say is that somehow, somewhere, we must find ways to support your efforts, and ours, through a different channel. There probably is such a channel, and we must explore it together. Clearly, you want a demonstration of some system - any system - that will help out the curators of large collections. Probably more than just a demonstration - an actual working system for your group. And probably, there must be outside funding during the preliminary stages, and again probably there must be an appeal to the only Washington agency generally receptive to these ideas, NSF. But this time, not to OSIS, but to the section of biology which is most specifically dedicated to biological curatorial activity, the systematics panel. I suggest, therefore, that we make a joint proposal, with you as principal investigator and me as co-principal (or perhaps in some other category) in which we decide how much funding is needed. We have already established how much it will cost for the actual operation, but we (for our continuation) must have some funds which are for technical advice, specifically written in to your budget. I haven't hit upon a precise amount that we can justify on such a proposal, but that isn't as important right now as it is to find out your reaction.

I am just now reminded of something which might, eventually, have some merit. I recall that you are a member of a very select group, the Directors of Natural History Museums, or some similar title. Could not that group choose up sides and say to OSIS that they represent a large segment of the Biological Community, and they (the Museums) are as interested in information retrieval systems as, say, the chemical community, and that since OSIS has a whole section devoted to chemical information retrieval, that the Biologists are equally in need of some section representing biology? Such a statement might go a long way to convincing OSIS that there is a community of biologists willing to stick together long enough to work out the most efficient system for museums. It might also be a part of such a statement that there is a group whose efforts in this direction exists in the University of Colorado, and that this group could serve the larger community, given that the larger community wanted it.

I feel that we need to visit you some time soon to set up the on-going project, and to work out some sort of grant instrument. I propose that we meet you some time in the next few weeks, so that Gil Hersh can aid in the establishment of the work program for the herpetological bank, and set up his time-and-motion studies. You and I can talk about the possible funding routes, if you are amenable to such considerations. I also want to get together with George Nace to see what we can do for his "frog farm" data bank.

In the meantime, we would like to ask you to amend your statement of programming costs, asking for funds on a need basis, rather than in a lump sum. I know that we put it the other way, but with the circumstances as they are, if you can send us the bill on a month-by-month basis, this will help us along. Hope this is satisfactory.

Let me know about possible meeting dates from now through, say, the first week in March. I can't make it from February 20 - 24, but might make it on Wednesday-Thursday, February 26-27 or Tuesday-Wednesday, March 4-5. Check these days as possible, at least from my end.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:qm

Taximetrics Laboratory  
Department of Biology  
Armory 101

11 February 1969

Ing. Agr. Armando T. Hunziker  
Museo Botanico  
Facultad de Ciencias E. F. y Naturales  
Avenida Vñlez Sarsfield 249  
CORDOBA, Argentina

Dear Sir:

We are in the process of revising the genus *Manihot* employing computer-aided Taximetric methodologies. We would be thankful to receive herbarium specimens representing the newly described species *M. Hunzikeriana* and other *Manihot* species, on loan from your collection in the Cordoba Herbarium.

The usual conditions of loan will apply.

Sincerely yours,

10 February 1969

Haul Martinez-crovetto  
Facultad de Agronomia y Veterinaria  
Universidad Nacional del Nordeste  
Sgto. Cabral 2139  
Corrientes, Argentina

Dear Mr. Martinez-crovetto,

I thank you for sending the reprint of your paper,  
describing the new Manihot species M. Hunzikeriana.

We are in the process of preparing a taxonomic  
monograph on the genus Manihot. We would be thankful  
to receive herbarium materials of the new species, for  
study and inclusion in the monograph. I have enclosed  
herewith a request to the Director of CORD. I would  
appreciate if necessary arrangements are made to send  
the specimens to us, on loan.

Sincerely yours,

Ehc

11 February 1969

Local Board No. 16  
48 Webster Avenue  
Goshen, New York 10924

Gentlemen:

This letter supports Mr. George F. Estabrook's application for 2A occupational status.

In September 1967 I supported Mr. Estabrook's application for the same status. At that time I indicated the nature of his work, pointing out the contribution which Mr. Estabrook is making to the studies of problems relating to the feeding of the world's hungry population. The work continues and the results produced by his efforts are being applied to some particular solutions to these tremendous problems. In fact, because of some of his work, there are now greater yields of crop plants, and we have only begun to derive the benefit of his skill and knowledge. Our objective as a team of which he is an honored member is to continue to aid mankind's most fundamental need, the satisfaction of hunger.

Many students have now been given the benefit of the very important knowledge which Mr. Estabrook possesses. These students likewise have the power to help solve some of the problems which we face as humankind. I personally believe that Mr. Estabrook's contribution to his country is significant and the continuation of these efforts serves his country's needs in a very humanitarian way.

Sincerely yours,

David J. Rogers  
Project Director  
& Professor of Biology

DJR:gm

10 February 1969

Mr. Kirby W. Brown  
Department of Entomology  
School of Agricultural Sciences  
University of California  
Riverside, Calif. 92502

Dear Kirby:

Please forgive me for not having written sooner. I claim priorities for my time now to try to find money to keep ourselves alive.

We received your decks of cards and will only promise that within the next two weeks we will run them and send off the information as soon as we can. Sorry we can't promise faster action. I think you have done an outstanding piece of work in using the program to gather the most information for Gonaspida. I sympathize with your distaste in doing subgraphs for 600 objects and suggest that going at it the way you have ~~is~~ that is making analyses of sufficiently small samples such that you understand what's going on is as good as is needed. If you have generated some programs for yourself which are satisfactory, then all the better. You have not, of course, run a program we have called CARANAL which was our effort to discover the information content of characters. We believe that program has a lot of use previous to the cluster analysis, much in the same way you have developed a coefficient of difference analysis. Some day it may be possible to tell you more about that, but not now.

You'll be hearing from us soon.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

10 February 1960

Dr. John L. Cutbill  
Sedgwick Museum  
Department of Geology  
University of Cambridge  
Cambridge, England

Dear John:

At the moment my plans are to be in Cambridge on Monday, April 21. I will have arrived in London on Thursday, the 17th, and plan to spend Friday, the 18th, with Dr. John C. Gray of the Office for Scientific and Technical Information. I am planning to spend Saturday and Sunday (the 19th and 20th) with Mr. Frank White of the Oxford Forestry School and visit you on Monday and leave London for New York on the 22nd.

I hope I can arrange to see you on the 21st. Let me know if this is not a convenient date and I will try to shift around the time I will be spending in England.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

February 10, 1969

Dr. Frank White  
Forest Herbarium  
Department of Forestry  
Commonwealth Forestry Institute  
University of Oxford  
Oxford, England

Dear Frank:

It looks as though I would be making the trip to France, Holland and England in April. I am scheduled to be in England from Thursday, April 17, to Tuesday, April 22. I will have to be in London on the 17th and 18th and in Cambridge on Monday, the 21st. I would like to have the opportunity to visit with you on Saturday and Sunday, April 19th and 20th. Please let me know if those days are inconvenient to you. If they are convenient, may I ask your kindness in arranging some kind of hotel accommodation for those two days, Saturday and Sunday.

