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#### *About the Institute*

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

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

May 17, 1973

Information Officer  
ASLB  
3 Belgrave Square  
London SW1X 8PL

Dear Sir:

I am sending a mimeographed outline of my presentation at the conference sponsored by the European Association for Research on Plant Breeding held in Izmir, Turkey, April 17, 1972. To my knowledge, this has not been published.

May I suggest you contact Professor J. G. Hawkes, Dept. of Botany, University of Birmingham for final disposition of the papers presented at that meeting.

Sincerely yours,

David J. Rogers  
Professor of Biology

cc.: Dr. J. G. Hawkes

Dr. Frank F. Willingham, Jr.  
Dept. of Biology  
Wake Forest University  
~~Winston-Salem~~  
Winston-Salem, N.C. 27109

Dear Dr. Willingham:

Thank you for your letter of 5 December. The computer program, "Graph Clustering" is one of a suite of 3 major programs developed in the Taximetrics Laboratory here. ~~These programs are available to biologists at the University of North Carolina~~ The other programs are: TAXIR, a taxonomic information retrieval system, and CHARANAL, a program to analyze the value of taxonomic characters. I enclose reprints describing these programs, and their application.

The programs are available, but we must charge a small fee to cover our costs of running off copies, either tapes or cards, and mailing charges. All the programs are now running on Control Data Corporation 6400 computers, but may be obtained from other institutions with other computing machines. If you would tell me what computing equipment is available to you, I could tell you where the best place to obtain the programs is.

The programs are all in use by taxonomists or ecologists at several institutions, either in tandem, or separately. The number of applications is large, both by zoologists and botanists. We have a number of students who have applied the clustering program particularly to their thesis work. I have two large papers now in press in which the programs were used for monographic studies in the genus Manihot (Euphorbiaceae). One of these, a monograph of the cultivars of Manihot esculenta, goes into great detail in describing the application of the Graph Clustering program, written especially for biologists, not for computerniks. This paper should appear shortly in the journal Economic Botany. The second paper, a Monograph of Manihot and Manihotoides, is an application of all three major programs to produce a standard botanical, systematic, monograph of 98 species. This work will appear as one of the series, Flora Neotropica, Monograph number 13, which is ~~planned~~ to be published by Hafner Publishing Co. Both of the above papers are now in galley proof stage, and I am hoping for an early date of appearance.

I hope the above is sufficiently descriptive, and after you have read the reprints, I look forward to hearing from you again.

Sincerely,

David J. Rogers  
Professor of Biology



THE UNIVERSITY OF NEW MEXICO  
ALBUQUERQUE, NEW MEXICO 87106

MAXWELL MUSEUM OF  
ANTHROPOLOGY  
TELEPHONE 505-277-4404

May 8, 1973

David J. Rogers  
Professor of Biology  
University of Colorado  
Boulder, Colorado 80302

Dear Dr. Rogers:

Thank you for your letter of May 4, 1973. The information on TAXIR will be quite useful. As you may have surmised we are exploring possibilities for putting our collections data on computer. We had pretty well eliminated MCN because of the cost, and are exploring the possibilities of SELGEM (Arizona State Museum uses that system). We may be in touch with you later for more details about TAXIR since we do want to use a system that is already established or in use by museums in this region.

Thanks again.

J. J. Brody  
Director

Taximetrics Lab.  
Dept. EPO Biology  
Univ. of Colorado  
Boulder, Colo. 80302  
May 4, 1973

Dr. Donald Leatherdale  
AGRTS  
Coordinating Center  
A 107  
FAO  
Via delle Terme de Caracalla  
00100-Rome

Dear Dr. Leatherdale:

I don't know how much of the above is address, and how much is needed to get letters to you, so I put in several of the Abbreviations.

Your request for terms for synonyms and species names for cassava terminology is interesting. I don't understand what retrieval system you're working on, and have not been informed by the CIAT people who seem unwilling to let me work with them.

Very shortly, my monograph of the genus Manihot will appear as Monograph #13, in the series Flora Neotropica, published by Hainer Press, 866 Third Avenue, New York, N.Y. 10022. The title of the monograph is Manihot and Manihotoides. This will give complete synonymy for all species of the genus Manihot, of which we recognize 98.

I trust this satisfies your needs.

Sincerely,

David J. Rogers  
Professor of Biology

May 4, 1973

Dr. J. J. Brody  
Maxwell Museum of Anthropology  
University of New Mexico  
Albuquerque, New Mexico

Dear Dr. Brody:

Dr. Robinson of our Museum has asked me to respond to your request for information on TAXIR.

The questions, as I have them, are as follows:

1. Does it take ethnographic material? It takes any data or information structured in alphabetic or numeric form. It is not, however, ~~designed~~ a bibliographic retrieval system.

2. What language does it use? FORTRAN IV.

3. What are the fees? The program itself is free. However, there are costs associated with paying for the listings, and for the manual needed to use the system. We also strongly recommend a short course for the user, which is a cost item to be negotiated.

4. Is there any available documentation of the computer system? No.

If there are other questions, please let me know.

Sincerely,

David J. Rogers  
Professor of Biology

UNIVERSITY OF COLORADO MUSEUM

**MEMORANDUM** - Office of the Director

Dave : Would you respond to this? Thanks

PR

Dr J.J.Brody

Maxwell Museum of Anthropology  
University of New Mexico  
Albuquerque NM

**Date**

Dr. Robinson -

Jerry Brody of the Maxwell  
Museum of Anthropology at the  
University at Albuquerque would  
like the following information about  
TAXIR:

1. does it take ethnographic material?
2. what language does it use?
3. what are the fees? or is it  
under public domain?
4. is there any available documentation  
of the computer system?

He said if you could send  
a letter with the information, that  
would be fine.

Thank you -

Lorna  
4/27

April 11, 1973

Dr. P. R. Rowe  
Department of Horticulture  
University of Wisconsin  
Madison, Wisconsin 53706

Dear Dr. Rowe:

I am sorry that we have "bogged down" on the pilot project. To bring you up to date, we did get the data from Sturgeon Bay, and data from Dr. Sawyer at CIP into the system. Yours (from Sturgeon Bay) was very straight-forward and easy to incorporate. We included in the data bank which you sent additional data which you sent along in the publications, to indicate that we could add on to any data bank where information or data is available. We asked several questions of the data using TAXIR, and I will attach a short summary of these to this letter.

We also incorporated Dr. Sawyer's data into a separate data bank, starting with his handwritten forms. In his case, we used both Spanish and English translations, where appropriate, to indicate that the language is no barrier to the TAXIR system.

The above indicates that there are no difficulties in placing any sort of potato data into the system, and retrieving it on any basis necessary. We did not get the opportunity to further the study using the concept of Examiners, simply because the funds available to us were not sufficient to continue. (We received no outside money for this project, and so did it on weekends and nights.)

Now, with respect to your request in your letter of April 3, I see no problems with respect to your requirements. If you want to put this work on a formal basis, then we'll have to see how to do it. Clearly, the biggest job is going to be to actually gather the data. Putting the data into the computer system will require some sort of arrangement that we hope to make through the FAO office that has just been established (funded, but not yet in operation). There will be an international system for information on genetic resources, and I am sure that you will want to participate in that system. Just how that is to be done is something that I cannot yet answer. It looks as though TAXIR will be the information retrieval system used, but how it is to be put into operation, I am not certain.

To keep from slowing down your own operation, we can suggest formats for data collection, if you tell us the types of data you want to gather. We can suggest means for this to be done. In this way, you can get started as soon as you want with the actual accumulation of the data, in preparation for the time when we get the computer systems in place in the international framework. To get going with this suggestion, why don't you plan an extra two days here in Boulder, on your way down to Peru, and we can then give you the necessary instruction on data formats.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
CROPS RESEARCH DIVISION  
DEPARTMENT OF HORTICULTURE  
UNIVERSITY OF WISCONSIN  
MADISON, WISCONSIN 53706

April 3, 1973

Dr. David J. Rogers  
Department of Biology  
University of Colorado  
Boulder, CO 80302

Dear Dr. Rogers:

I am wondering how the pilot project on the use of TAXIR for germ plasm centers is progressing. My reason for asking is that on May 1, I will be moving to Peru to take a position with the International Potato Center. In that position, I will be responsible for the germ plasm collection of the Center. So I am interested not only in terms of how the system may be used for IR-1 at Sturgeon Bay but the potential for the CIP collection as well.

At a workshop held in Peru in January, people concerned with the genetic resources of potato decided that a high priority effort should be made to collect native cultivars throughout South America. Since many have been collected already, we are faced with the problem of defining what areas have been sampled adequately already and where effort should be centered.

It would be good if we had some means to supply collectors with printouts that describe where accessions already in collections have been obtained or where species that have been lost from collections were originally collected. This information is available but in several scattered sources that are difficult to pull together. If this information could be stored in a data bank system for retrieval for specific countries or species, it would be extremely valuable.

I would be very interested in learning if this sort of thing can be done with TAXIR and if so, the requirements

April 3, 1973

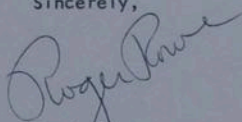
Page 2

Dr. David J. Rogers:

and formats for assembling the data. Since this is basically a data storage and retrieval problem, I assume that it can be done easily but I hope that we can do it in a form that is more or less standard or compatible with other germ plasm banks.

I will appreciate any information that you can provide.

Sincerely,

A handwritten signature in cursive script, appearing to read "P. R. Rowe".

P. R. Rowe  
Geneticist

PRR:kg

R. E. Jones  
Dept. Agric., N.S.W.  
Australia

April 4, 1973

Dear Earl:

I have had three communications from you, and should have responded long since. I am glad that I waited past the first letter, which told of your difficulties getting the MSU version of TAXIR going there. I almost felt like writing "I told you so", etc., but should have recognized that you had sufficient skills to make the system go. Your second letter reassured me that you could at least get the system running there. I am sure that you, personally, can make the system work well for you, but I am still not certain that any user group you may have can make the most beneficial application of the system. There are many aspects to the data structuring for most beneficial application, many ways to construct data banks, and many ways to query the bank that will not occur to the uninitiated.

We know that there are many inefficiencies in the system at MSU, but do not have sufficient time or capable personnel in our shop to correct them. There are several unnecessarily long subroutines in the system which take up much memory, and the methods of instructions to build data banks are uselessly complicated. All these add to the cumbersomeness of the system, and take up much more room in the system. I doubt that the programmer who is now in charge at MSU has the necessary interest to put the system right, nor to continue its modification in line with the philosophies which first built the system. I hope that in the future I can get back in the seat for direction of the system's development, rather than have it being done in a haphazard manner elsewhere.

The Rome meetings were very successful. We demonstrated the capacity of the ENVIR system with a data bank derived from three potato gene centers, and one from the Fort Collins Gene Bank. There seems to be general agreement on the development of international networks, and FAO has stated that they are putting on two new professional positions to arrange for international genetic resource centers. This is a very positive step, which we all cheer.

I was very glad to get your trip report—it seems to me you really covered a lot of ground, and some of your report is useful to me. I trust that the report was well received at home. I hope you will communicate with Sir Otto to let him know that you have TAXIR running. I should think CSIRO would be much interested. Let me know what happens to TAXIR in Australia, because this will have interesting results with respect to an international network.

Thank you for your informative letters. I hope we can get together again sometime.

Sincerely,

David J. Rogers  
Professor of Biology

Dr. A. V. Hall- U. Capetown,  
Bolustlerbarium  
Rondebosch, C. P.

Mar. 22, 1973

Dear Dr. Hall:

Thank you for your letter of March 14. The following comments may be helpful, in the various requests.

