Hunt Institute for Botanical Documentation
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Carnegie Mellon University
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Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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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.

NSF

Mon, 9- NSF - systematics panel - Johnson okd full 5 yr. Some documentation to answer "why put all of bryophytes, etc., into banks. emphasize that each curator has a separate bank, thus reducing the enormity of the whole task.

Don Stone (name?) Juglandaceae - asst prog. dir., send taximetrics reprints.

~~Evening seminar at Smithsonian Tues. NS~~

Afternoon w/ Olson and Galloway - justification for F.N.A.

Tues AM - OSIS - Ernie Sohns - says start with our grant, showing organization + operating breakdown - probably will have to share our request w/ operating arms (or at least with several other internal parts of OSIS) of N.S.F. Ed. Weiss explained that the problem of fragmentation of biology didn't worry OSIS, but wants to have some responsible organization to administer grants. that is, if we can't get UC to give us more backing, perhaps get $ backing from, say, AIBS, - yuk! Purpose of this is to make us more responsive to "the community". I think we can demonstrate our responsiveness already - and probably don't need much more than to emphasize our present interests and operations.

Ed Weiss wants a small conference of I/R systems e.g. U. Col., Ga., U. Oklahoma, etc. - keep Gil Daniel informed.

See new NSF directory.

Tues Aft. - Spent with ——— ——— (from Woods Hole) Prog. Dir. for environmental biology. Almost met his assistant ———, both of whom concerned with funding IBP projects. Just explained our IR system, emphasizing central need for it, and they agreed to this significance. Also discussed need for instruction in use of system, probably short course they agreed to need. (Also talked to Hil Daniels about such instruction, with him talking about literature.)

I think we can provide instruction for participants in F.N.A.

Tues evening: dinner with Stan + wife.

Wed: Didn't get to see Cowan at all.

AM - talked to Hale + Shetler - emphasis on cooperation between us - asked if they had a flow chart of their operations - which they don't. Think I got a little further with the idea of cooperation, but they still have very protective attitude. Our F.N.A. tried to get Shetler to draw diagrams of the total operation so he could explain needs to systems man. (He began this, but I don't know how far he'll go, or keep it up). Stan is still slippery - can't get the guy to open up on his real direction.

See bottom P. 3 - early morning session with IBP.

Tried to emphasize needs for cost/effectiveness studies, but don't know how far I got.

They mentioned a conference (informal) in May on FNA, I/R.

Mason said getting us data tapes on type names bank.

For the types, out-put on 2-part card - one half to send out to other herbaria, querying others for isotypes, etc.

But on the descriptor list they have included an item # — for ~~benefit~~ our benefit!

PM - talked to Reggie Creighton, Dan Piacesi and Jim Crockett in computer cent. of SI. They now have Honeywell 60K characters machine, and the tie line to Cambridge CDC 6400 now about ready to operate. As soon as Dan knows how he wants our TAXIR (source deck, binary or tape) I agreed to send it.

Creighton gave me tape of Typho data bank — after he had called and checked with Mason

Spent rest of afternoon in Mason's office, talking in general terms. Hale asked, when told of our museum go - "why do you want all 30K Bryophytes in the system?"

But he did break out the bottle of sherry - so all friendly.

Wed. AM - early - IBP

Met Frank Blair at office on 2nd Fl of Univ. bldg., corner of 21st + Penna - an executive meeting of IBP called for 8:30 - see ~~enclosed~~ copy of directory of people in IBP.

Talked in genl. about our system, got a few questions about vocabulary for ecology - same sort of lexicon or "control ~~[illegible]~~ vocabulary" - and other, similar questions.

Left about 9:30 A.M. All I got was a hunting license, but also a review of the active programs. See marks in back of pamphlet.

Seminar
U Mich - 1960

Disc. in I/R Biology -
To p. 5.

Then discuss the input format.
For each collection, specimen, or taxon, the word "item" is used. Each item numbered.
For each item, a number of descriptors -
Similarity of descriptors and taxonomic characters
Structure of a character
= some piece of info. which can (with its subsets) divide up the items (or partition the items)
ex. descriptor: country of collection
" state: USA, or Mexico, etc.
Alternate descriptor: year of collection
" state: 1960, or 1961, etc.
Recording information for building the information bank
1. An arbitrary list of descriptors, in some meaningful order -
2. Each item described with each descriptor, each descriptor separated by a comma.
3. These items put into machine-readable form punched cards, paper tape, or mag tape.
4. The raw information checked by several editting routines:
1) control vocabulary, or computer editting routines.