Looking forward to seeing you,

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

10 February 1969

Dr. John C. Gray  
Office for Scientific and  
Technical Information  
State House, High Holborn  
LONDON W.C.1, England

Dear Dr. Gray:

I plan to be in London from April 17 to April 22. I would probably have all day Friday, April 18 to visit with you. I would very much appreciate it if you could suggest to ~~the~~ hotel accommodation to begin on April 17 when I will arrive from Amsterdam; a single room convenient to your headquarters would be fine for me.

May I hear from you if the timing of my trip is all right and you can make a hotel reservation for me.

I am sending separately a copy of our paper "I/R in Biology" which gives a brief description of our system.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

10 February 1969

Dr. George A. Llano  
Division of Environmental Sciences  
National Science Foundation  
Washington, D. C. 20550

Dear George:

Sorry that I didn't get a chance to talk to you Friday afternoon. I was so busy getting the bad news from OSIS about my own continued existence that I didn't get down to see you.

As I understand your desires from the very short discussion we had, you are in need of some sort of classification and retrieval system to inform the oceanographic scientists about the availability of oceanographic materials. I clearly do not know whether what we have done would apply in your particular case. Would you be interested to receive an application from us to see whether we could do some useful work in that category? If so, I would like to receive from you a list of requirements for such application. We have done some work previously with Robert Menzies who I understand is, at the moment, at Florida State University. Would it help if we collaborated with him on such an investigation?

I would like to hear from you on this.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

5 February 1969

Dr. William E. Walden  
Computer Center  
Washington State University  
Pullman, Washington 99163

Dear Dr. Walden:

By far the most complex portion of the TAXIR system is the query scan and execution part. I am enclosing some documents which should aid you in your conversion of this difficult section.

At our meeting in Pullman in November, you mentioned that you might be passing through Denver early this year. If you are still planning to do so, we would welcome a visit from you. We would be glad to help clear up any questions you may have raised while digging into the TAXIR system.

Regards to Ron Dutton.

Sincerely,

R. C. Brill

RCB:gm  
Enc.

The Herbarium  
University of Colorado Museum  
Boulder, Colorado 80302

4 February 1969

The Curator  
~~Jardim Botânico~~  
~~Rua Jardim Botânico 1008~~  
Rio de Janeiro, Brazil

*Divisão de Botânica do Museu Nac  
Quinta da Boa Vista*

Dear Sir:

We are in the process of revising the genus Manihot  
(Euphorbiaceae). We would be honoured to have specimens  
representing this genus, on loan from your herbarium.  
The usual conditions of loan will apply.

Sincerely yours,

David J. Rogers  
Associate Curator

DJR:SGA:gm

The Herbarium  
University of Colorado Museum  
Boulder, Colorado 80302

4 February 1969

The Curator  
Instituto Miguel Lillo  
Calle Miguel Lillo 205  
Tucumán, Argentina

Dear Sir:

We are in the process of revising the genus Manihot (Euphorbiaceae). We would be honoured to have specimens representing this genus, on loan from your herbarium. The usual conditions of loan will apply.

Sincerely yours,

David J. Rogers  
Associate Curator

DJR:SGA:gm

The Herbarium  
University of Colorado Museum  
Boulder, Colorado 80302

4 February 1969

Ing. Agrón. Arturo E. Ragonese, Director  
Instituto de Botánica Agrícola del I.M.T.A.  
Araoz 2875, Castelar  
Buenos Aires, Argentina

Dear Señor Ragonese:

We are in the process of revising the genus Manihot  
(Euphorbiaceae). We would be honoured to have specimens  
representing this genus, on loan from your herbarium.  
The usual conditions of loan will apply.

Sincerely yours,

David J. Rogers  
Associate Curator

DJR:SGA:gm

The Herbarium  
University of Colorado Museum  
Boulder, Colorado 80302

4 February 1969

Dr. Alcides R. Teixeira, Director General  
Instituto de Botânico  
Caixa Postal 4005  
São Paulo, Brasil

Dear Alcides:

The Manihot monograph progresses slowly. Might we ask  
for the loan of your herbarium specimens ~~66r~~ the genus?  
The usual conditions would apply.

Henry and Mary Fleming send their best regards from  
Colorado.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

Taximetrics Laboratory

Armory 101

4 February 1969

Dr. F. A. Stafleu  
International Association for Plant Taxonomy  
106 Lange Nieuwstraat  
Utrecht, Netherlands

Dear Frans:

I hope that everything is still in order for us to present a paper to the symposium for the Dutch Taxonomic community and that my plans to be in Amsterdam on April 14 and to leave on April 17 fall within the time when your meeting is to be held. ~~Be~~ Tentatively I have scheduled my arrival in Amsterdam on April 14 at 1:20 PM on Air France Flight 912. Please let me know as soon as you can if these days are satisfactory. My dates of arrival and departure can be moved. I can arrive on Sunday, the 13th, if necessary, or depart a day later on the 18th.

George Estabrook is planning to deliver the seminar at Nijmegen University with the technical discussion mentioned in your letter of 12 November.

I enclose herewith a title and a set of topics which I will cover in my presentation. The title is the one which you suggested and I find it appropriate to speak in those terms. I do not anticipate any need for projection equipment for my talk.

Since I have no idea about hotel arrangements in Amsterdam I will be pleased to have you make a reservation for me. I do not care to stay in a fancy American-type tourist hotel, but would rather get one which you might select for yourself. May I ask your assistance to make these necessary arrangements for me?

Looking forward to a prompt reply, so we may make our plans more precise.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

Enc.

The Aims, Successes and Shortcomings of Numerical Taxonomy

ABSTRACT

From one person's point-of-view, the aims are as follows:

(1) to examine the theoretical bases of taxonomy, (2) to consider as an important objective of taxonomy the production of more information-carrying classifications, and (3) to make more precise the several processes of subdisciplines of taxonomy.

The successes of numerical taxonomy are (in part): the forceful and vigorous reexamination of the basic structure and procedures of taxonomy and the production of several meaningful methodologies employing computing machines in support of taxonomic endeavors.

The shortcomings of numerical taxonomy are (in part): failure to incorporate the necessary mathematical disciplines; failure to fully appreciate the values extant in taxonomy (orthodox, classical or intuitive); and failure to sufficiently understand the working of computing machines.

3 February 1969

Mrs. Edward C. Sweeney  
4013 Douglas Road  
Coconut Grove, Florida 33133

Dear Mrs. Sweeney:

I am pleased to know that we will be staying with you during my appearance at the Fairchild Garden. As you know, my thirteen-going-on-fourteen year old son Richard will be with me. I received your letter last week but have not had any thoughts about the land you mentioned in it.

We arrive in Miami about six o'clock Friday afternoon, the 20th and are to be met by Mr. Scott Donachie. I expect that he will bring us right around to your house.