TAXIR is spread to many different laboratories in this country and in Europe, and because of this, I cannot be certain what its status is at any one time. I personally, at the moment, am working with a relatively primitive version because all my funding for development was withdrawn. Perhaps the most sophisticated version of TAXIR is now called ENVIR (Environmental information retrieval), under the direction of a group working on environmental matters at a NASA facility in the state of Mississippi. The best news for TAXIR is that it has been adopted to support the information needs of an international network of genetic resource centers under the auspices of FAO, and I will probably take a leave of absence to help establish the network system. At that time, we will develop the necessary systems (including TAXIR, CHARANAL And GRAPH) to make a very sophisticated package, using remote terminals, time-sharing, and other means of interfacing with the system.

You asked about costs: we have developed a rather sophisticated means of evaluating costs (as measured against efficiency), and have measured them in our context. However, our context is different from yours, or any other one, and we have not made comparative studies. Until such comparative studies are made (including time and level of personnel, programming time, computer hardware time, output costs, applications, and several other cost items) there isn't much meaning to it. And each such measure must be made against some measurable set of objectives, or there is no value to it. Raw costs really tell you nothing.

There already is a "Special Interest Group" for Information ~~and~~ Storage and Retrieval for Systematic Biology, arranged by Ross H. Arnett, Jr., who address is Tall Timbers Plantation, Rt. 1., P.O. Box 161, Tallahassee, Florida 32303. If you care to contact him, I am sure he would be pleased to hear from you. I personally will be much too busy as local chairman for the Congress to participate therein, although I appreciate your ideas.

Thank you for your cordial letter, and the offer of your exciting new programs. Do you have documentation and flow charts? These would be very helpful for such a long program. I do look forward to seeing you here in Boulder in August.

Sincerely,

David J. Rogers  
Professor of Biology

<sup>9</sup>  
~~12~~th March, 1973.

Dear David,

Since my letter of 28th February I am pleased to say that the problem of updating and querying the data bank in a subsequent run to the create run has been solved. Just yesterday the Programmer I have had working on TAXIR discovered that he had omitted to change one of the WRITE instructions in our version of the program when he was making a number of other changes to the W.S.U. version for our machine. He made this further change last night, put in a deck of queries, corrections and additional item and, to our delight, the job ran perfectly.

When I have some clean printouts of create and update runs, including item definitions, control vocabulary, queries and responses, and corrections, I will send them to you.

Best wishes,

Yours sincerely,

*Carl Jones*

A.D.P. SYSTEMS OFFICER.



NEW SOUTH WALES

DEPARTMENT OF AGRICULTURE

STATE OFFICE BLOCK • PHILLIP STREET • SYDNEY 2000

Telephone 2 0536, Extn 4281

Professor David J. Rogers,  
Professor of Biology,  
Department of Environmental,  
Population and Organismic Biology,  
University of Colorado,  
BOULDER. COLORADO. 80302 U.S.A.

IN YOUR REPLY  
PLEASE QUOTE

REJ:BKT

28th February, 1973.

Dear David,

I find it hard to believe that five (5) months have elapsed since our meeting at Boulder and the interesting talks we had on information systems generally and TAXIR in particular.

I might add that just about everywhere I visited after seeing you, someone brought up the subject of TAXIR - at the Ottawa Research Station, the Plant Breeding Insitute at Cambridge, the John Innes Institute at Norwich, the Jodrell Laboratory in Kew Gardens, Jack Hawkes at Birmingham and the group at Washington State University.

I was very interested to hear from Jack Hawkes of the plans to set up genetic resource centres in Europe and elsewhere, and information systems to go with them.

He, of course, referred to the proposals for using TAXIR, including the pilot study on a potato gene bank to assess its effectiveness for this kind of work.

Jack in turn was interested to hear whether I had had any experience with TAXIR but of course all I could say at that time was that my only first hand knowledge of TAXIR virtually was what I had gleaned from you in the course of our discussions at Boulder. Even at that stage I could say that I thought it had a great potential for this kind of work and I hoped to be able to try it out for myself on our wheat collection data in the not too distant future.

As it transpired, I did have the opportunity, at Washington State University, to see their version of TAXIR in operation. Indeed in the week I had there and with the help of the statistician programmer who has been responsible for TAXIR since it was installed on the University's IBM computer and others who are using the program, I managed after one abortive run to create a data bank of a small sample of the Australian wheat collection data and submitted a number of queries to it - and received the proper answers.

This is all leading up to what I feel you, as the originator of TAXIR, should know. I brought back with me a copy of the Washington State University program and a user manual with the idea of getting the program going here and trying it out for ourselves on the Australian wheat collection.

We had all sorts of troubles initially - first finding a machine to read the program tape I brought back with me and punch a deck of program cards. Then find another machine to compile and test the program; also adjust ourselves to punching cards in IBM format rather than Honeywell. (Several characters are different, such as ( ) : and even the + sign.).

.../2

TELEGRAPHIC ADDRESSES · GENERAL—AGRAIDPT, SYDNEY · ANIMAL INDUSTRY—ANIMALIND, SYDNEY · EXPORT & IMPORT BRANCH—AGRIIMPX, SYDNEY

BT 7110

To cut a long story short I have now got the Washington State University version of TAXIR resident on an IBM 360/44 system, created a data bank of about 400 accessions in the collection and tried my hand at querying and updating it and correcting items.

This worked fine whenever we create the data bank, query, update and correct all in the same run. But what I have not yet been able to achieve is to update or query the data bank in any subsequent run after the creation run. The fault obviously is not in the program but I feel it is in the way we are trying to reference the data bank - probably because of our JCL's. I am now having a programmer familiar with IBM 360 operating systems looking at this for me. (I might add that none of us here in the Department has ever had previous experience with IBM machines or for that matter a program of the size and complexity of TAXIR comprising as it does both FORTRAN and assembly language.)

I am confident that we will soon overcome this particular problem.

I thought you might like to have some details of our preliminary design for wheat data bank No. 1. It covers morphological, physiological and descriptive data and comprises 43 descriptors, I am assembling some of the documentation on design to send to you under separate cover.

In the course of our test runs so far I have learnt several things about the Washington State University version of TAXIR. It needs in the vicinity of 250K bytes of memory to cater for this data bank. (The machine we are using is 250K, the same as the WSU computer). The number of descriptors is limited to 50. The sum of the powers of 2 for all descriptor states cannot exceed 250 (we need 226 for data bank No. 1). The limit on the number of states for all descriptors defined under the NAME option is 3,000. (We need something like 15,000 for variety, etc. NAMES but I fear that we would exceed memory if we modified the program in this respect and recompile it. I am therefore proposing that NAMES be kept in a separate data bank and develop another (non-TAXIR type) program for it.) The Boolean expression used to query the data bank cannot exceed 300 characters. (Two of my queries exceeded this limit and I had to break them up into smaller expressions.)

Updating - in particular amending STATES for ITEMS already defined - appears to involve quite a large number of CORRECTION statements if there are many amendments to be made. Let us suppose this year the curator grows 3,000 accessions and takes notes on (say) 6 characters. He already has data on these in the data bank, some positive ratings, some unknown. He now wants to add the new information on the 3,000 accessions. My impression is that we will have to use one CORRECTION statement for just about every amendment to an ITEM, thus:-

CORRECTION (PLANT HEIGHT,2)(SEED SIZE,2) FOR ITEM<sup>with</sup> AUS NO, 1604\*  
 CORRECTION (EAR EMERGENCE,<sup>5/</sup>~~3~~)(EE,8) FOR ITEM WITH AUS NO, 1605\*  
 CORRECTION (PLANT HEIGHT,2)(SEED SIZE,5) FOR ITEM WITH AUS NO, 1606\*  
 CORRECTION (PLANT HEIGHT,2)(EAR EMERGENCE,<sup>5/</sup>~~3~~)(EE,8)(SEED SIZE,5) FOR  
 ITEMS WITH AUS NO, FROM 1647 TO 1655\*

It seems to me that I have missed something in the manual. There must be a simpler way of making these amendments.

I feel we are making reasonable progress in the circumstances. Much better, of course, if I were located close by to someone who could help as queries arise, but I am afraid this is just not feasible at present. You will recall we discussed this possibility but I cannot see it happening.

I thought you would like to know what has transpired. In any event I wanted to write to you and say how much I enjoyed our meeting; also to let you know that our Eucalypts man here is Dr. L.A.S. (Laurie) Johnson, Director and Chief Botanist, Royal Botanic Gardens, Sydney, 2000. I have spoken with him about your request for information on eucalypts and he has suggested you might write to him.

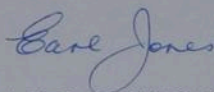
Incidentally, Jack Hawkes thought it would be a good idea if someone like me could attend the next meeting of your Genetic Resource Centres Group in Rome in March. When he spoke to me about it I said I would be interested but I have not heard anything further.

This has been a rather rambling sort of letter. I might say I have already made four attempts to write to you, but each time something new has come up that I thought I should add. In the end I felt I must cut off at a certain point and write.

I shall write to you again when I have something further to report.

With warmest regards and best wishes for a fruitful meeting of your group,

Yours sincerely,



A.D.P. SYSTEMS OFFICER.

20 Jan. 1973

Reed L. Osborn  
Dept. of Biology  
Southern Colorado State College  
Pueblo, Colorado 81001

Dear Dr. Osborn:

Thank you for your letter asking about our computer system for the herbarium. We have the system, TAKIR, developed by David Rogers, but we do not have any funding to implement the job at the present time. We would be very much interested in having our data bank serve as a central one for the regional collections, but at the present moment any hopes for that depend on new outlooks on the part of NSF and other granting agencies, who have been eager to support the feasibility studies but not the continued input.

If you indeed are planning to establish a system there, and have the money, and realize what you are tying yourself to in the long haul, it would be a good idea if you could use the system we have developed, and I'd suggest you get in contact with Dr. Rogers in the Dept. of Biology here. He is presently working up the manual on it.

Sincerely yours,

William A. Weber  
Prof., Curator



SOUTHERN COLORADO STATE COLLEGE  
303 549-2340 PUEBLO, COLORADO 81001

DIVISION OF THE SCIENCES  
DEPARTMENT OF: Biol.

Jan. 9, 1973

Dr. William A. Weber  
Curator of the Herbarium  
Univ. of Colorado Museum  
Univ. of Colorado  
Boulder, Colo.

Dear Dr. Weber:

I have learned that you have established a computerized system for the herbarium information at the university. We are trying to go this route here for the entire museum complex. I would greatly appreciate any information you might have about the system and methods you are using. I would also appreciate any suggestions you might give us as we begin to establish a computerized system here.

Sincerely,

*Neal L. Osborn*

Neal L. Osborn, Ph.D.  
Assoc. Prof. of Biol.

STATE OFFICE BLOCK • PHILLIP STREET • SYDNEY 2000

Telephone 20536, Extn 4281

Professor David J. Rogers,  
 Professor of Biology,  
 Department of Environmental,  
 Population and Organismic Biology,  
 University of Colorado,  
BOULDER. COLORADO. 80302 U.S.A.

IN YOUR REPLY  
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REJ:BKT

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We had all sorts of troubles initially - first finding a machine to read the program tape I brought back with me and punch a deck of program cards. Then find another machine to compile and test the program; also adjust ourselves to punching cards in IBM format rather than Honeywell. (Several characters are different, such as ( ) : and even the + sign.)

To cut a long story short I have now got the Washington State University version of TAXIR resident on an IBM 360/44 system, created a data bank of about 400 accessions in the collection and tried my hand at querying and updating it and correcting items.

This worked fine whenever we create the data bank, query, update and correct all in the same run. But what I have not yet been able to achieve is to update or query the data bank in any subsequent run after the creation run. The fault obviously is not in the program but I feel it is in the way we are trying to reference the data bank - probably because of our JCL's. I am now having a programmer familiar with IBM 360 operating systems looking at this for me. (I might add that none of us here in the Department has ever had previous experience with IBM machines or for that matter a program of the size and complexity of TAXIR comprising as it does both FORTRAN and assembly language.)