Seminar
4. Mtg.
(2)

The corrected data now ready for the TAXIR system.
Forms or parts of TAXIR
Accessioner, (Book) (Display)

Back to p. 5. – read to p. 8. Stop reading.

Use of the system –
Print books, or place in accessioner

With information in accessioner,
possible to query the system ~~is~~ with 2 types of
~~one or~~ questions:
1. A listing of items which meet some logical combination of criteria
2. ~~It confirms~~ similar to (1) but with additional information added to each item as it is printed.
These queries made precise by the same algorithm which caused the data to be placed in a very compact manner into storage, that is, to find the info. rapidly, ~~the~~ one performs ~~an~~ ~~arithmetic~~ a mathematical operation which quickly & precisely reconstructs the necessary information and thus saves long searches of computer files.

5

Applications: Curators and books. Research and accessioner.

TAXIR BIBLIOGRAPHY OF MANIHOT

	DESCRIPTOR	COMMENTS
1.	Item number	Four digit numbers, such as 0004
2.	Subject classification	
3.	Name of the author/authors/ corespondent	Use semi-colon instead of coma. Last name always first. In case of multiple authors, write out as many as possible and add et al. Follow Biol. Abstr. author index conventions. In case of letter, the senders name. No coma between the last name and the initials.
4.	Year of Publication	
5.	Title, name of periodical, year, vol. no., page no. etc.	Do not use (, or *. Use standard abreviations of the name of periodicals. Follow Biol. Abstr. conventions. Add english summary at the end. In case of letter, write LETTER FROM.. ..(name)..(address)..dated (date). Use columns 5 to 11.
6.	Abstract	

AUTHOR INDEX:

Make one card for each of the co-authors in the following way:

Item # , Name of the author, year, - , , *

Item number will be the same. Set aside these cards and make a separate file.

SUBJECT CLASSIFICATION:

If the subject matter covers more than one field listed under the descriptor "subject classification", make a separate D.I. statement for each. Duplicate all the statements, except subject classification. Item number will remain the same.

Do not prepare co-author cards for these duplicated items.

BOOKS TO BE PRINTED:

1. (Author, Year, Item #,) Display title * in this book. Co-authors cards are included.

2. Subject, (Author, Year, Item #,) Display Title * in this book. Co-authors cards are EXcluded.

3. (Item #, Author, Year,) Subject, Display title, summary *. In this book co-author cards are EXcluded.

SUBJECT CLASSIFICATION

1	Genus Manihot	Origin and evolution
2	" "	Palaeontology/Archaeology
3	" "	Systematics
4	" "	New species description
5	" "	Monographic studies
6	" "	Cytogenetics
7	" "	Phylogenetic relationships
8	" "	Phytogeography
9	" "	Studies of biological properties of species
10	" "	Miscellaneous
11	Cassava	History and spread of cultivation
12	"	Ethnobotany
13	"	Classification
14	"	Cytogenetics of cultivars
15	"	Breeding/ improvement work/ new strains
16	"	Physiology
17	"	Agronomy
18	"	Cassava mosaic
19	"	Other diseases and pests
20	"	Prussic acid
21	"	As human food
22	"	Nutritive / chemical composition of roots
23	"	Nutritive / chemical composition of leaves

24	Cassava	Processing / New food products
25	"	Conversion into fungal protein
26	"	Storage of roots / refrigeration
27	"	Industrial use
28	"	As livestock feed
29	"	Economics (Distribution systems, markets, etc.)
30	"	Statistics of production, export, prices, etc.
31	"	Prospects and future
32	"	Bibliographies
33	"	General

STANDARD FORM NO. 1012
7 GAO 5300
1012-108

TRAVEL VOUCHER

16532
REMITTANCE COPY

DEPARTMENT, BUREAU, OR ESTABLISHMENT: Smithsonian Institution

VOUCHER NO.