Sincerely,

David J. Rogers

DJR:gm

28 March 1969

Dr. Richard A. Howard  
The Arnold Arboretum  
The Arborway  
Jamaica Plain, Mass. 02130

Dear Dick:

As far as the PRC committee meeting is concerned, I would hope that we could schedule it sometime during the week of May 12. I will have been in Washington the week before that in a meeting with Mason Hale on the 5th, and I understand that Russ Seibert will be out during the same week. I hope that the week of the 12th is satisfactory - any time during that week.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

27 March 1969

Mr. Gordon B. Ward, Program Director  
Office of Scientific Information Services  
National Science Foundation  
Washington, D. C. 20550

Dear Mr. Ward:

Dr. Theodore Crovello has sent me a copy of the proposal "Electronic Information Retrieval in the Edward Lee Green Herbarium" (proposal number N-3232). In sending me the copy of the proposal, Dr. Crovello suggested that if I thought the proposal worthwhile he would be happy if I wrote an ad hoc opinion on the proposal.

As Dr. Crovello pointed out this is not entirely altruistic gesture on my part, in as much as it is Dr. Crovello's intention to examine the value of the TAXIR system designed in this shop. However, I hope that I may speak somewhat objectively with respect to Dr. Crovello himself and with respect to the value of the objectives of the proposal.

I have known Dr. Crovello for some years now, and have been in correspondence with him since his graduate school days when he initiated investigations into numerical taxonomy. He has consistently applied his talent and knowledge to the application of computers for systematic biology and thus has a firm and adequate background to develop the necessary operational procedures to make an information retrieval system for the Greene Herbarium. It is much better for the substantive scientist to appreciate the systems necessary to support data processing for such a collection of plant materials than for some uninitiated type familiar only with computers and computer software. I am therefore pleased to recommend Dr. Crovello as an individual most capable of making a successful I/R system for the Greene Herbarium.

With respect to the Greene Herbarium itself, the proposal describes the need for the system quite adequately. However, I should like to add a word or two from a botanist outside of Notre Dame. It is a frequently discouraging experience not to know the documenting material which E. L. Greene made with respect to his observations of American plants. It is a further difficulty to schedule trips just to visit an institution when in the process of examining herbarium materials. It is even more frustrating in this case because only the curator of the herbarium is capable of finding specific documenting specimens. The proposal given herewith goes a long way toward alleviating these difficulties, as well as being a model for evaluating such systems. For this reason I also commend his proposal to OSIS.

G. B. Ward

27 March 1969

2.

I trust that you will accept these comments in the way in which they are intended, that is, to give you an independent evaluation, although it was not sought by you.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

CC: Dr. Theodore Crovello

March 26, 1969

Dr. Theodore J. Crovallo  
Department of Biology  
University of Notre Dame  
Notre Dame, Indiana 46556

Dear Ted:

Dr. Rogers asked me to take a look at your proposal to see if I could make any specific helpful suggestions, and I am taking this opportunity to write to you. I remember your reservations expressed last fall at the Numerical Taxonomy meetings concerning the worth of mounting museum collections for Electro-Data Processing. It has become evident that whatever your reservations are, you wish to give it a try. If you are satisfied that the program you have outlined in your proposal will get you what you need and want, I can not speak otherwise as to how effectively you have asked to have it funded. I'm sure you realize in part what our attitude is on data mounting, input format, processing, etc. Evidently, you envision the data mounting phase as essentially independent of the processing phase. We tend to integrate these two somewhat more than has been traditionally done. Your input image of 320 characters, divided into labeled fields of fixed size, seems to contain redundant entries; P-1966 accession number 5 entered four times, family number twice, etc. I trust you have a reason for that. I am also sure that you have good reasons for using some family number and genus number rather than the more familiar names.

I notice (page 7) that you are considering several processing systems for this project, one of which is TAXIR. We would be delighted to have you visit us so we can share ideas. You might remember that TAXIR accepts a separated-field input rather than a fixed-field input (such as you have described in your proposal), so if you wish to consider TAXIR as a possible processor for the Greene Collection, we must think in terms of either (1) an input format conversion program or (2) redesigning input format before any data are mounted. And, of course, TAXIR and UNIVAC are still strangers.

I wish your proposal and the work it supports all the success it deserves. If I can be of help, let me know.

Very truly yours,

George F. Estabrook  
Research Mathematician

srh

26 March 1969

Dr. Frans Stafleu  
International Association for Plant Taxonomy  
~~106 Lange Nieuwstraat~~ ~~Box for Plants~~  
Utrecht, Netherlands

Dear Frans:

It seems for now that I shall arrive at Schiphol from Paris via Finnair #854 at 4:50 P.M. on April 12. I hope there will be at least some way to communicate with you, or to have someone there to tell me about final reservations in Amsterdam.

I am very much looking forward to my stay in Holland.

Sincerely,

David J. Rogers

DJR:gm

25 March 1969

Dr. Carl Withner  
Department of Biology  
Brooklyn College of C.U.N.Y.  
Brooklyn, New York 11210

Dear Dr. Withner:

I am terribly sorry that your letter of February 16 has been on my desk for so long without answer. I have asked my assistant, Mr. Fleming, to respond to the questions raised by you and his comments are given below. I will answer the question about running this on your own hardware. Sometime back we had a conversion of our clustering program done for the 360 by a group in Cambridge. The conversion was to a much expanded 360 system and I am not certain about the operating procedure with it. If, with that, you are willing to pay for the cost of a tape (about \$20), we will have a duplicate copy made for you and sent. Please tell your programmer, however, that there is no documentation with this version. I have no assurance about the running of this tape. Let me know if you still want to have such a thing done.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm  
Enc.

Before attempting to answer your questions specifically, let us start with a preamble.

Our programs are set up not with the object, so to speak, of dictating the answers to the taxonomist but rather to give him information about the structure of his group on the basis of the taxonomic information he has supplied. It is intended that he can rearrange his taxonomic information as the studies progress in the same fashion as he might rearrange his specimens on the table on the basis of a different set or sets of characters. The advantage of the computer is that it won't change its mind or shift as it proceeds through the process. It also, of course, does it faster and more accurately. For some reason, many people don't seem to like to rearrange or restructure their data after it has been run through the machine even though we do it continuously in our customary procedures. In our lab we restructure whenever indicated and discover that it corrects and refines our understanding of the taxonomic information. Our programs don't replace the specialist. They do give him information so that he can erect pertinent hypotheses to explain the phenomenon indicated.

A preamble on measurements - one of us is an entomologist and except for such general categories as large, medium or small size, he seldom initially sorts species etc. on the basis of measurements. In writing descriptions, diagnoses, etc. he uses measurements but they are determined after the taxon has been decided and are used diagnostically most frequently for closely related taxa. This last is an opinion - try it on for size.

Specifically now, in regard to paragraph 4 "...might run from 1.2 to 3 mm at .1 mm intervals" etc. If you can't make a taxonomic decision as to which ranges of measurements have taxonomic significance then arbitrarily divide them into groups. We should select, at the most, five or six groups but if you'd rather have 9 then use 9.