I am confident that we will soon overcome this particular problem.

I thought you might like to have some details of our preliminary design for wheat data bank No. 1. It covers morphological, physiological and descriptive data and comprises 43 descriptors, I am assembling some of the documentation on design to send to you under separate cover.

In the course of our test runs so far I have learnt several things about the Washington State University version of TAXIR. It needs in the vicinity of 250K bytes of memory to cater for this data bank. (The machine we are using is 250K, the same as the WSU computer). The number of descriptors is limited to 50. The sum of the powers of 2 for all descriptor states cannot exceed 250 (we need 226 for data bank No. 1). The limit on the number of states for all descriptors defined under the NAME option is 3,000. (We need something like 15,000 for variety, etc. NAMES but I fear that we would exceed memory if we modified the program in this respect and recompile it. I am therefore proposing that NAMES be kept in a separate data bank and develop another (non-TAXIR type) program for it.) The Boolean expression used to query the data bank cannot exceed 300 characters. (Two of my queries exceeded this limit and I had to break them up into smaller expressions.)

Updating - in particular amending STATES for ITEMS already defined - appears to involve quite a large number of CORRECTION statements if there are many amendments to be made. Let us suppose this year the curator grows 3,000 accessions and takes notes on (say) 6 characters. He already has data on these in the data bank, some positive ratings, some unknown. He now wants to add the new information on the 3,000 accessions. My impression is that we will have to use one CORRECTION statement for just about every amendment to an ITEM, thus:-

- CORRECTION (PLANT HEIGHT,2)(SEED SIZE,2) FOR ITEM<sup>WITH</sup> AUS NO, 1604\*
- CORRECTION (EAR EMERGENCE,<sup>5</sup>~~3~~)(EE,8) FOR ITEM WITH AUS NO, 1605\*
- CORRECTION (PLANT HEIGHT,2)(SEED SIZE,5) FOR ITEM WITH AUS NO, 1606\*
- CORRECTION (PLANT HEIGHT,2)(EAR EMERGENCE,<sup>5</sup>~~3~~)(EE,8)(SEED SIZE,5) FOR ITEMS WITH AUS NO, FROM 1647 TO 1655\*

It seems to me that I have missed something in the manual. There must be a simpler way of making these amendments.

I feel we are making reasonable progress in the circumstances. Much better, of course, if I were located close by to someone who could help as queries arise, but I am afraid this is just not feasible at present. You will recall we discussed this possibility but I cannot see it happening.

I thought you would like to know what has transpired. In any event I wanted to write to you and say how much I enjoyed our meeting; also to let you know that our Eucalypts man here is Dr. L.A.S. (Laurie) Johnson, Director and Chief Botanist, Royal Botanic Gardens, Sydney, 2000. I have spoken with him about your request for information on eucalypts and he has suggested you might write to him.

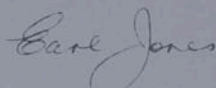
Incidentally, Jack Hawkes thought it would be a good idea if someone like me could attend the next meeting of your Genetic Resource Centres Group in Rome in March. When he spoke to me about it I said I would be interested but I have not heard anything further.

This has been a rather rambling sort of letter. I might say I have already made four attempts to write to you, but each time something new has come up that I thought I should add. In the end I felt I must cut off at a certain point and write.

I shall write to you again when I have something further to report.

With warmest regards and best wishes for a fruitful meeting of your group,

Yours sincerely,



A.D.P. SYSTEMS OFFICER.



PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO DE JANEIRO  
RIO DATACENTRO

Rua Marquês de São Vicente, 209/283 - 2C-20 - Tel. 47-8030 - Rio de Janeiro

September 30, 1972.

Dr. David Rogers  
Taximetrics Laboratory  
Department of Biology  
Armory 101  
University of Colorado  
Boulder, Colorado 80302

Dear Dr. Rogers,

I had a chance to work on TAXIR while in WSU with Dr. Konzak.

I am now teaching and doing research in Information Retrieval at this University.

One of my goals is to disseminate the use of TAXIR around here. We have here a modification to the /360 plus data bank in auxiliary storage, of the original version. We are now making some other modifications and extensions, but we are running into trouble due to the lack of documentation we have. So, I'd like to ask you if you could send us all the documentation you may have on TAXIR (along with the bill if there is any).

I'd like to point out that demonstrations and small notes on TAXIR that we are working on, always carry your name along with it.

Thank you,

Flavio Pereira de Sousa

FPS/hd.

November 18, 1972  
Box 447  
Blanding, Utah

Dear Dr. Rogers:

Since I last wrote you on March 22 I have made no further use of the cluster program. However, since that letter contained little information about specific applications I will fill you in here.

I have made two studies using your cluster program. The first was a cluster analysis of Silumiut (An archaeological site in Hudson Bay area of Canada) houses. In ~~his~~ 1970 dissertation Allen McCartney presents a list of artifact types from seven houses which he excavated at the Silumiut site. His list is simply a count of the numbers of artifacts which appear in the houses. Based on this count he is unable to group the houses into any meaningful units (i.e. which would show time or cultural differences). He therefore concludes that the houses are of the same time period and occupied by peoples with a very similar culture. In an article which I have prepared and is now being considered for publication by the journal AMERICAN ANTIQUITY I argue that his counts are not appropriate for such a conclusion. Rather, the data should be tested with some kind of decision making statistic in order to demonstrate that the artifact distribution is indeed non-random. In my paper I do just that using the cluster statistic because its assumptions are those best suited to testing under these circumstances. The cluster analysis grouped the houses into two distinct units. Although I am not prepared to say whether the groupings <sup>are</sup> a function of time or cultural differences. The statistic did demonstrate that two groups are present when one looks at all the artifact type occurrences with the statistical technique rather than looking at simple counts of types as did McCartney. Should the paper be accepted for publication I will be glad to see that you get a copy.

The second use I have made is presently being written up for my dissertation. I presently expect to have it finished by ~~July~~ '73. Although I am in the middle of the writing now and undoubtedly some things will change I can give you some of the background to the study. I have a body of data consisting of 656 whole ceramic vessels from the Mississippian culture of eastern Arkansas. The data consists of detailed attribute analysis of these vessels. My problem is to test a number of hypotheses about how the vessels will group given various classifications based on certain of the attributes. I reduced the total number of vessels in the sample to 549 in order to meet the requirements of the program. I also converted some of my interval data into nominal data in order to use the

cluster statistic. My hypotheses about the groupings include ideas on decoration, shape categories, comparisons with intuitively derived typologies etc. I have made 8 runs of which 4-5 will be used in the final study. I am able to isolate those attributes which are most frequently responsible for groupings with high C-values. In some cases by hypotheses about how the ceramics will group tend to be confirmed in other they are not. However, in all cases the clustering results in some interesting information about the ceramics. I consider the statistic to be very useful if properly used. Its best features are its large capacity and the fact that it uses average linkage and assumes polythetic sets. It would be nice if we could get better accuracy below 20 variables say to about 10 but I suppose the nature of the statistics do not allow this. At anyrate I am very impressed with what has been able to do for me and I expect to see a lot of use by archeologists in the future. Again, I will be happy to provide you with more detailed information on this last use once it becomes available and I have sorted everything out.

If I can be of any further service please feel free to get in touch with me. I can only express my abundant thanks for your work in developing the cluster analysis program and your willingness to let us use it at Arizona State.

As I am now working with the U. S. Forest Service as an archeologist I wonder if you would have any objection to our using your program here? We will probably have to modify the number of objects which can be handled since we have a smaller machine in our Ogden regional office. However, I am sure we will find the program most useful.

Sincerely,

*Dee F. Green*  
Dee F. Green



WAKE FOREST UNIVERSITY

WINSTON-SALEM, NORTH CAROLINA 27109

Department of Sociology and Anthropology

November 21, 1972

Dr. David J. Rogers  
Department of Biology  
University of Colorado  
Boulder, Colorado 80302

Dear Dr. Rogers:

If you have contacted Mrs. Caines and Mrs. Tidwell, then you know of all the anthropological applications of your program that I know of except my own.

I am using Taximetrics with non-metric traits (graded) of the human skeleton to see temporal change in a single Puebloan site. I am using Zuni skeletons for a control. Clustering, and other methods as well, indicate that no change (admixture) occurred. The clustering went well. Zuni formed an early isolate at level 0.66 while the Pueblo site showed no temporal trend in its clustering sequence. I used 52 traits mostly having 5-7 grades each.

The principle, and unavoidable limitation of the program for me was intolerance of missing data. Archeological specimens are usually damaged so it takes a large and well preserved series to produce a "reasonable" sample. In this case, I had three groups of about 15 each. Still it works, and seemingly is very sensitive.

I will submit the dissertation in December. So far, no publications but I will send you any that happen.

Sincerely,

A handwritten signature in blue ink that reads "Richard McWilliams".

Richard McWilliams

RM/bs  
cc: Mrs. Carol Tidwell

JODRELL LABORATORY

ROYAL BOTANIC GARDENS  
Kew, RICHMOND, Surrey, England TW9 3DS  
Telegrams: Kewgar, Richmond, Surrey  
Telephone: 01-940 1171

Please address any reply to  
~~THE DIRECTOR~~  
and quote:  
Your reference:

Prof D J Rogers  
Dept of Biology  
University of Colorado  
Boulder  
Colorado 80302  
U S A

29 November 1972

Dear Dave

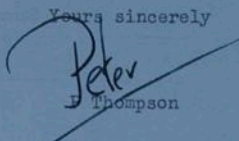
Thank you for your letter giving me news of developments concerning Taxir. I am keeping in close touch with Professor Hawkes, and shall be most interested in the progress of his pilot study.

We have now made an appraisal of our needs in relation to the seed bank at Kew, and are embarking on a feasibility study with the people concerned with computer facilities in the Ministry of Agriculture. Until this is completed we will reserve our position on Taxir, but it is becoming increasingly obvious that data handling facilities will be needed on a scale and of a type which would be appropriate to a programme such as Taxir or its derivative Envir.

I will let you know of any further developments.

With all best wishes,

Yours sincerely

  
P Thompson

Nov. 2, 1972

Dr. Peter Rauch  
Department of Entomology  
Wellman Hall  
University of California  
Berkeley, Calif. 94720

Dear Peter:

Bill Reid tells me you are doing many interesting things with TAXIR, including something for the forest biome. I am naturally interested in the various applications, and would appreciate knowing where and how you are applying the system. We feel that there should be some sort of "quid pro quod", if for example, you generate some new and useful subroutine for the system, we would like to be able to have it working for us.

I know that there is no established routine for the use of the system--it is not copyrighted--but in the same senses that you give credit for published research, where you cite the author for his contribution, we believe that the same should be extended to developers of useful computer programs. The only way I can see this happening with computer programs is to agree to have a print statement which makes recognition of the originator of the system on each page of the printout. Something to the effect that "The TAXIR system was developed at the TAXIMETRICS LAB., UNIV. OF COLORADO." Different wording could be used--this is just a suggestion. I hope it is meaningful to you, because this is the only way we get our Brownie points.

Sincerely,

David J. Rogers  
Professor of Biology

October 12, 1972

Professeur Pierre Bhercur  
Dept. of Sci. Biologique  
1200, rue St-Alexandre  
Universite du Quebec a Montreal  
Montreal 101

Dear Professor Bhercur:

I am sorry not to have responded to your letter of Sept 5 before now. Since there is very little published information on the system, TAXIR, it was difficult to give any precise information.

However, I have just learned that a former student of mine, Dr. Pierre Legendre, is also there at your university, and I have just written him asking him to share with you his knowledge of the system, TAXIR. Dr. Legendre took a seminar from me, in which he learned the operation of the system, but not the programming aspects, which are rather involved.