PAYEE'S NAME: Dr. David J. Rogers

SCHEDULE NO.

MAILING ADDRESS: Dept. of Biology-Taximetrics Laboratory
University of Colorado
Boulder, Colo. 80302

PAID BY

OFFICIAL DUTY STATION: Boulder, Colo.

RESIDENCE

FOR TRAVEL AND OTHER EXPENSES

FROM (DATE)	TO (DATE)
5-4-69	5-6-69

APPLICABLE TRAVEL AUTHORIZATION(S)

NO.	DATE
1211	4-22-69

TRAVEL ADVANCE

Outstanding	$
Amount to be applied	
Balance to remain outstanding	$

CHECK NO.

CASH PAYMENT RECEIVED: (DATE)

(SIGNATURE OF PAYEE)

TRANSPORTATION REQUESTS ISSUED

TRANSPORTATION REQUEST NUMBER	AGENT'S VALUATION OF TICKET	INITIALS OF CARRIER ISSUING TICKET	MODE, CLASS OF SERVICE, AND ACCOMMODATIONS *	DATE ISSUED	POINTS OF TRAVEL FROM–	POINTS OF TRAVEL TO–
L2-911-036	180.00	UA	Y		Denver (Boulder), Colo.	Washington, D.C. and return

** *Certified correct. Payment or credit has not been received.*

	Dollars	Cts
AMOUNT CLAIMED →	9 00 SK	
	8 00	

5/14/69 (Signature of Payee)

APPROVED *(Supervisory and other approvals when required)*

DIFFERENCES:

NEXT PREVIOUS VOUCHER PAID UNDER SAME TRAVEL AUTHORITY

VOUCHER NO.	D.O. SYMBOL	DATE (MONTH-YEAR)

Total verified correct for charge to appropriation(s)

Certified correct and proper for payment:

Applied to travel advance (appropriation symbol)

(Date) (Authorized Certifying Officer)

NET TO TRAVELER →

ACCOUNTING CLASSIFICATION

390100-330-3330-00-210-2

* Abbreviations for Pullman accommodations: MR, master room; DR, drawing room; CP, compartment; BR, bedroom; DSR, duplex single room; RM, roomette; DRM, duplex roomette; SOS, single occupancy section; LB, lower berth; UB, upper berth; LB-UB, lower and upper berth; S, seat.

** FRAUDULENT CLAIM–Falsification of an item in an expense account works a forfeiture of the claim (28 U.S.C. 2514) and may result in a fine of not more than $10,000 or imprisonment for not more than 5 years or both (18 U.S.C. 287; *id.* 1001).

U.S. GOVERNMENT PRINTING OFFICE : 1964 OF—755-148—28-E

SCHEDULE OF EXPENSES AND AMOUNTS CLAIMED

PREVIOUS TEMPORARY DUTY *(Complete these blocks only if in travel status immediately prior to period covered by this voucher and if administratively required)*

DEPARTURE FROM OFFICIAL STATION (DATE)	(HOUR)	TEMPORARY DUTY STATION LAST DAY OF PRECEDING VOUCHER PERIOD (LOCATION)	(DATE OF ARRIVAL)

DATE 1969	NATURE OF EXPENSE	AUTHORIZED MILEAGE RATE ____¢		AMOUNT CLAIMED					
		Speedometer Readings	No. of Miles	Mileage		Subsistence		Other	
5/4	Lv. Denver, Colo. via UA, 5:10 p.m.								
	Arr. Washington, D.C., 10:15 p.m.								
	Limousine, Friendship airport to air terminal							2	50
	Taxi, air terminal to hotel							1	00
5/5	Official duty, Washington, D.C.								
	Taxis, hotel to Museum and return							2	00
5/6	Taxi, hotel to air terminal							1	00
	Limousine, air terminal to airport							2	50
	Lv. Washington, D.C. via UA, 10:00 a.m.								
	Arr. Denver, Colo. 12:16 p.m.								
	NO PER DIEM CLAIMED								
	Grand total to face of voucher (Subtotals, to be carried forward if necessary) →		$8.00 ~~8.00~~ SK					~~8 00~~ 9.00 SK	