You are correct:  $N$  = the number of states in the character that are to be ordered. I would suggest that  $K = 1$ . This would mean that neighboring states would be considered similar to the extent of 50%. For instance, in a three state character where  $K = 3$  and  $N = 1$ , anything coded in state 2 would be half similar to both 1 and 3; and coded in state 1 or 3, half similar to 2. We would suggest strongly that you think as a taxonomist, not as a statistician when setting up states. When as a taxonomist, you do not know, guess or be a statistician.

Yes on paragraph 5, if by group number you mean state number.

Paragraph 6 - one paragraph on color. There is no a priori reason taxonomically why light yellow, yellow, dark yellow as they occur in organisms need be related. It is easy enough to select examples from taxonomy confirming the above even the pigments may be essentially the same. However, as a taxonomist if you consider that these colors are related, they very likely are. Again, at least in the initial runs have  $N = 1$  (neighboring states overlap). Also a trick we have used to separate states is as follows:

1. yellow
2. dark yellow
3. --
4. brown
5. --
6. light purple
7. dark purple

Yellows overlap, purples overlap, brown is independent. No organisms are coded in 3 or 5, or course.

Page 2, paragraph 1. This must be your decision - use those states which best describe the condition. The states must be described so that they are exclusive - namely, a single plant must only qualify to be coded in one state, not two. In orchids we presume that you will have separate characters for the petals and lip

Ratios can be handled as states. The decision as to whether or not to use them or not is yours. You are correct in that the ratios must be made independent of the program and a decision made as to what states are pertinent from a taxonomic viewpoint. From our point of view, there are at least two main considerations in regard to ratios.

1. Is it worth the effort? Greater precision does not necessarily lead to greater accuracy. Sometimes it is sufficient to use qualitative terms such as oblongate, obovate, oval, etc., or Boolean product terms as very narrow and long; narrow and long; moderate wide and long, etc. In the latter instance one finds frequently that states have been created that no plant fits - we have thought these conditions taxonomically interesting.

2. Are the ratios expressing what you wish expressed? A simple example follows:

		Width			
		mm			
		1	2	3	4
Length	1	1	2	3	4
	2	1/2	2	1 1/2	2
	3	1/3	2/3	1	1 1/3
	4	1/4	1/2	3/4	1

In the above do we wish to have a very wide and very short leaf 4 times a very short and very narrow leaf - what about the other relations? What is done where possible in zoology is to find (not always easy, and even more difficult in botany) some organ usually unrelated to the organ of interest that varies evenly or even better is invariant at all times and use this measurement to form ratios.

We are not trying to discourage you from using ratios. The computer does not care, so to speak. It is just that we want to make sure that they reflect the relationship you want. They are no more objective than obovae, etc. and indeed may be even less accurate.

Do not spurn the matrix facility. This provision in the program allow the taxonomist freedom to influence the results on the basis of this wisdom, intuition, knowledge - what have you. The ordered provision is easy to use and delegates the responsibility to the math equation - the matrix puts the responsibility on the taxonomist.

The program is designed to put like things together and give us a measure of how homogeneous these groupings are. It also gives us a measure of how dissimilar things are. Both of these measures are but reflections of the structure determined by the taxonomic characters. Those characters that do not contribute to the classification will obscure the results, but in practice not seriously so. Some information that does not significantly contribute to the structure may nonetheless be good key or diagnostic features. Those characters that taxonomists usually call correlated characters create the structure and the program is a great aid in discovering these characters.

One further suggestion: Initially set up a trial run of say 50 or so specimens or species. Throw in some "hookers" if you wish. It may give you more confidence in the program when you see the results. A small study is easier to subgraph and often easier to analyse. Thus, you can make any changes in the characters if necessary without having committed too much time to the whole study.

25 March 1969

Dr. Richard A. Howard  
The Arnold Arboretum  
The Arborway  
Jamaica Plain, Mass. 02130

Dear Dick:

Sorry you didn't receive my telegram any sooner than you did, but I doubt that it would have done any good anyhow. With respect to the next meeting of the PRC committee, it probably will have to be in May because I will be busy on Labor Day at the International Botanical Congress in Seattle.

I suppose the committee must meet at the Tyler Arboretum, and I suppose it must have MacDonald present. I do not look forward to another discussion with that gentleman.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

MEMO:TO: Dr. Askeff Löve  
FROM: David J. Rogers  
SUBJECT: Drafts of memos  
DATE: 25 March 1969

I understand the draft of the memo requesting the FTE's for Biology and it is O.K.

I do not understand the memo concerning Briggs's invitation to join us at our committee meetings until we have ourselves concerned ourselves with the problem to know what to ask or tell Briggs. I think that this one is premature.

25 March 1969

Mr. C. W. Stage III  
1353 Terminal Tower  
Cleveland, Ohio 44113

Dear Bill:

Thanks for the papers. I think everything here is satisfactory. We look forward to having you with us.

As you know I'll be out of town all during April but will be back on the 23rd. If anything arises in the meantime somebody will be able to answer; probably Gil.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

25 March 1969

Dr. J. L. Cutbill  
Sedgwick Museum  
Department of Geology  
University of Cambridge  
Cambridge, England

Dear John:

I plan to arrive in Cambridge the night of the 20th and leave probably Tuesday morning, 22nd April, so I will need a room both Sunday and Monday nights.

I may have to alter this in terms of Monday night because my plane leaves from London for the States on Tuesday at 1:00 PM. If it is not convenient to get transport to the airport from Cambridge on Tuesday morning I might have to depart from Cambridge Monday night. However, I will check this with you on arrival. Hopefully I can stay through Monday night.

Looking forward to seeing you.

Sincerely,

David J. Rogers

DJR:gm

25 March 1969

Mr. Frank White  
Forest Herbarium  
Commonwealth Forestry Institute  
University of Oxford  
Oxford, England

Dear Frank:

Thank you for your letter of the 20th. I plan to visit ~~you~~ has already stated on Saturday and Sunday. I probably will need a place to stay only on Saturday night. I will make my way to Oxford and contact Pennington on arrival. Perhaps I will call him at the number given on Friday, the 18th.

I plan to leave Oxford in time to get to Cambridge some time in the early evening of the 20th. I will appreciate advice from you as to how best to travel from Oxford to Cambridge on Sunday.

Sincerely,

David J. Rogers

DJR:gm

24 March 1969

MEMO TO: Mr. Don Brown  
Copy to: Dr. Petr Beckman  
SUBJECT: Account #1708-11  
FROM: David J. Rogers

We have tried in the past to indicate that charges to Research Grant Account #1708-11, subsequent to the notice that it was being closed on September 3, 1968, were improper, and that these phone calls and petty cash vouchers should have been put on Account #1708-01 as indicated in the charge. Dr. Rogers is a member of the Biology Department.

The specific overcharges are J00184, dated 4-11-68, Chicago, Ill. for \$22.85; J61491, dated 7-28-68, Chicago, for \$22.85; and V96572, dated 1-20-69, Ideal Feed and Supply, for \$2.00. These are Biology Department expenses (1708-01).

24 March 1969

Mr. Oren A. Stanley  
1125 Toedtli Drive  
Boulder, Colo. 80302

Dear Mr. Stanley:

I appreciate your interest in a textbook on computers in biology, but at the moment that is one project too many.