I trust this arrangement will be satisfactory. It will be much easier for him to give you the descriptions than it would be for me to try to prepare a satisfactory description. I do not have any funds for continued work with the system.

Sincerely yours,

David J. Rogers  
Professor of Biology

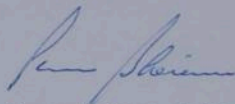
September 5, 1972.

Dr. David Rogers,  
Department of Biology,  
University of Colorado,  
Boulder, Colorado 80302.

Dear Sir:

As I am very interested in the work that has been on the use of computers in the compilation of ecological data and the classification of plants, Pierre Dansereau suggested that your research is very pertinent. I would be most grateful if you could send me a list of your publications.

Thanking you in advance,



Pierre Bhéreur, M.Eng.,  
Professeur,  
Département des Sciences biologiques,  
1200, rue St-Alexandre,  
Université du Québec à Montréal,  
Montréal 101, Québec,  
Canada.

PB/jd

Lepeyère  
Montreal

Oct. 12, 1972

Dear Pierre:

Your letter came at a very good time. By responding to your requirements, I can ask you to share this with Professor Pierre Bhereur in the Dept. of Biological Sciences, who wrote earlier, asking for information about our system, and to which I have not yet replied. Prof. Bhereur got my name from Pierre Dansereau, who may not have known that you would be there, nor that you had worked with me here. Incidentally, it seems to me that since I have addressed this letter to Pierre, without further designation, it could serve all three of you!

The TAXIR system you want is clearly the version now in the hands of Henry and Appan, because it certainly is the most up-to-date, the most efficient, and with the most capacity. However, I know that there have been changes in the concept by which one acquires the system. Since TAXIR is a very expensive piece of software, and since the organization that Henry works for (the Gulf Universities Research Consortium) is not in the public domain, but a private organization, they will require some sort of contract to get the system.

The best thing for you to do would be to write to Henry, and ask him to tell you what procedures are best to get the system he has. Incidentally, he has redesignated the system ENVIR, to reflect their interests more precisely. Henry's address is:

Mr. Henry S. Fleming  
Gulf Universities Research Consortium  
NASA/MIF  
Bay St. Louis, Mississippi 39520

While we are still interested in the system here, we have no funds for continued maintenance or development. Perhaps there will be some forthcoming, but that will be some time in the future. Bill Reid is keeping the system alive, but not doing anything else.

Because I have to do my own secretarial work, I trust that you will contact Prof. Bhereur, and give him the benefit of your knowledge of TAXIR.

Frans Stafleu called me this morning, and told me that galley's for our joint article for Taxon is now being prepared, and that we could expect the article to appear in the November issue.

I have recently been talking to a chap, Tim Brennan, who is interested in our programs for use in studies of juvenile delinquents. I recalled that Ghislaine had used our systems for precisely the same purpose, and I suggested that he (Brennan) should contact Ghislaine. So, if he does, you will know where he got your name from.

Hope everything is well there. We are very busy with a large number of activities, including teaching a course "Plants for Man" to 150 students.

Best Regards,

October 1st, 1972

Dr. David F. ROGERS,  
Department of Biology,  
University of Colorado,  
Boulder,  
Colorado 80302,  
U.S.A.

Dear Dave:

Thanks to Askell, I know now where to reach you! And here I am also, back on this continent, and anxious to do some work in collaboration with the Taximetrics Lab.

I have started to work with some people here who need a computerized information storage and retrieval system for handling herbarium specimens: when I told them about TAXIR, and described how it works (I still have my classroom notes...), they jumped to the ceiling - I skips the details and come to the point: could I get a copy of TAXIR, so as to make it work on our computer system?

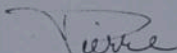
If I remember right, we were working with TAXIR #3 last year, but if I know Henry and Appan, they must be working on number 4 or 5 by now. So we don't exclude a trip to Mississippi or to Boulder if necessary, so as to get some training, and say hello to everybody at the same time. There seem to be funds available for such trips here.

- So, for now, I would like to get
- your O.K. for using TAXIR here, or your conditions, or what?
  - the address of Henry and Appan in Mississippi: I suppose that you don't have a spare copy of TAXIR in your file, do you? With your approval, I could get in touch with Henry and arrange everything with him.

Please let me know how you are doing with your monograph of  
Manihot: I was given to understand that California was not such a  
nice place for book writing...

And I was about to forget to send you the best regards of  
Pierre Dansereau; please agree also ours, to your wife and yourself.

Yours as ever,

A handwritten signature in cursive script, appearing to read "Pierre".

Pierre Legendre.

PL/nm

October 5, 1972

Dr. Poul S ndergaard  
Lic. agro. director  
Arboretet Pa Milde  
University of Bergen  
P.O. Box 12, 5014 Bergen,  
Norway

Dear Dr. S ndergaard:

Thank you for your recent letter, requesting information on TAXIR. I enclose two publications which help to explain the system, but there is no sufficiently complete publication to supply the needs of all. The enclosed papers are designed merely as introduction to the system.

As you can see, I am no longer associated with the organization to which you addressed your letter. I was only temporarily associated with the Gulf Universities Research Consortium in Mississippi. That organization is the most active group with the system TAXIR, and has the most competent staff to give complete details of the system. Since Gulf Universities Research Consortium is a private organization, it collaborates with others on the basis of contracts. If you were to become sufficiently interested to wish to adopt TAXIR, I suggest you contact either Mr. Ian Miller, or Mr. Henry Fleming, of that organization.

Since TAXIR is a relatively sophisticated system, we recommend strongly that your personnel get training both in the systems (programming) aspects, as well as in the applications (user) aspects. Since installation of any good system represents quite an investment, we think it only logical to follow such a procedure.

If you want more detailed information than that which is sent herewith, may I suggest you contact either of the two gentlemen named above, at the same address as that which you initially contacted me.

Sincerely yours,

David J. Rogers  
Professor of Biology

Encl.

Requests for info on TAXIR

ARBORETET PÅ MILDE,  
University of Bergen,  
P.O.Box 12, 5014 Bergen,  
NORWAY.

8.9.1972.

Copy  
made

Dr. Dave Rogers,  
Gulf Universities Research Consortium,  
National Aeronautics & Space Administration,  
Mississippi Test Facility,  
Bay St Louis,  
Miss. 39520,  
U. S. A.

Dear Dr Rogers,

During a visit to the Royal Botanic Gardens of Kew in London I had the pleasure to meet the director of the garden Professor J. Heslop-Harrison, who told me of the TAXIR system developed by you.

The arboreta in Scandinavia recently decided on a closer cooperation, and a nordic committee has now been established. One of the most pressing tasks for this committee is to introduce a common registration system which would be obligatory if we should be able to do comparative research between our arboreta.

Professor Heslop-Harrison recommended me to take contact with you and I therefor take the liberty to ask you if I could get some information of the TAXIR system.

I have been in contact with Robert D. MacDonald, director of The AHS Plant Records Center, who has been so kind to send me quite a bit of information concerning this center.

Before adapting a system for Scandinavia I should be grateful to learn more of the TAXIR system which by Mr Heslop-Harrison was designated as the most up to date and probably the hitherto best developed system, of its kind.

Yours sincerely

*Poul Søndergaard*

Poul Søndergaard

Lic. agro. director.

PS. Enclosed you will find a folder giving some information of the newly established Milde Arboretum.

Bergen, Norway, January 1972.

Dear Sirs,

We are pleased to inform you that a new arboretum has been founded near the city of Bergen on the western coast of Norway at a latitude of 60°H. R. H. the Crown-prince of Norway planted the first tree in the arboretum on 27. May 1971.

The oceanic climate sets western Norway distinctly apart from the rest of Scandinavia and as a matter of fact from most of the parts of the world at a similar latitude. Especially, winter temperatures are particularly high, the summers on the other hand are rather cool. The precipitation values are high with a rather even distribution of precipitation: minimum in April-May and maximum in October.

The consequence of these climatic conditions is that western Norway provides the possibility for cultivating species of trees and shrubs, which are normally not found in these latitudes. In addition to the ordinary broad-leaf deciduous trees, species like Ilex aquifolium and Taxus baccata, and Hedera helix are spontaneous and plentiful within the area. Among introduced plants a number of species of Rhododendron have been cultivated with great success. Other introductions are: Araucaria araucana introduced about 1860, one specimen has obtained a height of 18 m and girth in breast height of 260 cm, Davidia involucrata has been blossoming in the Bergen botanical garden since 1949. Olearia haastii produces a very good growth in the same garden. Specimens of Cedrus atlantica reach up to 18 m of height.

The very distinctive qualities of the western Norwegian climate have called forth the idea of "Arboretet på Milde", an idea born and nourished by director Fritz Rieber in Bergen, inspired and encouraged by dr. C. Syrach Larsen from the Hørsholm arboretum in Denmark.

The arboretum foundation has been established by the Norwegian Department of Agriculture, the University of Bergen, the municipalities of Fana and Bergen, and also by a considerable contribution from Mr. Rieber, who is the chairman of the Board. Director of the arboretum is lic. agro. Poul Søndergaard. There is also a special commission with representatives for institutions directly interested in and cooperating with the arboretum.

August 25, 1972

Mr. John Wrigley, Chief  
Computer Systems Branch  
FAO  
Rome

Dear Mr. Wrigley:

A reply to your fine letter of 7 July is long overdue. Your suggestions for the form and content of a user's manual for TAXIR are excellent, and I assure you they will be taken very seriously as we go about the preparation of the manual. I, and two of my assistants have been gathering together several different types of such manuals, and hope to begin to bring it all together this fall.

I continue to work with the world genetic resource centres for problems of information management. In Birmingham, In July, I attended a workshop on information management, called by Dr. Jack Hawkes. At that workshop, the members of the workshop were mostly representatives of European organizations, with a large contingent from the UK. I was the only representative from the US. Several resolutions on solutions to the problems of information management were approved, amongst them that TAXIR was the system of choice for genetic resource information. Another resolution stated that there should be a pilot study to demonstrate all facets of information management. At Dr. Hawkes's suggestion, I have prepared a proposal for the establishment of a pilot project. I have sent copies of the proposal to Dr. Jorge Leon, who would be glad to share or show you the proposal if you are interested.

I will keep you informed of our progress in various matters on information management, and look forward to the chance to see you again next March 12-16, in Rome, when I will be attending the FAO/IBP Technical Conference on Genetic Resource Centres.

Sincerely yours,

David J. Rogers  
Professor of Biology



FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100-ROME

Cables: FOODAGRI ROME

Telex: 61181 FOODAGRI

Telephone: 5797

Ref.

7 July 1972

Dear Dr. Rogers,

I am sorry that I have not replied to your letter of 30 May until now. We have been having a somewhat hectic time reviewing our budget to take account of the financial crisis in which the Organization now finds itself.

On the question you raise about the form that a users manual should take I would offer the following comments based on my experience here.

I do not think that the users manual need be subject orientated in the sense that a separate manual is required for soil scientists and livestock experts. The people who read a users manual can I think be expected to know something about system methods and to have the power to see how they can apply the potentialities of a system to their own applications. What I think is required is a document which enables them to assess how they will need to input their data to obtain the output (analysis/retrieval function) which the system offers. Users also need to know the equipment requirements of the system. There should also be a frank statement of system limitations (what cannot be done) and if appropriate how the authors are planning to extend and improve the system.

It is important that a user should be able to assess what costs he is likely to incur in using the system from the users manual. Of course, the manual cannot do this for him. But the first question the user must ask when he identifies a potential use for the system is "Can I afford it". This was your first question at Izmir. The user manual must enable him to assess the quantitative implications to which he must apply his own prices. The user effort

.../...

Dr. David J. Rogers  
Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA

(collection, coding, arrangement, verification and eventually updating and amendment of data) to get into the system may (on information storage and retrieval applications) far exceed in magnitude the (often also considerable) computer operation costs. Users are too often unaware or unrealistic about their needs for clerical and technical staff and the elapsed time and work effort (not always recognized as different factors) required to get into the system. This is not to say that the computer systems people cannot be unrealistic too.