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DATE 4/9 19 69

NAME Dr. David Rogers

STREET

CITY

DESCRIPTION	AMOUNT	TAX	TOTAL
DEN-RIC-Raleigh-CHI-DEN Inv. No 6494			231 80

TOTAL AMOUNT	PRIOR DEPOSIT	CASH RECEIVED

AIR	RAIL	S. SHIP	TOUR	BUS	TR. CK.	INS.	OTHER	ON ACCT.	DEPOSIT	REFUND	

13679

REC'D BY Ed. B

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4/1/69

NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF PHYSICAL SCIENCES AND APPLIED MATHEMATICS

DEPARTMENT OF EXPERIMENTAL STATISTICS
BIOMATHEMATICS PROGRAM
BOX 5457 ZIP 27607

April 2, 1969

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

Dear Dr. Rogers:

Enclosed is the reimbursement check for your trip to North Carolina State University on March 16.

We hope that you enjoyed your visit and that you had a safe trip home.

Sincerely,

Robert Teichman
Associate Professor

RT/gd

Enclosure

P. S.: The check is short $8.54 as there is a $16/day limit on expenses.

A STATE UNIVERSITY AT RALEIGH Trust 16000-14 (40)
OR REIMBURSEMENT—OFFICIAL TRAVEL

Division: Academic Affairs

Department: ~~Experimental~~ Institute Statistics

45 a.m. Returned (Date & Hour) 18 March 1969 9:15 p.m.

mathematics and Botany | Travel Category | C

nd Daily Subsistence Claim

ed)	Break-fast	Lunch	Dinner	Hotel	Total
	--	--	1.75	13.91	15.66
	1.81	--	8.82	13.91	24.54
	1.03	3.00	--	--	4.03
n excess of $16/day subsistence)					- 8.54

ation Expenses Incurred

	Operating Expense State Owned Vehicle			Private Automobile		
s & Oil	Repairs	Tolls	Storage	Number Miles	Cost @ 8¢	Total
						231.00

Reimbursable Expenses

tem (Describe Fully)	Cost
n Denver	9.00
	3.14
Boulder	9.00

$ 287.83

Continental coach jet

$ 231.00 fare

$ 231.00 Total

March 18

OUR AGENCY TO THE PARTICIPATING
TTANCE WILL BE APPRECIATED

NORTH CAROLINA STATE UNIVERSITY
RALEIGH, N.C.

66-763
512

VOID AFTER 120 DAYS

PAY N.C. STATE UNIVERSITY $287 AND 83 CTS

VOUCHER NUMBER 32996 TO THE ORDER OF DAVID J ROGERS $ 287.83*

DATE MAR 26'69

TO WACHOVIA BANK AND TRUST COMPANY
Raleigh, N.C.

AUTHORIZED SIGNATURE J. D. Wright

⑆0512⑆0763⑆ 5⑈001⑈380⑈

Mr. Rogers deposited check from NCSU and wrote her personal check to travel agency Ap. 9. 1969 Grm

10M-11-65

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
EMPLOYEE'S CLAIM FOR REIMBURSEMENT—OFFICIAL TRAVEL

Trust 16000-14 (40)

Employee: David J. Rogers Division: Academic Affairs

Campus Address: 112 General Laboratory Bldg. Department: ~~Experimental~~ Institute Statistics

Departed (Date & Hour) 16 March 1969 8:45 a.m. Returned (Date & Hour) 18 March 1969 9:15 p.m.

Purpose of Trip: Seminar and Conference with Biomathematics and Botany Travel Category: C

Itinerary and Daily Subsistence Claim

Date	Places Visited (show even if no subsistence claimed)	Breakfast	Lunch	Dinner	Hotel	Total
3/16	Boulder, Col. - Raleigh	--	--	1.75	13.91	15.66
3/17	Raleigh	1.81	--	8.82	13.91	24.54
3/18	Raleigh - Boulder, Col.	1.03	3.00	--	--	4.03
	(-$8.54 in excess of $16/day subsistence)					- 8.54

Transportation Expenses Incurred

	Fares—Common Carrier				Operating Expense State Owned Vehicle				Private Automobile		
Date	Rail	P'man	Air	Bus	Gas & Oil	Repairs	Tolls	Storage	Number Miles	Cost @ 8¢	Total
3/16			231.00								231.00