If I ever do come to writing I will let you know.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

21 March 1969

George W. Fischer, Executive Director  
XI International Botanical Congress  
3917 15th Avenue N.E.  
Seattle, Washington 98105

Dear Sir:

I sent along with my final registration form, only \$20.00, by mistake. I am a Research Assistant in the Taximetrics Laboratory, University of Colorado, and as such I am eligible to present a paper. I have enclosed herewith the balance of my membership fee, \$15.00.

I request that the abstract of my paper sent to you about a week back, may please be accepted for publication and presentation.

Yours sincerely

S. G. Appen  
Research Assistant

SGA:gm  
Enc.: copy of registration  
summary

*check*

20 March 1969

Dr. Estaban A. Barrios  
Instituto Nutricion de Central America  
y Panama  
Guatemala, Guatemala

Dear Dr. Barrios:

I would greatly appreciate receiving a reprint (separate)  
of your article in TURRIABBA (17)3, 314-320, entitled  
"Composicion quimica de la raiz y de la hoja de algunas  
variedades de yuca Manihot."

Please accept my thanks for your courtesy.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

19 March 1969

Dr. G. R. Noggle  
Department of Botany  
North Carolina State University *Box 5186*  
Raleigh, N. C. 27607

Dear Ray:

As promised, I am sending a Taximetrics Course outline for your perusal. I don't know how such a course could be instituted but I would suggest that at least it serves as sort of a guideline of what we feel to be important for students in thinking about how taxonomy is done. Perhaps there are features in our present course which could be modified if, say, Bill Hathaway could be convinced that such a course had meaning for him to offer.

I enjoyed my stay there and was pleased to renew old acquaintances and meet new people. You do have a very gung ho operation, it seems, and I was glad to see it. Do stop in and see us if you are in this direction any time.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:qm  
End.

P.S. According to instructions, I have forwarded a list of expenses to Dr. Lucas.

19 March 1969

Mr. Glenn R. Johnson  
Jonker Corporation  
26 North Summit Avenue  
Gaithersburg, Maryland 20760

Dear Mr. Johnson:

Not knowing too many technical details about the system, I can only answer your query with a few brief general facts. Our taxonomic information retrieval system is designed primarily for biological and related applications. The designers of the system tell me that certain taxonomic objectives have served as conceptual models for parts of the system, while other parts of the system followed more of a mathematically-oriented model.

If you could be more specific in your queries, insofar as the uses, objectives, and scope of your information retrieval applications are concerned, I would be pleased to relay this request to our technical staff.

Sincerely yours,

(Mrs.) Midra Sayre  
Acting Librarian and  
Administrative Assistant

mms

18 March 1969

Mr. Laurence O. Binder  
Program Director  
Student and Curriculum Improvement Section  
National Science Foundation  
Washington, D. C. 20550

Dear Mr. Binder:

A mathematician, a local high school teacher of foreign languages and I, a programmer, wish to inquire into the possibilities of a grant involving our respective disciplines. We would like to make a preliminary feasibility study in the area of computer aided instruction. Briefly, we wish to develop mathematical models related to finite automata theory wherein artificial grammars can further be transformed into computer algorithms simulating aspects of grammar in natural languages. Given that such a prototype can be developed we would then make preliminary investigations into its use as an interactive mode teaching device involving some of the local high school students and the C.R.T. setup at the University of Colorado. We would very much appreciate any suggestions from you or your staff as to the need and support for such a project.

As a feasibility study for one semester year we estimate the amount of our proposal at about \$15,000.

Sincerely yours,

John W. Wong

JWW:gm

18 March 1969

Dr. George W. Nace  
Professor of Zoology  
University of Michigan  
Ann Arbor, Mich. 48104

Dear Dr. Nace:

Thank you for your warm hospitality last week. I enjoyed the visit immensely. The number of problems I encountered made my head spin with delight.

We have begun discussing aspects of the work of the amphibian facility and will have some proposals to you within the next few weeks.

We have spoken to Drs. Hairston and Kluge about the possibility of putting the museum amphibian data bank into TAXIR in order to serve your facility's needs. I hope this is satisfactory to you.

If you have any questions do not hesitate to ask us for help.

Sincerely,

Gilbert N. Hersh  
Operations Analyst

GNH:gm

18 March 1969

SAME LETTER TO

Dr. Nelson Hairston  
Museum of Zoology  
University of Michigan  
Ann Arbor, Michigan 48104

Dr. Arnold Kluge

Dear Dr. Hairston:

Thank you for your hospitality last week. It was nice seeing the building in which you work, and the mysterious collection of salamanders.

I expect that you are exploring the possibilities of joint funding with Dr. Nace concerning your amphibian collection. So that I may estimate the cost of mounting this collection for TAXIR, please send an estimate of the number of items which would be included in a curatorial bank.

We are prepared to mount the 300 - 400 salamander items photocopied from your ledger. Please make up the order of descriptors to be listed in the various books you wish to have for the salamander collection; also include any specific instructions for entering other descriptors which may be of use. I expect we could have these books ready within a month of the receipt of the ledger photocopies.

Sincerely,

Gilbert N. Hersh  
Operations Analyst

GNH:gm

17 March 1969

Editors, Textbook Division  
Houghton, Mifflin and Company  
Houghton, Mifflin, Comp  
1900 South Batavia Avenue  
Geneva, Illinois 60134

Gentlemen:

I write to condemn a math text used in our junior high schools, published by your company. The book: "Modern School Mathematics, Structure and Method," 1967. The authors: Ddciani, Wooton, Bechenback, Markert. My condemnation is that the book is almost guaranteed to turn students away from math, and I can document at least one student's disenchantment with math this year with that book. Since I know the fundamental importance of math to all of us, such a reaction in one student is sufficient grounds for your re-examination of your publishing responsibility in connection with the book.

My condemnation is not with the accuracy of the math included, although there are inaccuracies in the book, nor with the content of the math, but rather with the way the math is presented. Any good teacher will tell you that you must relate the subject to the student, and this book fails miserably. These students must have some explanation, at their level, which tells them why they need to know this or that aspect. The student ~~should~~ know what good the math is for him. To make some advertising claim in the book that "scientists" use math has no meaning to an eighth grader who is far from being a scientist. And that claim is made over and over again in the book. But why tell the student about scientists using the book anyway? How many of our population are going to turn out to be scientists? I, as a scientist, am not impressed with the apparent misunderstanding of the authors of what science is anyway.

The beginning of the book is an excellent example of poor pedagogical approach. There is no word to tell the student what this book is about - it just starts right in with rational numbers! First of all, the student needs to know the significance, in his own terms, of math - what it is, what relation does math have to him. The book doesn't tell why this or that is being done now, nor where it is headed. The student has to guess at where he's going, and believe, if these authors ever came anywhere near an eighth grader, they would know very quickly that a student is going to turn off any guessing game that he cares nothing about.