On other point is that the users manual should give examples of input formats and output statements. But I would keep the examples in general terms emphasising the flexibility to substitute the requirements of different specialties or disciplines.

I feel somewhat embarrassed offering these rather obvious comments to you. I find it difficult to be more specific without going into an outline draft which is impossible without a deeper knowledge of TAKIR. I felt your Izmir paper was completely right for the short introduction it aimed to give. Your idea of having the user as a student also seems to me to be excellent. But here you hit the question of cost again.

I entirely agree that a lot of time is wasted in aimless discussion and that what is lacking is leadership. The idea of a teaching approach does interest me. I do not have the resources to develop such an approach here (I have just had to cut 10 percent off my budget: this virtually means staff posts: one cannot operate with 90 percent of the computer) but I would be glad to offer comments and ideas by letter.

I am enclosing with this letter an example of a teaching approach which is given to FAO staff in Rome and Project Managers (who work in developing countries) who need to know about network techniques. We have about 120 project networks on our computer and hope (finance permitting) to double this number by end 1973 and reach the full total of the 400 FAO field projects sometime thereafter. This Network Manual is on a teach yourself basis and the course is meant to be completed in about one and a half days. The teaching function in this case is part of the user effort which is very considerable. It helps to clarify the users mind and in fact a large part of the benefit of networking comes from the clarification of objectives when the original rough networks are constructed. The Manual has been compiled in my division but not in my Branch. Next time you come to Rome if you are interested my colleagues will be glad to show you the quite considerable effort that is going into this project.

Although I think the Network Manual is relevant to our discussion there are, of course, different problems in information storage and retrieval systems. However, you will see here that the Project Managers, etc. have widely different disciplines and problems and the course is given in general terms.

I hope that we shall meet again when you are next in Rome.

With all best wishes and to Mrs. Rogers

Yours sincerely,

*John Wrigley*

J. Wrigley  
Chief, Computer Systems  
Branch

*Some as  
critical parts  
Amazgin*

*Good  
Manual*

August 25, 1972

Mr. John Wrigley, Chief  
Computer Systems Branch  
FAO  
Rome

Dear Mr. Wrigley:

A reply to your fine letter of 7 July is long overdue. Your suggestions for the form and content of a user's manual for TAXIR are excellent, and I assure you they will be taken very seriously as we go about the preparation of the manual. I, and two of my assistants have been gathering together several different types of such manuals, and hope to begin to bring it all together this fall.

I continue to work with the world genetic resource centres for problems of information management. In Birmingham, In July, I attended a workshop on information management, called by Dr. Jack Hawkes. At that workshop, the members of the workshop were mostly representatives of European organizations, with a large contingent from the UK. I was the only representative from the US. Several resolutions on solutions to the problems of information management were approved, amongst them that TAXIR was the system of choice for genetic resource information. Another resolution stated that there should be a pilot study to demonstrate all facets of information management. At Dr. Hawkes's suggestion, I have prepared a proposal for the establishment of a pilot project. I have sent copies of the proposal to Dr. Jorge Leon, who would be glad to share or show you the proposal if you are interested.

I will keep you informed of our progress in various matters on information management, and look forward to the chance to see you again next March 12-16, in Rome when I will be attending the FAO/IBP Technical Conference on Genetic Resource Centres.

Sincerely yours,

David J. Rogers  
Professor of Biology

July 19, 1972

Dr. James Sharp, President, GURC  
1411 Fremont  
Galveston, Texas 77550

Dear Jim,

Much as I would like to keep the enclosed check I don't really think I should because I got paid up to the end of June. If by chance you can use this same money for travel, I'd rather have it available for those occasions when you feel you would have some justifiably related GURC business.

My recent trip to England was very successful in terms of spreading the word on ENVIR (but known to most people still as TAXIR). The main effort made in England was for a workshop of mostly European and English speaking scientists where we decided that ENVIR was the system of choice for information associated with world genetic resources. ENVIR got a clear vote of confidence over any other system. The genetic people are working towards the establishment of gene banks at 10 strategic locations around the world. Their efforts were given a substantial boost by several resolutions made by the Stockholm UN Conference on the Environment. The EGO had submitted the resolutions in the first place, and the "2 Gene bank people" are either members of EGO or have close ties with EGO. Hopefully a proposal to the World Bank, which is to put before them in October of this year will be accepted by the world bank, and the funds for a pilot project should be forthcoming next year. Chances are good that I will be pretty deeply involved with the whole operation.

It is my anticipation that: (1) if the world Bank gives the money, and (2) if I am indeed involved, I will push for a contract or subcontract to GURC to provide the expertise on ENVIR.

More news on this whenever it seems appropriate. In the meantime good luck and lets keep things going.

Sincerely,

David J. Rogers  
Professor of Biology

DJR/CR

Encl. check to David Rogers in amount of \$811.75



FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100-ROME

Cables: FOODAGRI ROME

Telex: 61181 FOODAGRI

Telephone: 5797

Ref.

7 July 1972

Dear Dr. Rogers,

I am sorry that I have not replied to your letter of 30 May until now. We have been having a somewhat hectic time reviewing our budget to take account of the financial crisis in which the Organization now finds itself.

On the question you raise about the form that a users manual should take I would offer the following comments based on my experience here.

I do not think that the users manual need be subject oriented in the sense that a separate manual is required for soil scientists and livestock experts. The people who read a users manual can I think be expected to know something about system methods and to have the power to see how they can apply the potentialities of a system to their own applications. What I think is required is a document which enables them to assess how they will need to input their data to obtain the output (analysis/retrieval function) which the system offers. Users also need to know the equipment requirements of the system. There should also be a frank statement of system limitations (what cannot be done) and if appropriate how the authors are planning to extend and improve the system.

It is important that a user should be able to assess what costs he is likely to incur in using the system from the users manual. Of course, the manual cannot do this for him. But the first question the user must ask when he identifies a potential use for the system is "Can I afford it". This was your first question at Izmir. The user manual must enable him to assess the quantitative implications to which he must apply his own prices. The user effort

.../...

Dr. David J. Rogers  
Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA

(collection, coding, arrangement, verification and eventually updating and amendment of data) to get into the system may (on information storage and retrieval applications) far exceed in magnitude the (often also considerable) computer operation costs. Users are too often unaware or unrealistic about their needs for clerical and technical staff and the elapsed time and work effort (not always recognized as different factors) required to get into the system. This is not to say that the computer systems people cannot be unrealistic too.

On other point is that the users manual should give examples of input formats and output statements. But I would keep the examples in general terms emphasising the flexibility to substitute the requirements of different specialties or disciplines.

I feel somewhat embarrassed offering these rather obvious comments to you. I find it difficult to be more specific without going into an outline draft which is impossible without a deeper knowledge of TAKIR. I felt your Izmir paper was completely right for the short introduction it aimed to give. Your idea of having the user as a student also seems to me to be excellent. But here you hit the question of cost again.

I entirely agree that a lot of time is wasted in aimless discussion and that what is lacking is leadership. The idea of a teaching approach does interest me. I do not have the resources to develop such an approach here (I have just had to cut 10 percent off my budget: this virtually means staff posts: one cannot operate with 90 percent of the computer) but I would be glad to offer comments and ideas by letter.

I am enclosing with this letter an example of a teaching approach which is given to FAO staff in Rome and Project Managers (who work in developing countries) who need to know about network techniques. We have about 120 project networks on our computer and hope (finance permitting) to double this number by end 1973 and reach the full total of the 400 FAO field projects sometime thereafter. This Network Manual is on a teach yourself basis and the course is meant to be completed in about one and a half days. The teaching function in this case is part of the user effort which is very considerable. It helps to clarify the users mind and in fact a large part of the benefit of networking comes from the clarification of objectives when the original rough networks are constructed. The Manual has been compiled in my division but not in my Branch. Next time you come to Rome if you are interested my colleagues will be glad to show you the quite considerable effort that is going into this project.

Although I think the Network Manual is relevant to our discussion there are, of course, different problems in information storage and retrieval systems. However, you will see here that the Project Managers, etc. have widely different disciplines and problems and the course is given in general terms.

I hope that we shall meet again when you are next in Rome.

With all best wishes and to Mrs. Rogers

Yours sincerely,

*John Wrigley*

J. Wrigley  
Chief, Computer Systems  
Branch

*me as  
social party  
Amagan  
J. Wrigley  
1/10/73*

G U  
R C

*Gulf Universities Research Consortium*

GURC Field Office • NASA/Mississippi Test Facility  
Bay St. Louis, Mississippi 39520 • (601) 688-3760

May 31, 1972

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WILLIAM R. WALTON  
Amoco Production Co.

JOHN W. WINCHESTER  
Florida State University

Dr. Robert P. Adams  
Dept. of Botany & Plant Pathology  
Colorado State University  
Fort Collins, Colorado 80521

Dear Bob:

Thank you for your letter of May 25th. In the last few weeks we have discovered that we have already available excellent mapping routines and will have shortly, as part of the system, contouring capacity as well.

We have a new policy for the system TAXIR enforced upon us as a result of the many different applications for the use of TAXIR. We have people all over the world who want to use the system and it is obviously impossible for us to supply the system free of charge. As a result, we are writing contracts agreeable to both parties through the organization of Gulf Universities Research Consortium.

What I am saying is that I am no longer free to pass out the system which has, indeed, been very much developed since the days in Colorado and it has cost money to do this. We, therefore, must try to cover not only the cost of putting the system together but also the cost of supplying it to others. This is not a money making scheme but one that we have got to enforce because of the pressing demands upon our time.

I hope this is an understandable situation to you. I feel confident that your years of experience working for CDC can give you some background of understanding. If the computing center director there would like to do so, we can suggest means by which the contract for TAXIR can be written.

Sincerely,

*Dave*

Dr. David J. Rogers  
Project Coordinator

DJR:mw

COLORADO  
STATE  
UNIVERSITY

department of botany and plant pathology

FORT COLLINS  
COLORADO  
80521

May 25, 1972

Dr. David Rogers  
Gulf University Research Consortium  
Bldg. 1100  
Room B313  
Mississippi Test Facility  
Bay St. Louis, Mississippi, 39520

Dear Dave:

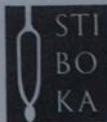
It was good to talk with you the other day and to learn of recent developments in TAXIR. Just by coincidence our computer center is looking for a generalized IR system so I mentioned the new version of TAXIR. They might be interested; I don't know. In any case, I am still interested in obtaining the new version and would agree to sending our mapping overlay program in return for ~~the~~ a FORTRAN deck of the new TAXIR. We will have a programmer this summer on a project so we could work on the conversion of TAXIR this summer. Let me know if you could send me the deck soon.

Sincerely,



Robert P. Adams





Staring Building Wageningen

P.O.B. 98 Wageningen

11, Prinses Marijkeweg

Telephon (08370) 19100

Bank: Coöp. Raiffeisenbank

# Netherlands Soil Survey Institute Wageningen

Stichting voor Bodemkartering

Werkgemeenschap Informatiesysteem Aardwetenschappen

Your letter May 30, 1972

Our reference 1929/72/JS/TS

Date 22-6-1972

Enclosure(s)

Subject TAXIR

Dr. D.J. Rogers,  
Guro Field Office,  
NASA/Mississippi Test Facility,  
Bay St. Louis, Mississippi 39520.  
USA

Dear Dr. Rogers,

Your letter from May 30, 1972 is, as you will understand, not an easy one to answer.

For any further decision on our side we need more information on the nature and content of TAXIR.

For this reason I write now to Dr. Wrigley of FAO for a copy of the software documentation of TAXIR and an assessment of this system.

As soon as we have studied this information, I hope to take up this correspondence with you.