Other Reimbursable Expenses

Date	Item (Describe Fully)	Cost
3/16	Avis car - Boulder to airport in Denver	9.00
3/17	Long Distance Phone	3.14
3/18	Avis car - Airport in Denver to Boulder	9.00
		$ 287.83

Signed: David J Rogers Date: 3/24/69

Approved: A D Moore Date: 3-24-69

Total Amount Claimed 287.83

The claimant certifies that expenses shown above were incurred in the service of the State, and include only expenses necessary in performance of such service.

NUMERICAL TAXONOMY - at North Carolina State Univ., March 17, 1969

I. I honestly shouldn't give this talk - not a numerical taxonomist; don't know what should or should not be included in the definition.
DEFINITION: A variety of talents in this audience; some mathematically (or statistically) oriented, others "computerniks", others even taxonomists. Since each comes with a special vocabulary, I will only try to speak in one best known to me - taxonomy.

2. Rather, a taxonomist interested in the science; prefer, therefore, to call myself (or my efforts) taximetrics.

3. This indicates a concern for use of taxonomic rules to guide development of models and programs.

4. Turns, then, on the role of the taxonomist, his need to provide a clear understanding of working processes. Description of activities becomes essential.

5. The 2 kinds of biological work - analysis and synthesis.
Differences between two
Taxonomy, generally of 2nd type - also evolution and some types of ecology.
What implications here?

6. The parts of taxonomic endeavor.
a) "Formal" taxonomy - names, rules for, reporting or results, keys, lists of species or other taxa.
b) Classifications - break down into step-wise process - data gathering, data analysis, similarity measures, clustering.
Each step requires its own type of rules, math and programming
c) Evolutionary studies

7. Important feature, then, is to put the substantive scientist, with his special knowledge, in a central role, rather than replace.

Historical antecedents and developments

1. Pre-computer - binomial names, dichotomous keys
a) telegraphic descriptions, museum storage of specimens, all significant to think about - methods -
Hierarchical, (nested box) organization, Non-overlapping sets - Partitions

b) E. Anderson's non-metric methods in introgressive hybrids

A methods of description parallel very closely present procedures for describing input - Simple graphs

c) Work in biological statistical analysis - much generated by agricultural statisticians

d) Anthropometric analyses

e) Work of George Boole, Cantor, Godel, Church, Turing, Von Neumann in math paved way for use of computing machines

2. Computer-age developments - biology - direct on Taxonomy

Sewell Wright and Genetics input, but not yet coincident

English work - P.H.A. Sneath, bacteriology

Williams and Lambert, ecology (later in Australia)

Jeffrey, statistics - factor analysis

Russians - who knows?

Italian - Capali, Sforza, Silvestri

Germans - no large role

Belgian

U. S. Kansas

School started by C. D. Michner

1957 - Michener and Sokal, first to surface

Sokal, with Sneath, developed school of statistically oriented

First use of "numerical taxonomy"

Express purpose: "objectifying the taxonomist - a breathless, get-with-it, you're dead unless, school

Still a nebulous definition of what it includes (or excludes)

Other efforts - ours

~~W. C. State's Martine and Cockerborn~~

Many others now beginning - want to know how

Future Potential

No question that these investigations tend to involve more people

But how well? Depends on kinds of work we're willing to do.

Effects - on biological thought processes and methods

on math itself, as more and more stimuli comes from us

on procedures in libraries, museums, etc.

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on math itself, as more and more stimuli comes from us
on procedures in libraries, museums, etc.

19 March 1969

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

Dear Ray:

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

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

Sincerely,

David J. Rogers
Professor of Biology

DJR:gm
End.

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

Send Enclosed to:

N. L. Lucas
Institute of Statistics
N. C. State U.
Box 5457
Raleigh, N. C. 27607.

1.81
8.83
13.91
24.64

13.91
24.54
1.03
39.48

4262
3948
314

Request for reimbursement
for seminar
Mar 19, 1969

Raleigh 17 March 1969

ABSTRACT

The Aims, Successes and Shortcomings of Numerical Taxonomy

From one person's point-of-view, the aims are as follows: (1) to examine the theoretical bases of taxonomy, (2) to consider as an important objective of taxonomy the production of more information-carrying classifications, and (3) to make more precise the several processes of subdisciplines of taxonomy.

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

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

10 March 1969

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

Dear Ray:

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

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

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

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

Sincerely,

David J. Rogers
Professor of Biology

DJR:gm

NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

INSTITUTE OF BIOLOGICAL SCIENCES
DEPARTMENT OF BOTANY
BOX 5186 ZIP 27607

March 4, 1969

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

Dear Dave:

We are looking forward to your visit here in Raleigh March 17 and 18. I need to know your travel schedule, seminar title, etc. as quickly as possible so that we can get our publicity cranked up. We will also need your Social Security Number to expedite the honorarium procedure.

Best regards.

Sincerely yours,

Ray

G. R. Noggle, Head
Department of Botany

GRN/pc

cc: Dr. H. L. Lucas
Experimental Statistics

160-28-4983

NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

INSTITUTE OF BIOLOGICAL SCIENCES
DEPARTMENT OF BOTANY
BOX 5186 ZIP 27607

January 6, 1969

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

Dear Dave:

Monday and Tuesday, March 17 and 18, are satisfactory dates for your visit to Raleigh. Perhaps you could arrive Sunday and plan to leave Tuesday evening or Wednesday morning. We will schedule your talk on Monday afternoon, March 17.

Let me know details of your trip when travel arrangements are complete. We are looking forward to your visit.

Best regards.

Sincerely yours,

Ray

G. R. Noggle, Head
Department of Botany

GRN/pc

CC: Dr. H. L. Lucas

January 2, 1969

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

Dear Ray:

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

Sincerely,

David J. Rogers
Professor of Biology
Project Director

DJR:sw

NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF AGRICULTURE AND LIFE SCIENCES

INSTITUTE OF BIOLOGICAL SCIENCES
DEPARTMENT OF BOTANY
BOX 5186 ZIP 27607

December 19, 1968

Dr. David J. Rogers
Department of Botany
Colorado State University
Fort Collins, Colorado 80521

Dear Dave:

We have a Department of Biomathematics here at North Carolina State University which cooperates closely with the biological sciences on graduate student committees, seminars, and the like. They have funds in their program to bring in speakers and consultants in the areas common to biology and mathematics. Our department has agreed that we would like to have you visit N. C. State during the Spring Term to present a seminar on the use of computers in taxonomy. The seminar would be jointly sponsored by the Department of Biomathematics and Botany.

As far as arrangements go, we would like to have you spend two days on campus and give one seminar. Other times would be available for informal consultation with faculty and students. We can provide an honorarium of $100 and pay air travel (tourist-economy) and subsistence to a maximum of $16.00 per day.

If you are able to come to Raleigh during our Spring Term for such a seminar, please let me know and suggest some satisfactory dates.

Best regards.

Sincerely yours,

Ray Noggle

G. R. Noggle, Head
Department of Botany

GRN/pc

CC: Dr. H. L. Lucas
Dr. J. W. Hardin

UNIVERSITY OF COLORADO
COLLEGE OF ARTS AND SCIENCES
BOULDER, COLORADO 80302

DEPARTMENT OF
MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY

February 20, 1969

Dr. Dave Rogers
Department of Biology
Campus

Dear Dave:

In reference to your generous offer to talk to our department, I find that our schedules show three departmental seminars a week through March 14. I suggest that we ask you to accept a rain check until there are more appropriate dates in a less crowded schedule. This overworked schedule results in underattendance.

Sincerely,

Meredith N. Runner

MEMO TO: Dr. Meredith Runner

FROM: David J. Rogers

SUBJECT: Seminar

DATE: 19 February 1969

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

Fairchild Trop. Gard
Feb. 1969

Manihot. Man. & Comp.

27 February 1969

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

Dear Julia:

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

Sincerely,

David J. Rogers

DJR:gm

27 February 1969

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

Dear Mrs. Sweeney:

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

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

Very sincerely yours,

David J. Rogers

DJR:gm

27 February 1969

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

Dear Dr. Popenoe:

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

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

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

Sincerely,

David J. Rogers
Professor of Biology

DJR:gm

UNIVERSITY OF COLORADO

Biology Department

27 February 1969

EXPENSES: David J. Rogers

Round trip Airfare	$239.00
Ground transportation - Boulder to Stapleton Airport, Denver and return	18.00
	$257.00

questionnaire filled out + returned 3-7-69

FAIRCHILD TROPICAL GARDEN
10901 OLD CUTLER ROAD
MIAMI, FLORIDA 33156

Jan. 29 1969

Dear Dr. Rogers,

Would you kindly fill out the enclosed form for me? It will help me in setting up the auditorium for your lecture.

Dr. Popenoe, Dr. Gillis, and Stanley Kiem the supt. will be out of town on the 20th (the day you're expected) So I will be happy to meet your plane. My office phone is 667-1651 here at the Garden. My home phone after 5:30 PM is 221-2463.

If you know your flight and arrival time please include it on the form.

We're all keenly interested in your field and looking forward to meeting you.

Sincerely - Scott Donachie
Education.

3 February 1969

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

Dear Mrs. Sweeney:

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

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

Sincerely,

David J. Rogers

DJR:gm

INVOICE

THE BOULDER TRAVEL AGENCY

"On the Hill"
1121 BROADWAY
BOULDER, COLORADO

MEMBER AMERICAN SOCIETY OF TRAVEL AGENTS ASTA

No 6393

TO: Dr. D. Rogers
Armory 101
University of Colorado
Boulder, Colorado

Feb. 24, 1969

Air transportation Denver - St. Louis - Miami -(Tallahassee)- Denver

Via: TWA and Eastern coach jet (family plan)

For: Dr. D. Rogers - 015:379:159:5378 $ 239.00 fare TE
Richard Rogers - " " " 539 $ 165.00 fare
8.25 tax
$ 173.25 total

$ 412.25 Total Due

All accounts are due & payable in 30 days
For travel commencing Feb. 20

THIS INVOICE REPRESENTS AN IMMEDIATE TRANSFER OF FUNDS FROM OUR AGENCY TO THE PARTICIPATING CARRIERS UPON ISSUANCE OF TICKETS. YOUR PROMPT REMITTANCE WILL BE APPRECIATED

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DATE 3/7 1969

NAME

STREET Dr. D. Rogers,

CITY

DESCRIPTION	AMOUNT	TAX	TOTAL
Inv. 6393	412 25		

TOTAL AMOUNT	PRIOR DEPOSIT	CASH RECEIVED
		412 25

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INVOICE

THE BOULDER TRAVEL AGENCY

"On the Hill"
1121 BROADWAY
BOULDER, COLORADO

MEMBER AMERICAN SOCIETY OF TRAVEL AGENTS

No 6393

TO: Dr. D. Rogers
Armory 101
University of Colorado
Boulder, Colorado

Feb. 24, 1969

Air transportation Denver - St. Louis - Miami -(Tallahassee)- Denver

Via: TWA and Eastern coach jet (family plan)

For: Dr. D. Rogers - 015:379:159:537&8 — $ 239.00 fare TE
Richard Rogers - " " " 539 — $ 165.00 fare
8.25 tax
$ 173.25 total

$ 412.25 Total Due

All accounts are due & payable in 30 days
For travel commencing Feb. 20

THIS INVOICE REPRESENTS AN IMMEDIATE TRANSFER OF FUNDS FROM OUR AGENCY TO THE PARTICIPATING CARRIERS UPON ISSUANCE OF TICKETS. YOUR PROMPT REMITTANCE WILL BE APPRECIATED

Printed by WILLOW PRESS Travel Agency Printers
12 West 37th Street, New York, N. Y. 10018

NSF
Feb 7, 1969

TAXIR

SEMINAR AT NSF, WASHINGTON

Feb. 6

Lv. Denver	8:00 AM	
Ar. Chicago	11:00 AM	
Lv. Chicago	12:00 noon	
Ar. Washington (National)		2:35 PM

Stay at Park Central Hotel

Feb. 7

Lv. Balto. Airport	6:55 PM
Ar. Denver	8:30 PM

NSF SEMINAR, FEBRUARY 7, 1969
TAXIR--An Information System for Biology

1. Purposes
   A. Origins and inspirations for the development of TAXIR
   B. General description
   C. Economy and efficiency
   D. Problems--speed of input.

2. I/R systems not new to systematic iologists
   A. Taxonomic systems remarkably efficient, if taken all together

3. Types of endeavor in taxonomy (and most other xxxix disciplines).
   A. Individual research--large amts. data on relatively small no. of objects.
   B. Museums, amassing relatively small amts. of info, but for very large no. of objects.
   c. Problems of organization of info. on the objects (specimens) same or similar for A & B in some taxonomic sequence
   D. Biological museums organize on (1) scientific names/primarily (2) geographic order.
   E. Combination of these gives a very workable I/R system.

4. Functions of an I/R system
   A. two functions required: repository and accessioner.
   B. Repository function is passive,
   C. Accessioner to derive from repository the info. stored there.
   D. In museums (as in similar collections of objects) physical arrangement serves both functions, i. e.
      a. it holds specimens (repository)
      b. 2 locating criteria (name & geography) are employed
   E. Separate files of other locating criteria frequently (but not always) act as additional accessioner. Each file, however, allows only one sequence, hence many other files would be useful.
   F. Efficienty of museums must not be under-rated, particularly when considering their very small budgets and limited man-power
   G. Consider, for example, the Smithsonian's collection of over 15 million insects.

5. Development needs
   A. Moment's reflection indicate following type needs:
      1. Some system for the individual research worker
      2. Some system for the curator (or librarian) of the collections.
      3. A system which does not require great shifts in present operating systems.
      4. An interactive system, oriented to user, not to computer restrictions.
      5. A cost/effective analysis system.

6. TAXIR approach to meet these needs.
   A. A natural language input-output
   B. An editing and correcting of input data module (DATA VET)
   C. An inventory module (BOOK)
   D. An immediate response module (ACCESSIONER)
   E. A module for printing detailed, non-recurrent information (DISPLAY).
   F. Cost/effective analysis procedure.

7. Description of the Modules
   A. Input systems--common for all modules
      1. Items (about which information is to be described, each item with unique number.
      2. Descriptors and descriptor states.
   B. DATA VET--employs programs which help identify errors made by key-punch or key-tape operators.
   C. BOOK. An in-depth (essentially cross-referenced) listing of items in data bank.
      1. Useful for desk-copy reference and in answering certain routine quiries about the museum.
   D. ACCESSIONER. From the descriptors given to the data bank, for all items in the bank, possible to make quiries in natural language with output either from CRT or off-line.
      1. Queries of two general types
         a. Listing
         b. boolean combinations (and, or, not)
      2. Refinements or additional query facility.
         a. Result
         b. Identification of unknowns in simultaneous, non-directed fashion.

   E. DISPLAY. Non-recurring information about item not sufficiently well-defined to be placed in descriptor-descriptor state for the ACCESSIONER module.

8. Effiecienty, cost/effectiveness.
   Speed of productions: Books and responses to quèries.
   Costs figured on timed studies of each step, and requirements for level of training required. Then processing in computer.

9. Problems: the most difficult to overcome is the speed of putting data into the computer. Thereafter, essentially cost-free.

Jan 10, 1969

National Science Foundation
Washington, D. C. 20550

Dear Dave.

You will see, by the enclosed notice, that you are scheduled for 7 Feb at 10.00 am.

Best regards. — Sam.

(Notice sent to AIBS, BA and SI).

NSF COMPUTER AND INFORMATION SCIENCES SEMINAR

Dr. David Rogers, Professor of Biology, University of Colorado, will present a discussion on "Systematic Biology and Information Retrieval Systems." "Using as models and inspiration the present-day operating systems in systematic biology, information retrieval systems can be developed which meet many needs. Components of one system, TAXIR (Taxonomic Information Retrieval) will be described. TAXIR is a system designed to help systematic biologists organize and manipulate their collections and the information they embody easier, faster, and more comprehensively."

The meeting will take place on Friday, February 7, 1969 at 10:00a.m. in Room 338 and last approximately 1½ hours. Professional staff members of the Foundation are invited to attend.