Let me cite a few examples of the stupidity of the words used, randomly chosen: p. 215. "The accuracy of a measurement is a technical term used by scientists and engineers. It is defined to be the relative error." I ask, as does a student: How does that effect me? so let scientists use it, but why bother me about it, particularly when that kind of claim has to compete with a girl, a hot-rod, the game, etc., etc. Just claiming that

scientists use such a term does not justify it or sanctify it. And why have we always got to pick on scientists as the only class of citizens who use math? Don't lawyers ever think mathematically? Or income-tax people? Or maybe car mechanics? Don't these guys use a thinking process which could be made better if they could phrase their problems in the language of mathematics?

P. 237. "The set of real numbers has an additive-identity element (0) and a multiplicative-identity (1), since for each real number  $n$  you have...." Gentlemen-editors, I defy you to turn on an ordinary eighth grader with that set of meaningless terms. It can be explained in ordinary English words by careful rewording. If these authors think they're getting across to students with this type of phraseology, they certainly are very far from knowing what they are doing. They have completely forgotten the motivation for learning, and this is a damning charge in a textbook.

Couple this textbook with an uninspired teacher, and you must know that most math teachers are uninspired, you have guaranteed that the purpose of that text is not going to get across. It makes me sick that such is happening, and it makes me know why students at all levels are rebelling - there is no relevancy in this to them. Must you continue in this manner? I thinknot.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

12 March 1969

Mrs. Edward C. Sweeney  
4013 Douglas Road  
Coconut Grove, Florida 33133

Dear Mrs. Sweeney:

Mrs. Julia Morton was kind enough to collect the enclosed information for me. I thought you might be interested in these, with reference to the "makapuno" coconut.

Sincerely,

David J. Rogers

DJR:qm

12 March 1969

Mr. D. E. van Beusekom  
Koninklijke Nederlandse Akademie van Wetenschappen  
Kloveniersburgwal 29  
Amsterdam-C, Netherlands

Dear Mr. van Beusekom:

I appreciate very much the trouble you have taken with regard to our hotel reservations, and I must ask you to make one more change. Mrs. Rogers will be unable to accompany me, so that a single room is all I will need. The dates, April 12 - 16, remain the same. (American Hotel)

Thank you for your assistance.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

12 March 1969

The Secretary  
Centre National de la Recherche Scientifique  
CENTRE D'ANALYSE DOCUMENTAIRE POUR L'ARCHEOLOGIE  
31, Chemin Joseph Aiguier  
13 - MARSEILLE 9e

Dear Sir:

There has been a change in our plans. I would like to change my reservation at the Beauvau Hotel, from 6 - 11 April 1969, so that I will have a single room with shower, not the double which I previously requested.

Sincerely yours,

David J. Rogers  
Professor of Biology

DJR:gm

11 March 1969

Dr. R. J. Knight, Jr.  
U. S. Plant Introduction Station  
13601 Old Cutler Road  
Miami, Florida 33158

Dear Bob:

I have been so caught up in our ongoing operations here that I have not, till now, had the opportunity to send you the information which I promised while I was there. Let me say that my son and I thoroughly enjoyed our stay there and appreciate the many hospitalities provided by you and Julia Morton.

Looking over your data recording sheet for mangoes, I see several possible points where programs we have developed might be helpful. These are: (1) an information retrieval system, with which you can store all your data, and retrieve it in several different ways; (2) a "character analysis" program with which you can discover the inter-relatedness of the various characters you have scored, and possible (3) a "graph clustering" program with which you could classify the varieties of mango.

While these are separate programs, operating independently of each other, they have one common factor, namely, the structuring of the information which goes into the programs is almost identical, and for the second and third mentioned programs is identical, and the form for Number 1 is very similar. Thus you have little difficulty in going from one program to the next, because the greatest amount of time involved in any of these programs is that of getting the information in the first place. Once the information has been gathered (using our instructions in the process) the actual computer time is a comparatively very small sum.

I am sending some reprints which will describe various facets of each of the programs, the least formal of which is the description of the information retrieval system (No. 1 above). I hope that by judicious reading of these papers, you can get a better grasp of our efforts and how these may support your desires and interests.

Because of the generality of our programs (i.e., their capacity to be of service to a very large number of users) we feel that they should be put to work not only to support your individual efforts with mangoes, but that of many of your colleagues in the USDA. I mentioned to you that we are working now with Dr. Sam Dietz, Regional Director of the Introduction Station in Pullman, Washington, helping him to establish the information retrieval system for the PIs under his care. To get these programs working

for you and other USDA professionals, we need, somehow, to establish some agreements with some agency of USDA, and in your particular case, with Dr. John Creech. I am not certain how this may be accomplished, because to make some such agreements, we in this laboratory are going to have to put quite a bit of time and effort into it.

I have a suggestion for you, if you care to try to get something going. That is, that you (or your director, Mr. Manis) write to Creech telling him of our conversations, potential collaboration, desires on your part, etc. and ask him for advice on how such agreements would be reached. Let me point out that Dr. Creech knows something about our information retrieval system because I spent some two hours telling him about it at a meeting of the Regional Directors just before Christmas in Beltsville. Dr. Creech was not clear about how we in this laboratory worked, and I am not sure that I made it clear to him about how we might collaborate. All I can say now is that I am anxious to support endeavors such as yours, and that we need some supporting funds if it sufficiently interests USDA to get our collaboration.

I shall be interested in your reactions, and activities.

Best regards,

David J. Rogers  
Professor of Biology

DJR:gm

MEMO TO: Dr. R. Curtis Johnson

FROM: David J. Rogers

DATE: 11 Marchh 1969

I am sorry I have not replied to your memo about interest in continuing discussions during the spring semester. It is not from lack of interest that I have not replied.

The reason that I am having difficulty resuming the E. and E. discussions is because I am having to fight for the continued existence of my research group. As you may know I have a team of about eight professionals working on various mathematical and computer methods mainly for Biology. Our financial support comes entirely from federal grants; half of my own salary is so supported. You are aware of the various strictures on federal funds for such efforts now, and we are afraid that unless we can find some way to underwrite the financial needs of the group we will be disbanded. ~~as a team~~. One route we are following is to get the Graduate School to accept us as a separately recognized group. To this end we have applied to Lawson Crowe for such recognition. The Biology Department itself simply cannot support such a team as mine. Their budget is minimal for the normal requirements of teaching, without expecting them to support my interdisciplinary team.

I explain this to you merely to indicate that my needs at the moment simply do not allow me time to participate in the very interesting interplay which we started last semester. I hope that once we have managed to find survival funds, I can again become involved.

11 March 1969

Dr. A. E. Kehr, Chief  
Vegetables and Ornamentals Research Branch,  
USDA-ARD Crops Research Division  
Beltsville, Maryland 20705

Dear Dr. Kehr:

Dr. Al Jones, at the Georgia Coastal Plain Experiment Station, was kind enough to suggest that I write to you concerning the possibility of funding a graduate student to work on a combined project in which Dr. Jones, Dr. Frank Martin, of the Mayaguez Station, and I are collaborating.

I would like to know if it is possible for the USDA to grant funds to the University of Colorado to support a graduate student as a research assistant to work on the problem of the origin and classification of the sweet potato.