Yours sincerely,

  
(Dr. Ir. J. Schelling).

May 30, 1972

Dr. Ir. J. Schelling  
Netherlands Soil Survey Institute  
P.O.B. 98 Wageningen  
The Netherlands

Reference: 1414/72/JS/TS

Dear Dr. Schelling:

You requested information on TAXIR on May 5, and I have been trying to decide how best to reply to your inquiry. The following is an attempt to indicate our willingness and desire to aid in your work in earth sciences.

When I was in FAO in April, I gave Mr. John Wrigley my own working copy of the software documentation of the TAXIR system. I told him that he could make photocopies of the document, which he did. There is, therefore, at least one copy of this extremely valuable document in the hands of FAO. That document, however, is not a "user's manual" but rather it is the one absolutely essential for a programmer to have to put the system into operation on a computing machine. Since I gave the document to Mr. Wrigley, I feel that he should judge, more than I, that your use of the system is all right.

I have been attempting to find a means by which my small working group could supply the demands of many different organizations who would like to use TAXIR. There are several possibilities, one of which is that the Gulf Universities Research Consortium could enter into contract with your organization to supply both the systems, and the necessary additional documents and training to make the systems useful to you. This is one method, which if you had fairly large financial resources available to you, would be the fastest way to satisfy your needs. However, we would be still left with the many other users who would need the same services.

For this reason, I am attempting to get FAO (or some other international organization) to centralize responsibilities to provide the various agencies around the world with a training program, with the software, and with necessary user's manual for the organization's needs. (We do not feel that a general user's manual is possible, since various organizations have different needs, and each organization should have a user's manual designed specifically for its needs.) We in this consortium could then help in the organization of the centralized system, provide training at specific times to several groups, and thus make it more efficient for all concerned. At the same time, the costs

All of the above statements are made not evade your question whether the system is available to you free, but to indicate that the system includes much more than just the basic computer program to be employed. If Mr. Wrigely agrees to provide you with the software package, then that is free.

You asked further if the user's manual is available, and I attempted above to indicate that a user's manual which is not specific to your needs is not particularly useful in making your decisions. I must know from what aspect you need a manual. Do you need a manual for the computer programmer, for the substantive scientist who does not know anything about computing systems, or both? I should also know what type of computing machines (make, memory size, operating system, etc.) you have available. So again, my answer must be equivocal.

But as important as the above considerations are, there is one more over-riding question, and that is, do you have a total systems concept whereby all activities, from the moment of decision to use a computing system, through those stages of training your scientists in the proper data-gathering and using the computing machines, to the final end product of use of the system? We have found by some rather expensive trial and error processes in our own organization, that unless we considered all these items beforehand, that we could not efficiently use the computer systems we had developed. I pose this question in order to help in your decision-making process.

I trust you will understand that this letter attempts to be straight forward, rather than evasive. I must attempt to get some large organization, such as FAO to help me supply the needs of the many potential users of the TAXIR system most efficiently.

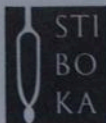
Thank you for your inquiry, and I trust that I shall be hearing from you again shortly.

Sincerely yours,

David J. Rogers  
Project Coordinator

My address after July 1 will be:

Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA



Staring Building Wageningen

P.O.B. 98 Wageningen

11, Prinses Marijkeweg

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# Netherlands Soil Survey Institute Wageningen

Stichting voor Bodemkartering

Your letter

Our reference 1414/72/JS/TS

Date 8-5-1972

Enclosure(s)

Subject TAXIR

Dr. D.J. Rogers,  
NASA Marshall Space Flight Center,  
Bay St. Louis,

MISSISSIPPI 39520.  
USA

Dear Dr. Rogers,

When you visited FAO two weeks ago you offered the free use of your system TAXIR to FAO, and I understood also to the participants of the "Ad hoc consultation on computerized soil data interpretation for development purposes".

From FAO I received your paper "The concepts and applicability of TAXIR for storage and retrieval of gene bank data". In the Netherlands we have formed a Working Community Information System for the Earth Sciences. As the chairman of the Working Group of this Community I ask you if TAXIR would also be available to us, and if so under which conditions. When the answer is affirmative, we would appreciate it very much if you could send us a full description and users manual of the system, in order to decide if it would meet our requirements.

In the hope that you will consider these questions,

yours sincerely,

(Dr. Ir. J. Schelling).

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May 30, 1972

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Amoco Production Co.

JOHN W. WINCHESTER  
Florida State University

Dr. Ir. J. Schelling  
Netherlands Soil Survey Institute  
P.O.B. 98 Wageningen  
The Netherlands

Reference: 1414/72/JS/TS

Dear Dr. Schelling:

You requested information on TAXIR on May 5, and I have been trying to decide how best to reply to your inquiry. The following is an attempt to indicate our willingness and desire to aid in your work in earth sciences.

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All of the above statements are made not evade your question whether the system is available to you free, but to indicate that the system includes much more than just the basic computer program to be employed. If Mr. Wrigely agrees to provide you with the software package, then that is free.

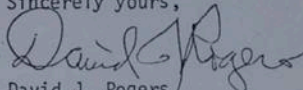
You asked further if the user's manual is available, and I attempted above to indicate that a user's manual which is not specific to your needs is not particularly useful in making your decisions. I must know from what aspect you need a manual. Do you need a manual for the computer programmer, for the substantive scientist who does not know anything about computing systems, or both? I should also know what type of computing machines (make, memory size, operating system, etc.) you have available. So again, my answer must be equivocal.

But as important as the above considerations are, there is one more over-riding question, and that is, do you have a total systems concept whereby all activities, from the moment of decision to use a computing system, through those stages of training your scientists in the proper data-gathering and using the computing machines, to the final end product of use of the system? We have found by some rather expensive trial and error processes in our own organization, that unless we considered all these items beforehand, that we could not efficiently use the computer systems we had developed. I pose this question in order to help in your decision-making process.

I trust you will understand that this letter attempts to be straight forward, rather than evasive. I must attempt to get some large organization, such as FAO to help me supply the needs of the many potential users of the TAXIR system most efficiently.

Thank you for your inquiry, and I trust that I shall be hearing from you again shortly.

Sincerely yours,



David J. Rogers  
Project Coordinator

My address after July 1 will be:

Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA

May 30, 1972

Mr. J. Wrigley, Chief,  
Computer Systems Branch  
FAO, Rome

Dear Mr. Wrigley:

My copy of the software documentation of TAXIR returned safely last week, along with your good letter. I am very much aware of the need for the development of the user's manual, and we are at work on such a document. However, a "user's manual" is difficult to define, because the word "user" is an all-encompassing one. Are users those who understand computing machines? Which computing machines? or are they the substantive scientists who want a black box without any detail of the software? We have at least two user's manuals to develop, and we are leaning toward the idea that for each general application (such as the soil scientists who were meeting in Rome when I was there) should have a manual which speaks in their terms. Otherwise, we feel that such subject-oriented types will not be willing to read a very general user's manual.

In relation to the soil scientists who met, and to whom I gave a very short, very general, description of TAXIR, I have now had three letters asking for (1) a user's manual, and (2) the software documentation. While I am pleased to have the interest of these three, I am wondering whether they would not be better served if they could appeal to a central organization, such as yours. This idea ties in, in my mind, with a suggestion which is prompted by comments in your letter.

You indicate, with much justification, that most of those associated with various FAO functions are far from ready to use such a system as TAXIR. I agree. On the other hand, there will be a continuing and increasing demand for such a system, and it seems to me that it would be wise to help these people, in an orderly manner, to get ready for use of the system. We have realized this, and that realization prompted me to include in my presentation at Izmir a sample of the types of things to be done before getting the computing systems installed. Having worked in a systems procedure for some time, we have recognized the need to teach the user's a whole new concept of information management. We have further found that it is not difficult to bring such thinking to the users, and can be done in a fairly short time, provided we have the user as a student for about two weeks time.

When I was in Izmir, I found that much time and money had been spent in a very aimless way to get the gene bank information systems in order. But I also found that, with some leadership, the Izmir committee very quickly put itself into a framework where they are now ready for a system such as TAXIR. Such an approach can be used in other functions, such as the soil scientist groups, and others as they need it.

If the idea of a teaching approach using systems management as a guide, has any appeal to you, I would like to develop the concept further. I believe that much money and time can be saved by such an approach, and further, that such a function might be meaningful through your Branch.

I look forward to further correspondence with you, and to the opportunity to see you again. I think that it is planned that I attend the IBP meetings there next March, details of which you can get from Dr. Leon.

Sincerely yours,

David J. Rogers  
Project Coordinator

P.S. I will be back at my permanent address after July 1. If you do not have that address, it is:

Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA.



FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS

Viale Terme di Caracalla, 00100-ROME

Cables: FOODAGRI ROME

Telex: 61181 FOODAGRI

Telephone: 5797

Ref.

19 May 1972

Dear Dr. Rogers,

It was a great pleasure to meet you and Mrs. Rogers when you visited Rome last month. I am sorry that your visit was not longer so that we could have shown Mrs. Rogers more of Rome. Despite Mrs. Rogers interest in the Soil Data Bank meeting, I feel we could have found something more memorable to mark her visit to the "eternal city".

I have now had your personal copy of the software documentation of TAXIR (ENVIR) photocopied and I am returning the original with this letter. We are most grateful for the chance to study this document which represents so much effort and much appreciate the spirit in which it was made available to us. I wonder whether we could take advantage of your offer to send us also the users manual which I remember you said was being drafted. In order to assess the system in full we really need this. There is, of course, no hurry as our prospective use of any system of the sophistication of TAXIR is some way off. However, we are looking at various storage and retrieval systems at present in relation to the plans of our users. Most applications have, however, a development period of some years (definition of requirements, organization of data collection, arrangement of budgetary coverage for user clerical and professional effort) before we would be in sight of using a system.

In this connection I much appreciate paragraph 3 of your paper to the meeting at Izmir, particularly the part dealing with Pre TAXIR activities. The six basic questions you ask are basic to the approach to information storage and retrieval applications. They are often avoided by the unrealistic and inexperienced with the inevitable result that real progress is difficult to achieve.

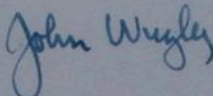
.../...

Dr. David J. Rogers  
Information Sciences Project Coordinator  
GURC Information Management Center  
National Aeronautics and Space Administration  
George C. Marshall Space Flight Center  
Mississippi Test Facility  
Bay St. Louis  
Mississippi 39520

We retain pleasant memories of your visit and are appreciative of your interest in our Organization and of the time you spent in giving us the benefit of your experience. I should be very grateful to receive any further documentation which you are able to send us on TAXIR or other applications which you feel may assist our work for developing countries.

With all best wishes to you and Mrs. Rogers

Yours sincerely,

A handwritten signature in blue ink that reads "John Wrigley". The signature is written in a cursive, flowing style.

J. Wrigley  
Chief, Computer Systems  
Branch

P.S. I am sending a copy of this letter by airmail and the original by pouch to Washington with your copy of the TAXIR software documentation.

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*Gulf Universities Research Consortium*

GURC Field Office • NASA/Mississippi Test Facility

Bay St. Louis, Mississippi 39520 • (601) 688-3760

May 30, 1972

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Florida State University

Mr. J. Wrigley, Chief,  
Computer Systems Branch  
FAO, Rome

Dear Mr. Wrigley:

My copy of the software documentation of TAXIR returned safely last week, along with your good letter. I am very much aware of the need for the development of the user's manual, and we are at work on such a document. However, a "user's manual" is difficult to define, because the word "user" is an all-encompassing one. Are users those who understand computing machines? Which computing machines? or are they the substantive scientists who want a black box without any detail of the software? We have at least two user's manuals to develop, and we are leaning toward the idea that for each general application (such as the soil scientists who were meeting in Rome when I was there) should have a manual which speaks in their terms. Otherwise, we feel that such subject-oriented types will not be willing to read a very general user's manual.

In relation to the soil scientists who met, and to whom I gave a very short, very general, description of TAXIR, I have now had three letters asking for (1) a user's manual, and (2) the software documentation. While I am pleased to have the interest of these three, I am wondering whether they would not be better served if they could appeal to a central organization, such as yours. This idea ties in, in my mind, with a suggestion which is prompted by comments in your letter.

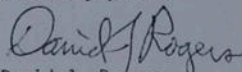
You indicate, with much justification, that most of those associated with various FAO functions are far from ready to use such a system as TAXIR. I agree. On the other hand, there will be a continuing and increasing demand for such a system, and it seems to me that it would be wise to help these people, in an orderly manner, to get ready for use of the system. We have realized this, and that realization prompted me to include in my presentation at Izmir a sample of the types of things to be done before getting the computing systems installed. Having worked in a systems procedure for some time, we have recognized the need to teach the users a whole new concept of information management. We have further found that it is not difficult to bring such thinking to the users, and can be done in a fairly short time, provided we have the user as a student for about two weeks time.

When I was in Izmir, I found that much time and money had been spent in a very aimless way to get the gene bank information systems in order. But I also found that, with some leadership, the Izmir committee very quickly put itself into a framework where they are now ready for a system such as TAXIR. Such an approach can be used in other functions, such as the soil scientist groups, and others as they need it.

If the idea of a teaching approach using systems management as a guide has any appeal to you, I would like to develop the concept further. I believe that much money and time can be saved by such an approach, and further, that such a function might be meaningful through your Branch.

I look forward to further correspondence with you, and to the opportunity to see you again. I think that it is planned that I attend the IBP meetings there next March, details of which you can get from Dr. Leon.

Sincerely yours,



David J. Rogers  
Project Coordinator

P.S. I will be back at my permanent address after July 1. If you do not have that address, it is:

Department of Biology  
University of Colorado  
Boulder, Colorado 80302  
USA.

May 22, 1972

Dr. Fred C. Stanley  
Department of Mathematics  
Washington State College  
Ellensburg, Washington 98926

Dear Dr. Stanley:

Your letter requesting information on TAXIR, addressed to my laboratory in Colorado, has just been forwarded to me here.

The TAXIR system, per se, is no longer available through the Taximetrics Laboratory since there are no funds to maintain it there. Fortunately, the system was taken up by the organization mentioned on this letterhead, and under the auspices of GURC has been modified, improved, expanded, and in general, made more applicable to the many functions of information retrieval. Under GURC auspices, the system now is employed in interdisciplinary environmental problems, and has been renamed to reflect this interest--ENVIR--environmental information retrieval.

Since the system has been greatly expanded, we have found it necessary to completely revise our descriptions of the system and to prepare a new user's manual. We are now in process of the description, and cannot, therefore, provide anything at the moment.

I trust that we may have the opportunity to provide information as you requested in the not too distant future, and I am keeping your name and address in our file to receive the appropriate documents when they become available. I am sorry that we do not have them ready at this moment. Thank you for your inquiry.

Sincerely yours,

David J. Rogers  
Project Coordinator for  
Information Management

CENTRAL WASHINGTON STATE COLLEGE

DEPARTMENT OF MATHEMATICS

ELLENSBURG, WASHINGTON  
98926

May 3, 1972

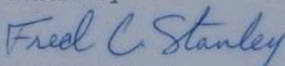
Taximetrics Laboratory  
Department of Biology  
Armory 101  
University of Colorado  
Boulder, Colorado 80302

Dear Sirs:

I would appreciate receiving information on the availability and relevant documentation concerning the implementation and usage of the information retrieval system, TAXIR.

Thank you.

Sincerely



Fred C. Stanley  
Manager of Computer Center

FCS:lp

June 29, 1972  
Ref.: KIA 0C5

Mr. P. Slinn  
Data Processing Division  
Canada Dept. of Agriculture  
Ottawa, Ontario

Dear Mr. Slinn:

In answer to your questions in the June 13 letter, I have the following comments:

Question 1. ENVIR (the updated TAXIRO) runs on the UNIVAC 1108, with their executive system. This is the only version that is documented. Other, preliminary, systems are running on CDC 6400.

Question 2: No physical limitation of file size or descriptor count.

Questions 3: We convert existing records of any type foreign to ENVIR to proper format by writing conversion routines, rather than by making such an integral part of ENVIR.

Question 4. There are no exceptional requirements for data input to the system.

Question 5. The system is open-ended, through a command called Generate.

Question 6. Since I shall be leaving this post to return to my regular permanent position as professor of biology, University of Colorado, Boulder, Colorado, I refer you to my successor, Mr. Ian Miller (same address as on this letterhead). We advise a step-wise approach to acquiring the system, first paying a visit with our programming staff here to learn details of the system, and then a decision whether you want to proceed further. If this is agreeable to you, please advise when you can expect to be here, so that proper scheduling can be assured.

I trust that the above comments are proper response to your questions. If not, through Mr. Miller, I am certain that further details can be provided.

Sincerely yours,

David J. Dore



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FINANCIAL AND ADMINISTRATION BRANCH / DIRECTION DES AFFAIRES FINANCIÈRES ET ADMINISTRATIVES

Mr. David Rodgers,  
GURC,  
NASA/MTF,  
Bay St. Louis, Mississippi,  
39520,  
U. S. A.

YOUR FILE NO.  
VOTRE RÉF. N°

OUR FILE NO.  
NOTRE RÉF. N°

Ottawa, Ontario  
K1A 0C5  
June 13, 1972

Dear Sir:

Approximately one month ago I requested and received from you documentation on the system TAXIR. The ease of inquiry to a data base makes TAXIR quite appealing to us and we would like further information about it.

In general, our questions concern the suitability of TAXIR to our machine environment and the practicability of inputting our data structure to TAXIR. I would appreciate an answer to the following questions:

1. What model of computer and type of system is TAXIR available for? (We have access to an IBM 360/65, an IBM 360/85 and a Univac 1108)
2. Since descriptor information is contained in bit tables, is there any physical limitation of file size or descriptor count?
3. Will TAXIR read and maintain hierarchial record structures and records with segments of varying size and number?
4. Are there any exceptional requirements for data input to system?
5. Is the system open-ended, that is, can output be generated to be used as input to systems such as SPSS (Statistical Package for the Social Sciences)?
6. What process is required and what is the cost to acquire TAXIR.

Thank you for your assistance.

Yours truly,

P. Slinn,  
Programmer/Analyst,  
Data Processing Division.

PS/sf



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Mr. David Rodgers,  
GURC,  
NASA/MTF,  
Bay St. Louis, Mississippi,  
39520,  
U. S. A.

YOUR FILE NO.  
VOTRE RÉF. N°

OUR FILE NO.  
NOTRE RÉF. N°

Ottawa, Ontario  
K1A 0C5  
May 10, 1972

Dear Sir:

I am confirming our telephone conversation of May 5, 1972.

Acting on behalf of Dr. Julian Dumanski of the Soil Research Institute, Canada Department of Agriculture, I am evaluating information retrieval systems and processes to be used for the creation and maintenance of a national soil data bank. At the recent FAO meeting in Rome, you distributed a paper which briefly described the TAXIR system. This system appears to be designed for scientific information rather than business information, and thus could be more suited to our needs than a commercial system. The TAXIR information you are sending will hopefully support this view.

Further to our telephone conversation, the Canada Department of Agriculture has a number of research programs in progress which could find a taxonomic information retrieval system useful. Such programs include Plant Research, Insecticide and Pesticide research, and National Collections of Entomology Species. The possible use of TAXIR in these additional areas would increase the likelihood of requesting TAXIR.

We understand your position, that a large and complex system like TAXIR requires a serious effort by a user to make full use of its facilities. My supervisor has informally indicated the Department would be prepared to meet your distribution requirements, including the training of personnel at your installation, if TAXIR will be a benefit to our installation.

I will communicate with you further after I have completed my evaluation.

Yours truly,

P. A. Slinn,  
Programmer/Analyst,  
Data Processing Division.

PAS/sf

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May 15, 1972

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Mr. P. A. Slinn  
Data Processing Division  
Department of Agriculture  
Sir John Carling Building  
Ottawa, Ontario  
Canada

Dear Mr. Slinn:

In response to your recent telephone call, inquiring about the system TAXIR, I have finally had time to consider the appropriate reply. First, it is difficult to give you a "technical" description of the programs in any detail, and we do not wish, at this time to mail you the documentation of the programs. It is too early in our discussions for that, and we need to know much more about your applications of the system, your needs, and how we may work together.

Briefly, TAXIR is an information retrieval compiler. Using the command functions which were briefly described in the paper, a copy of which you have, the user can develop all the necessary activities for information retrieval. These include building data banks, building a vocabulary from the terms used as descriptors of the items, correction facilities, updating and deletion, querying the data bank using the Boolean operators AND, OR, NOT, combining responses to queries in any number of logical methods. TAXIR is written in FORTRAN IV, and the basic program occupies about 15 K 32 bit word memory, but with a "normal" size of data bank, can occupy much more. It is capable of use of extended core, of either tape or random access peripheral memory, and thus is unlimited in size of memory. TAXIR employs what we believe to be a unique method of data storage and method of retrieval, and I enclose a copy of a paper by Estabrook and Brill, (the mathematician and programmer who worked under my direction in the development of TAXIR) entitled "The Theory of the TAXIR Accessioner", which should help explain the features of two important functions.

TAXIR is now running on several computing machines, including CDC 64 and 6600, IBM 360/67, UNIVAC 1108, but some of the versions are in a more primitive stage than the others. The most advanced is the one we are using in our own work for NASA, on the UNIVAC 1108. I should add one more feature about the print and command function of TAXIR. We use the system to output data formatted for a number of packages of statistical routines through a command called "generate". We also have plotting and contouring packages under the direction of TAXIR, but these are maintained outside the main system in order to keep TAXIR itself from demanding too much core.

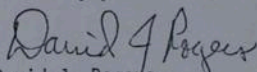
May 15, 1972  
Page 2

There are many more details which are part of the "technical" aspects of TAXIR, but without some idea of the questions which you have, I do not feel that I can be helpful. Please feel free to ask whatever more you want to know.

I should point out that while the system was built in the US with public funds, and is therefore, in the public domain, one should not expect that there will be absolutely no cost in getting the system operative in other installations. One would require that a programmer spend some time with us getting technical competence in the system, and that we should develop a user-oriented manual particularly for the needs in your shop. We have done this for several institutions, including NASA, and one part of the US Dept. of Agriculture.

I promised to send a copy of a report which we submitted to NASA demonstrating the system. This report has no technical details of the programs, but explains the methods of application of the system. If you understand this, then reading the report may be enlightening.

Sincerely yours,



David J. Rogers  
Project Coordinator

Enc.

DJR:mm

# WASHINGTON STATE UNIVERSITY

PULLMAN, WASHINGTON 99163

DEPARTMENT OF AGRONOMY AND SOILS

June 22, 1972

Dr. David J. Rogers  
Project Coordinator  
Gulf Universities Research Consortium  
GURC Field Office  
Bay St. Louis, MS 39520

Dear Dave:

It was good to visit with you over the phone about the forthcoming Rome meeting, and I will certainly be pleased to present our concepts and results of studies toward the genetic resources information network at that meeting.

I am sorry our phone call was interrupted somewhere and I was unable to call you back relative to your version of TAXIR, now ENVIR. However, we have your letter relative to installing it at Washington State University, and I have already discussed the various matters with administrators and potential users here.

Relative to your points:

1. Payment for transportation and related costs for Henry Fleming and Elwin Graham.

We would agree to look for the required funds once we have a better understanding of your ENVIR system. We will need a print-out and copy of your flow-charts as I indicated. We would not be interested in trying to convert it ourselves, we simply do not have the personnel, though we probably could have a programmer available to work with your people when they came.

2. Agreeing to give the programs only upon your approval.

As TAXIR and, as I understand, also ENVIR were developed via public support (NSF and NASA, respectively), they are public domain. Therefore, in no way can we refuse to meet a request for whatever computer programs of the type we may have. This is against University and U. S. Government policy. You propose an illegal and risky position for us. We cannot comply.

3. A copy of Brill's version of TAXIR for you.

Since TAXIR is public domain, you are most welcome to a copy, though we would recommend you get it directly from Bob. Send him a tape and I am sure Bob will fill your request. I am sure Bob will share his new IBM version with you and I hope you will do the same for him. The more variations of TAXIR there are, the more applications there can be.

4. A hold on the Computer Center librarian.

Dr. Walden was quite shocked to read this one. As a courtesy to you the librarian was instructed to let you know when copies of the programs were sent out so that your people would have the opportunity for consulting wherever there may be need. We would prefer that your group and Brill do the necessary assisting in installations whenever possible, though as you know when Dr. Bogyo spent last summer in Bari he took a copy of the old TAXIR with him to install while he was there. The objective was to help the Italians demonstrate an IR system for advancing the whole genetic resources program, and I have done what I could also to help both them and others to obtain TAXIR.


Again, and we have confirmation from Bob Brill, TAXIR is free as it is public domain. This aspect was discussed earlier. If you prefer, we will instruct the librarian not to inform you when we have a request for the TAXIR operating here.

I am not sure where this places the problem, but the ball is now yours. I do not quite understand what your aims are relative to your future plans for TAXIR, but believe that you have far more to gain than to lose by making TAXIR and ENVIR freely available and helping everyone possible to become users. No matter if some sharp programmer gets to know the insides of it. The more it gets around the more it will be used, and the more need there will be for additional consulting and guidance. For you, the more it is in use the more recognition you will gain (and consulting for you and your colleagues).

I still see your own role not tied solely to TAXIR or ENVIR per se. You are experienced and most competent in taxonomy and in the application of IR to the field. You also have capability in management. Both of these skills are needed in the IBP effort. I only hope you will cooperate in doing all you can to help the program go. Many others of us have invested much free time and our own resources to help. We believe it is for a worthwhile goal. We still hope very much your group and Bob Brill will cooperate closely again and share in getting TAXIR into wide use. Hopefully, also Bob can join the meeting in Birmingham, although it is already a bit late to get any funds moving if they are not available already. Let me know what further I can do from here.

With warmest best wishes also to Connie,

Sincerely yours,

  
C. F. Konzak  
Professor

CFK:d1

cc: J. C. Engibous  
W. E. Walden  
T. P. Bogyo  
S. M. Dietz  
W. S. Tate

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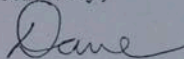
Dear Kal:

We will agree to put the new system, ENVIR, to work on the WSU computing machines, provided you can help us out as follows:

1. Pay for transportation, and related costs, for Henry Fleming and Mr. Elwin Graham (the systems programmer).
2. Agree to give the programs only to those we agree to give it to. In other words, you will not give out a listing unless you check it with us in advance.
3. Provide us with a full listing of the TAXIR system you recently got from Brill.
4. Tell the Computing Center director to put a hold on his librarian, a lady by the name of Kathleen Edwards, who has been telling other people that the system is available for free, and also is putting all kinds of requests to us which I do not intend to meet.

The reason you need to find the scratch to bring Fleming and Graham there is that the new system is running on a UNIVAC 1108, and there is need of conversion to IBM equipment. This should not be a long term operation, but some time is needed, and your systems people will need competent advice on it.

Sincerely,



Dr. David J. Rogers  
Project Coordinator

DJR:mw

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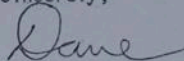
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Sincerely,



Dr. David J. Rogers  
Project Coordinator

DJR:mw

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Tulane University

GEORGE P. MITCHELL  
George P. Mitchell & Associates

SETH I. MORRIS  
Wilson, Morris, Crain & Anderson

PHILIP OETKING  
Southwest Research Institute

JOSEPH SAM  
University of Mississippi

E. LEIGH SECRET  
Texas Christian University

CHARLES P. TURCO  
Lamar University

WILLIAM R. WALTON  
Amoco Production Co.

JOHN W. WINCHESTER  
Florida State University

Dr. Kal Konzak  
Agronomy Dept.  
Washington State University  
Pullman, Washington 99163

Dear Kal:

We will agree to put the new system, ENVIR, to work on the WSU computing machines, provided you can help us out as follows:

1. Pay for transportation, and related costs, for Henry Fleming and Mr. Elwin Graham (the systems programmer).
2. Agree to give the programs only to those we agree to give it to. In other words, you will not give out a listing unless you check it with us in advance.
3. Provide us with a full listing of the TAXIR system you recently got from Brill.
4. Tell the Computing Center director to put a hold on his librarian, a lady by the name of Kathleen Edwards, who has been telling other people that the system is available for free, and also is putting all kinds of requests to us which I do not intend to meet.

The reason you need to find the scratch to bring Fleming and Graham there is that the new system is running on a UNIVAC 1108, and there is need of conversion to IBM equipment. This should not be a long term operation, but some time is needed, and your systems people will need competent advice on it.

Sincerely,

Dr. David J. Rogers  
Project Coordinator

DJR:mww

WASHINGTON STATE UNIVERSITY  
PULLMAN, WASHINGTON 99163

DEPARTMENT OF AGRONOMY AND SOILS

June 22, 1972

Dr. David J. Rogers  
Project Coordinator  
Gulf Universities Research Consortium  
GURC Field Office  
Bay St. Louis, MS 39520

Dear Dave:

It was good to visit with you over the phone about the forthcoming Rome meeting, and I will certainly be pleased to present our concepts and results of studies toward the genetic resources information network at that meeting.

I am sorry our phone call was interrupted somewhere and I was unable to call you back relative to your version of TAXIR, now ENVIR. However, we have your letter relative to installing it at Washington State University, and I have already discussed the various matters with administrators and potential users here.

Relative to your points:

1. Payment for transportation and related costs for Henry Fleming and Elwin Graham.

We would agree to look for the required funds once we have a better understanding of your ENVIR system. We will need a print-out and copy of your flow-charts as I indicated. We would not be interested in trying to convert it ourselves, we simply do not have the personnel, though we probably could have a programmer available to work with your people when they came.

2. Agreeing to give the programs only upon your approval.

As TAXIR and, as I understand, also ENVIR were developed via public support (NSF and NASA, respectively), they are public domain. Therefore, in no way can we refuse to meet a request for whatever computer programs of the type we may have. This is against University and U. S. Government policy. You propose an illegal and risky position for us. We cannot comply.

3. A copy of Brill's version of TAXIR for you.

Since TAXIR is public domain, you are most welcome to a copy, though we would recommend you get it directly from Bob. Send him a tape and I am sure Bob will fill your request. I am sure Bob will share his new IBM version with you and I hope you will do the same for him. The more variations of TAXIR there are, the more applications there can be.

4. A hold on the Computer Center librarian.

Dr. Walden was quite shocked to read this one. As a courtesy to you the librarian was instructed to let you know when copies of the programs were sent out so that your people would have the opportunity for consulting wherever there may be need. We would prefer that your group and Brill do the necessary assisting in installations whenever possible, though as you know when Dr. Bogyo spent last summer in Bari he took a copy of the old TAXIR with him to install while he was there. The objective was to help the Italians demonstrate an IR system for advancing the whole genetic resources program, and I have done what I could also to help both them and others to obtain TAXIR.

Again, and we have confirmation from Bob Brill, TAXIR is free as it is public domain. This aspect was discussed earlier. If you prefer, we will instruct the librarian not to inform you when we have a request for the TAXIR operating here.

I am not sure where this places the problem, but the ball is now yours. I do not quite understand what your aims are relative to your future plans for TAXIR, but believe that you have far more to gain than to lose by making TAXIR and ENVIR freely available and helping everyone possible to become users. No matter if some sharp programmer gets to know the insides of it. The more it gets around the more it will be used, and the more need there will be for additional consulting and guidance. For you, the more it is in use the more recognition you will gain (and consulting for you and your colleagues).

I still see your own role not tied solely to TAXIR or ENVIR per se. You are experienced and most competent in taxonomy and in the application of IR to the field. You also have capability in management. Both of these skills are needed in the IBP effort. I only hope you will cooperate in doing all you can to help the program go. Many others of us have invested much free time and our own resources to help. We believe it is for a worthwhile goal. We still hope very much your group and Bob Brill will cooperate closely again and share in getting TAXIR into wide use. Hopefully, also Bob can join the meeting in Birmingham, although it is already a bit late to get any funds moving if they are not available already. Let me know what further I can do from here.

With warmest best wishes also to Connie,

Sincerely yours,



C. F. Konzak  
Professor

CFK:d1

cc: J. C. Engibus  
W. E. Walden  
T. P. Bogyo  
S. M. Dietz  
W. S. Tate

G U  
R C

Gulf Universities Research Consortium

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June 12, 1972

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Sincerely,

Dr. David J. Rogers  
Project Coordinator

DJR:tmw

CSIRO

THE CUNNINGHAM LABORATORY

MILL ROAD, ST. LUCIA, QLD. 4067. TELEPHONE 70 7121. TELEGRAMS CORESEARCH BRISBANE

AWM:MGR

15th May, 1972.

Dr. D. J. Rogers,  
N.A.S.A.,  
Marshall Space Flight Centre,  
Bay St. Louis,  
MISSISSIPPI 39520  
U.S.A.

Dear Dr. Rogers,

Following our meeting in Rome I would very much appreciate receiving a copy of your TAXIR manual. If there is a charge associated with it please let me know and I will arrange for our library to place an order <sup>for</sup> it.

Yours sincerely,

*Alan W. Moore*  
ALAN W. MOORE

C.N.R.S./C.E.P.E.,  
B.P. 5051,  
MONTPELLIER, 34,  
France.

17th March, 1972.

Dr D.J. Rogers,  
Gulf University Res. Consortium,  
Mississippi Test Facility,  
Bay St., Louis,  
Miss. 39520, U.S.A.

Dear Dr Rogers,

Thank you very much for your letter of the 18th February.

My main reason for wanting to visit you and the University of Colorado is to study at first hand your TAXIR system of information handling in botany and to discuss it and other systems with you. As I mentioned in my previous letter, Mr Wells who saw you last year, is also keen that I pay you a visit. The Botanical Research Institute for which we both work are thinking of developing a system for the National Herbarium.

Since I last wrote, I have seen Frank Bisby at Southampton. He told me you had written him to say TAXIR was working very well at present and he urged me to have a look at it if I got the chance.

My plans are a bit more definite now. I hope to be in Colorado for about three weeks from the 14th August onwards and would like to spend about a week with you. In the week I would like to cover the literature on TAXIR, see the system in action and discuss various aspects of it with you. I hope this will be possible; I suppose it all hinges on whether you return to Colorado or not.

Kind regards,  
Yours sincerely,

*Jeff W. Morris*

J.W. Morris

Dee F. Green  
Box 447, Blanding, Utah. Jan. 31, 1973

Dear Dee:

In answer to yours of the 27th, the clustering program works on single-linkage basis. We found that average linkage would not reflect proper relationships between objects whose "natural" relationship is linear, or as the biologists put it, a clinal relationship. Average-linkage techniques have a tendency to draw in unrelated elements to a clinal relationship. Thus, average linkage would not give discrete clusters. Our rule was that we wanted non-overlapping clusters, as in classifications of plants or animals.

Thank you for your complimentary comments. It is indeed pleasing to know that our program has merit in your work.

Sincerely,

David J. Rogers  
Professor of Biology