



Hunt Institute for Botanical Documentation  
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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.

11 March 1969

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

Dear Bob:

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

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

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

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

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

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

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

I shall be interested in your reactions, and activities.

Best regards,

David J. Rogers  
Professor of Biology

DJR:gm

Seedling	Seed parent	Vigor	Habit	Year germinated	Year set in field	Year first cropped											
11-64	1007	9	Intermed.	1960	1961	1966	Season	Color	Anthrac-nose res.	Fiber	Flavor	Size	Firm-ness	Shape	Wt g	Seed wt g	Rtg
64	--																
65	--																
66	4	9	9	9	6	7	10	4	266.0	28.2	✓						
67	4	9	9	8	4	7	10	4	253.75	27.06	✓						
68	5	10	8	7	5	6	8	4	216.5								
69																	

Mon@ or Polyemb

P R O D U C T I O N

64 65 66 67 68 69

- - 4 7 8

Remarks: Soft at seed: outstanding but for this and for size + flavor.

x Robert J. Knight, Jr.  
U.S. Plant Introd. Sta.  
13601 Old Cutler Rd  
Miami 33158

x Research Horticulturist

MANGO DATA: M. P.I.  
 TREE Large Intermed. Dwarf  
 CANOPY Dense Intermed. Open  
 HABIT Upright Intermed. Spreading

LEAF  
 Color young flush  
 Gr Gr-yl Br R-Br R Pur  
 Color mature leaf  
 Lt Gr Gr Dk Gr  
 Insertion--Upright  
 Uprt. to Horiz.  
 Horizontal  
 Medium Drooping  
 Drooping  
 Size--Mean length  
 Mean breadth  
 Margin--Flat  
 Slightly wavy  
 Quite wavy  
 Twisted  
 Folded

INFLORESCENCE & FLOWER  
 Time of flowering--Early  
 Early Midseason  
 Midseason  
 Medium Late  
 Late  
 Inflorescence--Slender  
 Intermediate  
 Broad  
 Branching--Little  
 Intermediate  
 Much  
 Peduncle--Thin  
 Intermediate  
 Thick  
 Peduncle Color  
 Gr Gr-yl Br R-Br R Pur

Position: Name:  
 FRUIT  
 Size--Length  
 Breadth  
 Thickness  
 Mean weight  
 Shape R Ov-R Ovate Ov-obl Ob-cyl  
 1 2 3 4 5  
 Laterally compressed: yes no  
 Cavity: None Shallow Deep  
 Suture: None Light Prominent  
 Shoulders: Equal Vent. hi Drs.hi  
 Convex side: Rounded Flattened  
 Sinus: Present Absent  
 Apex: Flattened Rounded Pointed  
 Height of Nak:  
 Skin: Thin Intermed. Thick  
 Basic color:  
 Gr Gr-yl Yl Or Or-R R Pur  
 Overlay: Yl Or R Pur  
 Lenticels--Size: Sm Int Large  
 Color  
 Corky? Yes No  
 Overall External Appearance:

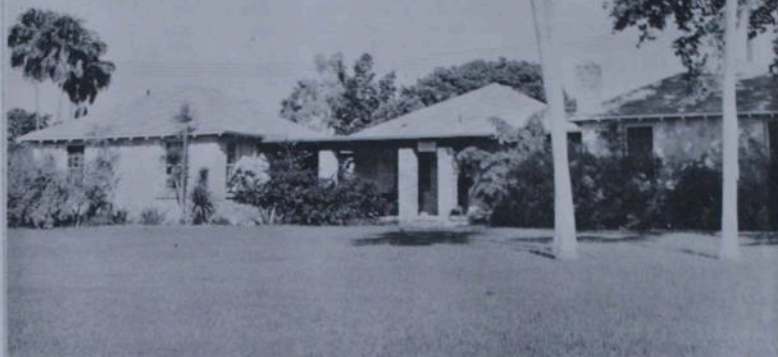
FLESH  
 Color  
 Adherent to skin? Yes No  
 Adherent to seed? Yes No  
 Fiber  
 Near skin  
 Near seed  
 Objectionable? Yes No Rat.:  
 Taste--Rating: TSS Acid  
 TSS/A  
 SEED  
 Size Wt Mono or Poly  
 SEASON: Ear 2d Ear Mid M-L Late  
 YIELD:  
 DISEASE  
 Anthracnose--on Plant  
 Young fruit  
 Mature fruit  
 Diplodia  
 PPowdery Mildew  
 OVERALL RATING:

Bob  
Knight  
Collect  
Herb. Specs.

Dr Carl Campbell  
U. of Fla.  
Subtropical Experiment  
Station  
Homestead, Fla.

UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

AGRICULTURAL  
RESEARCH  
SERVICE



*U.S.* PLANT INTRODUCTION  
STATION

13601 OLD CUTLER ROAD  
MIAMI, FLORIDA *33158*

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

TELEPHONE 51585-7 (STD OCA 3)

SEDGWICK MUSEUM  
DOWNING STREET  
CAMBRIDGE

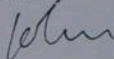
4TH September 1969

Professor David J. Rogers,  
Taximetrics Laboratory,  
Armory 101,  
University of Colorado,  
BOULDER,  
COLORADO 80302, U.S.A.

Dear Dave,

★ Thanks for your letter. I have written  
(see attached) as requested. We progress, but  
as I have been away for two months and am still  
getting straight again I don't really know by  
how much.

Best wishes,



J.L. Cutbill

*in Tax. Int File*

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

TELEPHONE 51585-7

SEDGWICK MUSEUM  
CAMBRIDGE

14th July 1969

Professor David J. Rogers,  
Taximetrics Laboratory,  
Armory 101,  
University of Colorado,  
BOULDER, COLORADO 80302,  
U.S.A.

Dear Professor Rogers,

I have your letter of the 8th July to  
Dr. Cutbill.

John is at present in Spitsbergen and  
is not likely to be back in Cambridge until the  
beginning of September so it could well be the  
middle of September before he can give you a  
reply to your letter.

Yours sincerely,

*Benj Falke*

25 November 1968

Dr. J. L. Cutbill  
Sedgwick Museum  
Downing Street

25 November 1968

Dear John:

Due to the close proximity of the meetings of the International Botanical Congress in Seattle, Washington, we will have to regretfully decline your invitation to join the Information Retrieval Symposium. We are expecting to put on quite a show for the botanists in Seattle, and having done so we will have shot down most of our travel funds.

As of this moment I am scheduled for a symposium meeting in Marseilles next April 5 - 12, after which I will go to Amsterdam for several days and would like to jump over to see you for one or two days on or about the 17th, 18th or 19th of April. Perhaps we could put on an informal session then. I am hoping that we will be able to have travel funds sufficient to bring George along for that group of meetings. Let me know if you will be at home about that time, and whether it interests you to gather a small number of people together informally. We could give a seminar or two to explain TAXIR then.

I look forward to hearing from you.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

NOV 18 1968

TELEPHONE 51585-7 (STD OCA 3)

SEDGWICK MUSEUM  
DOWNING STREET  
CAMBRIDGE

12th November 1968

Professor David J. Rogers,  
Department of Biology,  
University of Colorado,  
Boulder,  
Colorado 80302, U.S.A.

Dear Dave,

I can now formally invite you and  
your team to contribute to our Symposium  
next September. I enclose some details on  
its scope.

I hope you can make it.

Yours sincerely,



J.L. Cutbill

Symposium of the Systematics Association to be held in Cambridge on the 24 - 26th September, 1969, on the subject of

'Advances in Data Processing in Biology and Geology'

Notes for Contributors

1. Themes

A. Source Data Automation

Graphical data capture - digitisers, optical scanners. Automation of recording of chemical data. Use of Lasers. Scanning electron microscopes. Capture of textural data - paper-tape typewriters, punch card systems, mark sensing, optical character reading. Planning of large scale data capture operations. Biological census work.

B. Data Systems for Research

Computer systems, use of program packages, compatibility and availability of programs. Computer simulation techniques. Meta languages for geology. Computer graphics. Automatic key construction and identification.

C. Data Banking and Communication

Accounts of systems now working or under development. Problems in communication of data by machine (both technical and scientific). Role of Standards Organisations. Implications of large scale data banking facilities for areas such as taxonomic procedures, museum activity and so on.

Other topics within these general areas will be suitable but we have decided to avoid both the details of numerical taxonomy and the problems involved in bibliographic abstracting services and publication in general.

2. Titles and Abstracts

A title and very brief abstract should be sent to J.L.C. by 1st January, 1969, at the latest so that a detailed program and advanced publicity may be prepared.

3. Publication

The papers read at the meeting will be published. Manuscripts should be sent to J.L.C. by 1 August 1969 at the latest. There will be opportunity to make small alterations in the light of discussion at the meeting. The symposium volume will be edited by Dr. J.L.Cutbill and Dr. F.H.Perring. The editors are prepared to consider for publication papers not actually presented at the meeting, provided that they fall within the themes outlined above.

4. Speakers' Expenses

It is regretted that the Systematics Association is unable to contribute towards speakers' expenses.

5. Demonstrations

Facilities for demonstrations will be available and part of the working time of the meeting will be devoted to them. Details of bench requirements and other facilities should be sent to J.L.C.

6. Accommodation

Accommodation will be in Fitzwilliam College, Cambridge, for the nights of the 23, 24, 25th September, 1969.

7. Correspondence

All correspondence should be sent to the Symposium Secretary. His address is:

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

J.L.C.  
11th November, 1968.

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

AUG 5 1968

TELEPHONE 51585-7 (STD OCA 3)

SEDGWICK MUSEUM  
DOWNING STREET  
CAMBRIDGE

11th July 1968

Professor David J. Rogers,  
Department of Biology,  
University of Colorado,  
Boulder, Colorado 80302, U.S.A.

Dear Dave et al.,

Here is the Fortran IBM document I promised.

I hope all goes well. We make slow progress due to difficulties with systems software, but I think we are gradually getting on top of it.

I hear that Jardine's team think they have solved their coding/resemblance measure problem and have come up with a coefficient which is information theory consistent and permits mixing of all kinds of characters. I heard about this over a beer so don't know the details. They are writing it up at the moment.

I also heard Stonybrook tried, unsuccessfully, to buy them for a year.

Yours sincerely,

J.L. CUTBILL

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

JUL 29 1968

TELEPHONE 51585-7

SEDGWICK MUSEUM  
CAMBRIDGE

23rd July 1968

Professor David J. Rogers,  
Department of Biology,  
University of Colorado,  
Boulder, Colorado 80302, U.S.A.

Dear Dave,

The Systematics Association is considering holding a meeting in Cambridge in September 1969 on new techniques in data handling in biology and geology. The intention is to publish the proceedings.

Gordon Sheals, Frank Perring and I are organising the program and we would greatly appreciate a paper from you or one of your team on IR systems for research. Needless to say, we probably won't have any money to pay speakers' expenses.

If you are willing to help, would you let me know fairly soon so that we can get up a provisional program. Formal invitations to speak will go out in October, after the Association's Council gives us the final go-ahead.

I am sending George a paper by Gawlik which describes a retrieval system in which all the information on a specimen, however complex, is condensed into 32 binary bits. Beat that if you can!

Best wishes,

J.L. CUTBILL

30 July 1968

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

Dear John:

I think I'll be tied up in September 1969, but I certainly do wish to have our group involved in your program, so at the moment let's say that if anybody can be there, it will probably be George. I suppose you don't really need a title yet, or if worst comes to worst you know enough about our activities to put in a title for us.

Doesn't anybody have any money to help out the likes of us? We will try to pry out some here, but God knows, the situation looks bleak at the moment. George has your letter to him, and the paper. No comment on it yet but I expect that in our typical fashion we'll beat Gawlik somehow or other.

Regards,

David J. Rogers

DJR:gm

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

MAR 26 1968

TELEPHONE 51585-7

SEDGWICK MUSEUM  
CAMBRIDGE

18 March 1968

Dear Dave

My plans are now fixed.  
I will be arriving in Denver on the  
evening of 8<sup>th</sup> April. (The flight  
is not confirmed yet) and will  
have to leave on the 11<sup>th</sup> as I have  
to get down to Texas to meet  
some geologists that evening.

How goes your system.  
I am looking forward to seeing  
you assembling it.  
Regards to your team.

Best wishes

John Cuthall

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

JAN 31 1968

TELEPHONE 51585-7

SEDGWICK MUSEUM  
CAMBRIDGE

20 January, 1968

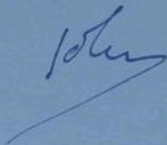
Professor David J. Rogers,  
Taximetrics Laboratory,  
Department of Biology,  
Armory 101A,  
University of Colorado,  
Boulder, Colorado 80302, U.S.A.

Dear Dave,

IFIP are a rather vague international body who do not seem to achieve very much. However, they are said to run quite good meetings. The only person I know who could tell you more is Professor Buckingham, Institute of Computer Sciences, Gordon Square, London, W.1.

It was good to see you again. I am just planning details for my April visit and will write again as soon as the dates are fixed.

Yours sincerely,



J.L. Cutbill

DEC 5 1967

DEPARTMENT OF GEOLOGY  
UNIVERSITY OF CAMBRIDGE

TELEPHONE 51585-7

SEDGWICK MUSEUM  
CAMBRIDGE

1 Dec 67

Dear Dave,

I apologise for not answering your letter but it seems to have let correspondence slide all summer getting our project underway. We finally got enough money to get going but with various strings that limit us a bit. We have to produce quickly a flexible system for data capture and the maintenance of catalogues and indexes, and for relatively simple retrieval from these. This means we are largely at a stage earlier than many of the ideas we discussed last January. This makes sense in terms of the shortage of computer know how over here and the real difficulties in which most of our museums are submerged. I hope we can pick up and interface with your more research oriented schemes at a later stage.

I will be in Mexico and will see you there and tell you in detail what we are up to.  
Best wishes

John Corbett

Taximetrics Laboratory  
Department of Biology  
Armory 101A  
University of Colorado  
Boulder, Colorado 80302  
9 January 1967=

Dr. John Cutbill  
Department of Geology  
Sedgwick Museum  
Downing Street  
Cambridge, England

Dear John,

It was a pleasure to see you at the Mexico meeting. Let me reinforce our invitation for you to come to see us in April. I have just put "the whip" to the boys telling them that they must have a completed information retrieval system for your examination at that time.

Have you heard of a meeting in Edinburgh next August of some organization whose initials are "IFIP" (International Federation for Information Processing)??? Should we attend, if you know about it? Tell me anything you know about this group. It's news to me.

Sincerely,

David J. Rogers  
Professor of Biology

DJR:gm