If it is possible to have funds from the USDA to support such work, I will be pleased if you can send me the necessary information for application. If this does not fit within the framework of your own office, I would be pleased to have you forward it to the correct USDA office.

Thank you for your cooperation.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

11 March 1969

Dr. L. David Dwinell  
USDA Forest Service  
Forestry Sciences Laboratory  
Carlton Street  
Athens, Georgia 30601

Dear Dr. Dwinell:

Thank you for your inquiry of March 7, concerning our information retrieval system. I am sending along under separate cover some documents which describe rather generally the I.R. system's capacity and power. Our system is called TAXIR, an acronym for taxonomic information retrieval. The intent of our system is to be a set of computer instructions available to the user whatever the particular needs are. The system does not, of course, contain the data bank, but is receptive to many different data banks.

We have designed the system in such a way that it is under the control of the group which it serves and not under some auspices of a centralized computer. If, for example, the American Phytopathological Society desired to use TAXIR, TAXIR would be under the control of your committee. Many other users are at present examining the capacity of TAXIR for their own use; among these are the American Horticulture Society's Plant Record Center, the USDA Regional Plant Introduction Station in Pullman, Washington, several of the operating groups of the International Biological Project, the Amphibian Facility of the University of Michigan, the University of Colorado Museum of Natural History.

If, after reading the documents which I am sending, you care to examine our capacity, potentials, and methods, and the assistance provided in the use of TAXIR, we might consider what route we might follow to work together.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

10 March 1969

Dr. G. R. Noggle  
Department of Botany, Box 5186  
Institute of Biological Sciences  
North Carolina State University  
Raleigh, North Carolina 27607

Dear Ray:

In response to your last letter - my Social Security number is 160-28-4983.

Title of talk is "The Aims, Successes and Shortcomings of Numerical Taxonomy." There is an abstract attached.

I will arrive on Sunday (March 16) at 5:07 P.M. on Braniff, from Atlanta; and go back on Tuesday, leaving at 4:15 P.M.

It will be good to see you. I hope your March weather is more springlike than ours.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

10 March 1969

Dr. Richard A. Howard  
The Arnold Arboretum  
The arborway  
Jamaica Plain, Mass. 02130

Dear Dick:

Enclosed is a list of our expenses for the trip to Philadelphia. We have not, of course, billed you for any consulting fee, although it would be nice if such were available.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

TAXIMETRICS LABORATORY  
DEPARTMENT OF BIOLOGY  
ARMORY L/JL  
UNIVERSITY OF COLORADO  
BOULDER, COLORADO 80302

10 March 1969

EXPENSES: Trip to Philadelphia

For George Estabrook'

Plane Fare	\$186.00
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For David J. Rogers

Plane Fare	\$186.00
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Car Rental (Phila.)	36.20
(Denver)	9.00

Motel	41.19
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\$272.39

7 March 1969

Mr. Kirby Brown  
Department of Entomology  
College of Biological and Agricultural Sciences  
University of California  
Riverside, Calif. 92502

Dear Kirby:

We have sent you your three data decks and the three corresponding graph print outs, via first class mail. In a separate manila envelope are the two plots of the Gonsida study. Unfortunately, as we are still in the process of debugging the current operating system, in order to produce the Asidini plot we would have had to run the total graph package again. This, you will agree, would be too expensive. We are sorry for the delay; however, as you can imagine pre-funding months are hectic.

Attached is the list of our charges.

Sincerely,

John W. Wong, Jr.  
Programmer

JWW:gm

Kirby Brown's bill

CP TIME 20.00

PP TIME 6.70

2 PLOTS (+PPTING) 10.00

HANDLING FEE 10.00

CONSULTING FEE 20.00

66.70

MAILING FEE 3.02

1.22

3.24

69.94

4 March 1969

Dr. George Marcy  
Diagnostic Center Hospital  
6447 Main Street  
Houston, Texas 77000

Dear Dr. Marcy:

It has come to the attention of our acting librarian that the merger of your group with Information Interscience Inc. will result in an integrated hospital data bank system, as well as a computerized drug information package.

As we are a biological research laboratory it would be relevant for us to investigate the possibility of your systems in biological research.

Please send us literature concerning the stage of development and/or already "debugged" versions of your information retrieval system.

We would be especially interested in the extent to which your information retrieval system can be generalized so as to include non-medical applications.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

5 March 1969

Mr. J. Gallagher  
Products Division  
Farrington Mfg. Co.  
850 Third Avenue  
New York, N. Y. 10022

Dear Mr. Gallagher:

We are a biological research group, one of whose concerns is the use of peripheral devices for raw data input for computer-aided studies. In this connection on-line peripherals, such as optical scanners would be of interest, especially in the area of specimen labels.

Please send us relevant information concerning your 3050 optical scanning device. In addition we would be interested in information dealing with the optical scanning of hand written characters.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

5 March 1969

Dr. Nelson G. Hairston  
Museum of Zoology  
The University of Michigan  
Ann Arbor, Michigan 48104

Dear Nelson:

Gil Hersh is on his way up to see George Nace on Tuesday and Wednesday next (March 11 and 12). I hope he has a chance to chat with you and Arnold. Maybe he has some ideas you may want to listen to.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

3 March 1969

Mr. Nicholas J. Suszynski, Jr.  
Information Systems Division  
Smithsonian Institution  
Washington, D. C. 20560

Dear Nick:

Comes the time when I should arrange with you about the possibility of putting TAXIR into your hands. We would like very much to offer it to you but feel that it is entirely your decision whether you wish to go to the bother of getting it established there.

You are certainly aware that we received a tape before Christmas with some of Mason Hale's type materials on it. We have spent some time in conversing that tape to the format for TAXIR and have just sent the tape back as well as a selected sample of the information on it, processed by TAXIR. I am enclosing a copy of the letter of explanation to Mason for your benefit. Perhaps you would be interested to see the output.

Since it will probably take some doing to put the programs onto the operation of the 6400 in Cambridge with your tie-line to them, I wonder what you would find it ~~most~~ feasible to do. I think that you would need the advice and direction from us to make the system operable. We would probably have to work with Dan Piacesi or Reggie Creighton for some few days to get things all in hand.

Before we proceed any further, I would like to hear what your reaction and desires are.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

3 March 1969

Mrs. Julia F. Morton  
Box 8204  
Cozatl Gables, Florida 33124

Dear Julia:

In writing down my thoughts about the letter from Jones and about the write-up of the Society's formation, I am going to have some difficulty in separating my own feelings from the astigmatism and self-seeking which is apparent in Jones's interpretation of things. So let me give you some of the background, in the firm belief that you will not convey this message to anyone else.

I think the thing that bothers me most about Jones's writings is his failure to put the emphasis on the right people who really made it possible to even conceive of a society for economic botany. Two groups immediately come to mind, and two people particularly made it possible for such conception. These two were at work, and were strong movers in economic botany long before the group at Beltsville ever came into existence. The most famous, from the standpoint of education in the subject, is, of course, A. L. Hill at Harvard (and his predecessor, Oakes Ames). The other group was at the New York Botanical Garden, where H. H. Rusby had been Curator of Economic Botany since before the turn of the century, and whose traditions and good work stimulated the efforts of Ed Fulling, who established, financed and edited the only journal in the world with the title Economic Botany, and generally brought the rest of the world an awareness of economic botany as a useful, interdisciplinary subject.

A little background on the happenings at the New York Botanical Garden with respect to the journal Economic Botany is pertinent, particularly with respect to Jones's comments in his December 16th letter to you, that sentence which states "I was the one that suggested that we needed a society which would adopt the journal Economic Botany as its official organ, thus rescuing the latter from its then imminent demise." (Italics mine)

In 1947 Dr. Fulling brought his ideas for the journal to the Director of NYBG, W. J. Robbins, who encouraged Fulling to go ahead with the idea, but told Fulling that NYBG could not financially back another publication, but would be glad to lend the name of the institution to help Fulling in establishing it. Fulling, who was always in frail health, and who never received any salary or financial aid from NYBG, carried all the responsibilities for the journal until 1955, when his double responsibility for Botanical Review and Economic Botany became too burdensome, and he requested that NYBG take over the responsibility for editing and financing the journal. It took some time for the Director to get sufficient funds to hire an editor and to carry the financial load, and during this period Dr. Fulling became quite discouraged about the continued publication of Economic Botany. At one point, in 1956, he even sent out notices to subscribers, to potential authors and interested people that unless something transpired, the journal would go out of print. This notice seems to have stimulated the governing board of NYBG to provide the necessary funds, and they began searching for an individual to come to the Garden to be the editor, and to be curator of economic botany. I must admit that they worked very hard to find someone who would take the job, and only after several other offers were made and these rejected, was the job offered to me. I accepted, and began work in July, 1957. At that point, the journal was evidently on the brink, particularly because Dr. Fulling had sent out his notice, and no authors were about to submit manuscripts to a journal with no future. But by dint of some very hard work, I was able to bring the journal back to life, and articles were coming in. But because economic botany had not become sufficiently well established in any other institutions than in the New Crops Research Branch, at NYBG, and at Harvard, there was no rush to put manuscripts in that journal, particularly so when authors would much rather put their papers in journals more closely allied to their own fields - of agronomy, forestry, pharmacology, etc. etc. and it was a continuous chore for me to keep good and useful articles coming in. But by the time Jones entered this picture, the journal had in fact already been saved from its "imminent demise." The journal would have continued, whether or not a society was formed. Indeed, had there not been a going journal to offer to potential members, it is highly unlikely that the society would have ever come into being.

In connection with this offering to members, it should also be noted that NYBG had a history of helping societies out by providing a going journal to the society. This was true for Brittonia, which became the official organ of the Am. Soc. of Plant Taxonomy, and for Mycologia, the publication of the American Mycological Society, both of which were supported editorially and financially by NYBG for years before a society became involved. Thus, having this kind of background, NYBG felt willing to allow Economic Botany to become the official journal of a society, should one be formed. Dr. Steere, who succeeded Dr. Robbins as Director of the New York Botanical Garden, and long interested in economic botany himself, gave his official blessing to allow me to make an offer of the journal, in the event that the active groups of economic botany elsewhere were sufficiently interested in a formal society.

At this point, I began to ask prominent people around the country for their opinion. Not the least among this group of people were those in Beltsville. They had long been contributors to Economic Botany, and when I visited Beltsville to talk to them about continuation of Economic Botany, it was then that I discovered that they had already had some ideas about the need for a society. Up to that point, however, nothing had been done, but at their urging (which I had hoped for) I called together the group of 19 persons from around the country, the meeting mentioned in Jones's paper. The costs of that meeting were met by the NYBG.

The events for the formation of the society from this point on are reported fairly well in Jones's report. But from his letter to you, I feel that he missed a lot of other points which you should know about. One of the most important is that, after formation of the Society, one of the greatest contributors was Ed Fulling, who put far more money into the Society's kitty than anyone else. Another thing to mention is Bernice Shubert, who only acted as editor for a period of 9 or 10 months. She was invited to be the editor in the first place because we at NYBG did not wish the Society to feel that it was being pulled around by the nose by having all the control of editorial activity and financial control as well, in the hands of NYBG staff. When the society was formed, there were some 1,000 subscribers to the journal, and they paid a higher subscription rate than those who were members of the society. But the journal itself had an obligation to its subscribers. When Bernice accepted the position, she was

carrying a very heavy work-load in Beltsville, and at the same time, she was also having difficulty with her eyes. She had to have very serious surgery during her tenure as editor, and obviously could not do the intensive amount of reading necessary for an editor. (At that time the editor wore about six hats, not only accepting articles for their scientific merit, but also doing all the work of copy-editing, dealing with the printer, etc. etc.) As a result, publication schedules got farther and farther behind, to one point where we were six months behind schedule (in recent history this is still a problem). So, as managing editor, responsible both to subscribers not members of the society, and to NYBG, I had to be the devil to take back the editorial job until another, more active editor could be found. This was a very difficult chore for me, because I like Bernice Shubert, and knew her difficulties, and I tried to do it diplomatically, but I fear that diplomacy is not my long suit. I'm sure that the people at Beltsville, and at Harvard, have always felt some anger towards me because they think I "ditched" Bernice Shubert. I let you be the judge.

One or two more points are pertinent to this discussion, and I hope you'll bear with me while I lay these on the line. It is also true that when I became treasure of the society, I also got the onerous task of program chairman, to set up the first and third annual meetings. As a result of my activities, the form of the meeting which is still being used, was established. The idea for an inter-disciplinary symposium, the contributed paper sessions, the banquet and luncheon speaker, all came as a result of my planning of those first meetings. Another point - I have never been a council member - only a non-voting officer in the society. Why? Some of the reasons are obvious, others not so. The Managing Editor position (without vote in the council) was established to allow the NYBG to keep the finances of the journal (which is still its responsibility) on an even keel. This is not a society position - it is a requirement of any organization. But this has apparently stuck in the craw of the Beltsville and Harvard people. For some reason, they feel that either I or Bob Breach have too much control. But that journal is sold to many libraries, organizations both private and public to whom NYBG has an obligation, and the Managing Editor is the one on whom the responsibility immediately rests.

Finally, I completely agree with Jones's paragraph that states that we have no time to honor the Founders in some special commemorative program. I do think, however, that the council could find some way to recognize the significant contributions of Ed Fulling and A. L. Hill before it is too late. Clearly, the presidential role is not appropriate since it demands that the president give an annual lecture, and two very fine, reticent men, in ill health would not or could not accept such a task.

All the above is merely background information which I feel you need to have yourself. Now the question arises - what should be the nature of the writing which describes the ten year history of the Society for Economic Botany? Are you going to be the one responsible for writing the history? Or is it to be done by somebody at Beltsville? In view of the above, I would hesitate to let the Beltsville people do it myself; but then I suspect they would not be happy if I wrote it either. Let me know what your decisions are, and I will see what can be done to help out.

In closing let me say that I appreciate your tremendous efforts for the Society. Such an organization needs the dedication you have given it.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm