No. 1|2-1917

Dr. B.B. Lal, Ph.D.,
Archaeological Chemist in India,
Dehra Dun, U.P., (INDIA)

Dated the July 10,'61

Dear Dr. Ralph,

In connection with the organization of a C-14 Laboratory in our Department of Archaeology for age-determination of Carbon-bearing archaeological materials, we are collecting details of methods, materials and equipment in use in leading laboratories. As you have done important work in this line, may I request you to supply me with details of latest developments and reprints of publications from your Museum, a bibliography of C-14 determination, if readily available, and approximate current price of the equipment and apparatus required for C-14 determination.

I feel that the technique of C-14 determination is highly complicated, and unless a study of the apparatus, techniques and materials employed for this work is made by working with experts, it would be very difficult to organise such a laboratory, I would, therefore, request you to kindly let me know whether it would be possible for me to work in your Museum for gaining some practical experience in assembling the equipment and in processing and evaluating the samples.

In reply to my request addressed to the Institute of Technical Studies, University of Chicago, I have been advised by Prof.D.Gale Johnson, Dean, Division of the Social Sciences, University of Chicago, that the most appropriate place to study C-14 analysis would be under you at University Museum, Pennsylvania, and that it would be possible for me to get the necessary information and training under your supervision, May I, therefore, request you to please supply me with the information.

Kindly excuse me for the trouble.

Yours truly,

B.B. Lal
10.7.61

Dr. Elizabeth Ralph,
University Museum,
University of Pennsylvania,
Philadelphia, Pennsylvania, U.S.A.

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BY AIR MAIL

वायु पत्र

AEROGRAMME

NO ENCLOSURES ALLOWED

Sender's name and address

Dr. B.B. Lal,
Archaeological Chemist
in India, Dehra Dun,
U.P., INDIA.

Dr. Elizabeth Ralph,
University Museum,
University of Pennsylvania,
Philadelphia, Pennsylvania,
U.S.A.

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Third fold here

July 18, 1961

Dr. B. B. Lal
Archaeological Chemist in India
Dehra Dun, U.P.
India

Dear Dr. Lal:

In response to your request for information about C-14 dating, I am sending reprints of our publications. For establishing a new laboratory, the most useful publications are as follows:

W. F. Libby, Radiocarbon Dating, 2nd ed. 1955. (Univ. of Chicago Press, Chicago, Illinois)

G. J. Fergusson, "Radiocarbon Dating System", Nucleonics, Vol. 13 (Jan. 1955) pp. 18-23, and other publications of Fergusson and T. A. Rafter in the New Zealand Journal of Science and Technology.

H. E. Suess, "Natural Radiocarbon Measurements by Acetylene Counting", Science, Vol. 120 (July 2, 1954) pp. 5-7.

H. Barker, "Radiocarbon Dating: Large-scale Preparation of Acetylene from Organic Material," Nature, Vol. 172 Oct. 3, 1953), p. 631.

A. W. Fairhall, W. R. Schell and Y. Takashima, "Apparatus for Methane, Synthesis for Radiocarbon Dating", in press (Dept. of Chemistry, Univ. of Washington, Seattle 5, Washington).

Hℓ. de Vries and G. W. Barendsen, "Radiocarbon Dating by a Proportional Counter Filled with Carbon Dioxide", Physica XIX (1953) pp. 987-1003.

Hℓ. de Vries, "Purification of CO_2 for Use In A Proportional Counter for ^{14}C Age Measurements", Appl. Sci. Res. Sect. B, Vol. 5 (1956?) pp. 387-400.

Hℓ. deVries and M. Stuiver and I. Olsson, "A Proportional Counter for Low Level Counting with High Efficiency", Nuclear Instruments and Methods, Vol. 5 (1957), pp. 111-114; North Holland Publishing Co. I suggest that you write to I. Olsson, Fysiska Institutionen, Uppsala, Sweden, for a reprint, if desired.

Hℓ. de Vries, "The Removal of Radon from CO_2 for Use in ^{14}C Age Measurements, Appl. Sci. Res., Section B, Vol. 6, pp. 461-470 (1957?)
H. R. Brannon, M. S. Taggart, M. Williams, "Proportional Counting of Carbon Dioxide for Radiocarbon Dating", Review of Scientific Instruments, Vol. 26 (1955), pp. 269.
M. J. Aitken, Physics and Archaeology, 1961, Interscience Publishers.

The date lists of most laboratories are now published yearly in Radiocarbon which was formerly entitled Radiocarbon Supplement of the American Journal of Science. The three volumes which have been published may be obtained from the editors, R. F. Flint and E. S. Deerey, Room 5, Sterling Tower, Yale University, New Haven, Connecticut. In these volumes the addresses of active laboratories and articles about inter-laboratory standardization and so forth, are included.

In regard to costs, our yearly budget is as follows:

Salaries These include myself, one research assistant, and one part-time student assistant.	$16,800
Current Expenses These are mostly expendable supplies such as liquid air, dry ice, chemicals, glassware, etc.	$ 3,500
Equipment Replacements	$ 2,500
Total	$22,800

The initial cost of our equipment (pure carbon dioxide method) was approximately $13,000 in 1956.

In regard to gaining practical experience, the situation has changed somewhat from the early days when Dr. Libby developed the solid carbon method and that was the only one to learn. I think now that the best procedure would be to study as many of the publications about the gas counting methods as possible. The main ones in use are pure carbon dioxide, methane, and acetylene counting. Pure carbon dioxide is used by most laboratories today, but both methane and acetylene have certain advantages. Your decision may be influenced by the equipment available and the training of the personnel who are going to operate it. Then, it would be advantageous to visit several laboratories to learn the best features that each has developed for the method upon which you have decided. In assembling a laboratory, the techniques learned in studying physical chemistry or nuclear physics (vacuum systems, counting circuits, etc.) are the main "tools" needed, and should be acquired beforehand.

The pioneers in the development of the carbon dioxide technique were Fergusson and Rafter in New Zealand and deVries in the Netherlands. deVries has died, and Fergusson is now with Dr. Libby at the University of California (Los Angeles 24, California). Their present laboratory and the New Zealand one, now run by T. A. Rafter (Institute of Nuclear Sciences, Lower Hutt, New Zealand) would both be excellent ones to visit.

With best wishes for the success of your laboratory, I am,

Sincerely yours,

Elizabeth K. Ralph

EKR:gm
Enc.

UNIVERSITY of PENNSYLVANIA
PHILADELPHIA 4

The College
DEPARTMENT OF PHYSICS

August 18, 1961

Mr. L.R. Sethi
Embassy of India
2107 Massachusetts Ave., N.W.
Washington 8, D.C.

Ref. F. 408/01

Dear Mr. Sethi:

In regard to the training of a scientist from India in our Carbon-14 laboratory, I am writing to say that decisions of this magnitude must be made by Dr. Froelich Rainey, Director of the University Museum. Unfortunately, Dr. Rainey is in Europe, and I regret that I shall be unable to consult him until late September.

In July I received a letter from Dr. B.B. Lal, and I am enclosing a copy of my reply to him.

I hope that this delay will not be a serious inconvenience. It is good to learn that the Government of India is planning to establish a Carbon-14 laboratory, for there are so many important samples to be dated.

Sincerely yours,

(Miss) Elizabeth K. Ralph
Carbon-14 Laboratory

ER/ic
encl.

December 15, 1972

Prof. D. Lal, Director
Physical Research Laboratory
Navrangpura
Ahmedabad - 380009
INDIA

Dear Professor Lal:

Congratulations upon your new position, and thank you for your letter. We missed you in New Zealand and, especially, your leadership. There were heated discussions about the standards for calibration, but we ended up with the NBS Oxalic Acid that is almost exhausted. Also, no agreement was reached in regard to correction factors or calibration curves for C-14 dates.

I have enclosed some reprints, etc. If they are duplicates of ones that you already have, please throw them away.

We are about to investigate some new techniques, and one of them will concern the use of our tandem accelerator to detect negatively ionized elements with greater sensitivity. Our feint hope is that we shall stumble upon one or more that could be used for dating.

If you have reprints on the subject of cosmic radioelements, we shall greatly appreciate receiving some copies.

With best regards,

R/rs

Elizabeth K. Ralph

P. S. We shall send reprints of our New Zealand papers as soon as we receive them.

PHYSICAL RESEARCH LABORATORY
NAVRANGPURA
AHMEDABAD-9 380009
(INDIA)

TELEGRAM : "RESEARCH"
TELEX : 012-261

TELEPHONES
77076, 79271,
79272, 77642

Ref: DL:72 December 28, 1972

Dear Dr. Ralph,

Thank you very much for your warm letter.

I was very much hoping that I would be able to attend the New Zealand conference, but a large number of things and in particular the new position which I accepted made it difficult for me to do so.

I will send you several papers which may be of interest you. We are always looking forward to receiving your exciting papers and also hearing about any new ideas which you may be working on. Radiocarbon studies had now gone for nearly 25 years and it is only the work of scientists like you which keeps this field young and exciting. Putting it another way, there are only a few fields which survive more than 10 years except being of a routine value.

Please do remember sending me reprints of papers presented by you at New Zealand.

With best regards,

Yours sincerely,

(D. LAL)

Dr. Elizabeth K. Ralph
University of Pennsylvania
Philadelphia 19104

BY AIR

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AEROGRAM

NO ENCLOSURES ALLOWED

INDIA POSTAGE Rs. 0·75

INDIA POSTAGE Rs. 0·10

Dr. Elizabeth K. Ralph

University of Pennsylvania

Philadelphia 19104

FIRST FOLD

SECOND FOLD

THIRD FOLD

SENDER'S NAME AND ADDRESS :-

Physical Research Laboratory

Navrangpura, AHMEDABAD-9.

(INDIA)

CONEY REGD. AHMEDABAD.

TO OPEN CUT HERE

FRANKLIN AND MARSHALL COLLEGE
LANCASTER, PENNSYLVANIA

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

January 29, 1965

Dr. Robert Stuckenrath
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Bob:

On my last trip to Philadelphia, I stayed for a few days with Bob Dyson, who informs me that your Carbon 14 Lab has a list of dates which your laboratory has run. I am particularly interested in the C_{14} dates for the early levels at Hacilar, Catal Huyuk and Braidwood's recent work at Cayonu Tepesi. I am hoping that you would be able to send me a list of these dates so that I might be able to include them in my Ph.D. thesis, on which I am busy grinding away. Thank you very much for whatever help you may be able to provide.

Best wishes,

Cliff Lamberg-Karlovsky
LAMBERG

CCLK:dbg

February 3, 1965

C.C. Lamberg-Karlovsky
Department of Sociology and Anthropology
Franklin and Marchsall College
Lancaster, Pennsylvania

Dear Cliff:

Herewith enclosed are copies of our date lists V and VI, which are moderately loaded with Near Eastern dates. In addition a "mimeo"-type copy of Date List VIII which has been accepted by Radiocarbon for publication in the Spring of 1965. Aside from our III (which we're out of now), this is about everything we have for the Near East. There are some more in the works for the Hasanlu Project; if you want copies of those dates when we finish them, get RHD's approval, and I'll send them on.

VIII has the 5730 half-life dates in pencil, and you can convert the V and VI dates by multiplying the B.P. age by 1.03 to get the date we feel is more reliable.

Good luck on the grinding.

Cheers,

Robert Stuckenrath, jr.
Radiocarbon Laboratory

Dr. ~~Harker~~ Giles,
Any interest in this applicant?
I have written to tell him that we do not have an opening in MASCA at this time.
Beth

NOT NOW, SORRY
GILES

September 25, 1973

Director
Museum Applied Science Center for Archaeology
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Sir:

I am writing to inquire about the possibility of my joining your geology or archaeology staff next year. I am presently employed as a geologist with the U.S. Geological Survey in Denver. I have a Ph.D. in geology from the University of New Mexico. My primary fields of interest are Quaternary geology and geomorphology, mineralogy, and geology as applied to archaeology (including site geology and ceramic petrography). I have worked for a petroleum company, have five years of college teaching experience, and, most recently, worked as a geologist and petrographer with the Instituto Nacional de Antropologia e Historia of Mexico.

In my present position with the Geological Survey I am interpreting Quaternary geologic features as seen on ERTS and Skylab photographs. This position is a temporary one and is scheduled to end July 1, 1974. I would like to return permanently to a museum research position similar to the one I had with INAH. If there is an opening on your staff, or if you are planning to add to your staff, I would appreciate your consideration. Enclosed is a brief vita; if you would like more information I would be happy to supply it.

Very truly yours,

P.W. Lambert

P. W. Lambert
825 Steele
Denver, Colorado 80206

VITA

Paul Wayne Lambert
825 Steele
Denver, Colorado 80206
Home telephone, AC 303-333-3724; office, AC 303-234-4208

Age 35, U.S.A. citizen, married, one child.

Education and special training:

Phillips, Texas, High School		Diploma	1955
Texas Tech University	Geology	B.A.	1959
University of New Mexico	Geology	M.S.	1961
University of New Mexico	Geology	Ph.D.	1968

Advanced study in optical mineralogy with R. E. Wilcox, U.S. Geological Survey, Denver, Summer, 1967

Employment:

George Leland Consulting Geologist, Albuquerque, N.M., geologist, summer, 1961. Assisted in studies of clay deposits and gold-silver prospect in central New Mexico.

Texaco, Inc., Midland, Tex. and Roswell, N.M., geologist, 1961-1962. Well site and field geology in southern New Mexico.

Lowell Bogart Consulting Geologist, Albuquerque, N.M., geologist, fall, 1962. Prepared photogeologic maps of areas in southwest New Mexico and southeast Arizona.

Chapman, Wood, and Griswold Consulting Geologists, Albuquerque, N.M., geologist, summer, 1963. Assisted in studies of base and precious metal mines and prospects in San Juan Mountains, Colorado.

University of New Mexico, graduate assistant in geology, 1963-1965.

Central Missouri State College, Warrensburg, Mo., Assistant Professor of Geology, 1965-1968, head of three-man geology department, 1967-1968. Taught courses in physical geology, mineralogy, petrology, geomorphology, structural geology, and field geology.

West Texas State University, Canyon, Tex., Associate Professor of Geology, 1968-1970. Taught courses in physical geology, historical geology, geomorphology, optical mineralogy, petrology, and field geology.

Department of Prehistory, Instituto Nacional de Antropologia e Historia, Mexico, D.F., geologist-petrographer, 1972-1973. Studied stratigraphy and petrography of late Quaternary volcanic ash in Basin of Mexico; some petrographic work on Preclassic ceramics and stone artifacts.

Branch of Central Environmental Geology, U.S. Geological Survey, Denver, Colorado, geologist, 1973-present. Presently working on two projects: (1) late Cenozoic stratigraphy of Rio Grande Valley in central New Mexico, and, (2) interpretation of Quaternary geologic features as seen on ERTS and Skylab photographs of Midwest and Southwest U.S.

Publications:

1961 "Petrology of the Precambrian rocks of part of the Monte Largo area, New Mexico," unpublished M.S. thesis, University of New Mexico.

1965 (with W. E. Elston) "Possible shatter cones in a volcanic vent near Albuquerque, New Mexico": New York Acad. Sci. Annals, v. 123, p. 1003-1016.

1966 "Notes on the late Cenozoic geology of the Taos-Questa area, New Mexico" in New Mexico Geological Society "Guidebook of the Taos-Raton-Spanish Peaks Country," p. 43-50.

1968 "Quaternary stratigraphy of the Albuquerque area, New Mexico," unpublished Ph.D. dissertation, University of New Mexico.

1968 (with W. E. Elston and E. I. Smith) "Striated cones: wind-abrasion features, not shatter cones" in "Shock Metamorphism of Natural Materials," Baltimore, Mono Book Corp., p. 287-290.

1969 "Age of the Rio Grande Valley at Albuquerque, New Mexico (abs.)": Geological Society of America Special Paper 121, p. 168-169. (Paper read at Geological Society of America Annual Meeting, Mexico City, 1968.)

1970 "Quaternary stratigraphy of the Albuquerque area, New Mexico (abs.)" in New Mexico Geological Society "Guidebook of the Tyrone-Big Hatchet Mountains-Florida Mountains Region, New Mexico," p. 160.

1972 "Petrographic study of thin section L-3346 (Atoyac gris fino ceramic type, Tlapacoya) and L-3345 (Delphina gris fino ceramic type, Oaxaca)": Department of Prehistory, INAH, Mexico, manuscript, 4 p.

In press "Preliminary description of the tephra layers at Tlapacoya I," in "Tlapacoya," INAH, Mexico.

In press "Map showing areas of active and potential blowing sand in the La Mesita Negra SE Quadrangle, Bernalillo County, New Mexico": U.S. Geological Survey Miscellaneous Field Studies Map.

In preparation (with Sam Valastro) "Stratigraphy and age of late Quaternary tephras at Popocatepetl Volcano, Mexico."

Research Grants:

1960 New Mexico Geological Society Research Grant. Support for M.S. thesis.

1964 New Mexico Geological Society Research Grant. Support for Ph.D. dissertation.

1966 Geological Society of America Research Grant, $800; Sigma Xi Grant-in-Aid of Research, $400. Support for Ph.D. dissertation.

1968 Geological Society of America Research Grant, $800; Sigma Xi Grant-in-Aid of Research, $300. Support for study of late Cenozoic volcanic ash in West Texas and New Mexico.

1968 National Science Foundation, $12,000. Support for study of late Cenozoic volcanic ash in West Texas and New Mexico. Work on this project to be completed by July, 1974.

Organizations:

Geological Society of America
Society of the Sigma Xi
Sigma Gamma Epsilon (earth science)
Honor Society of Phi Kappa Phi
American Association for Quaternary Environment (AMQUA)
International Congress of Americanists

References:

Dr. E. T. Ruppel, Chief, Branch of Central Environmental Geology, U.S. Geological Survey, Federal Center, Denver, Colorado 80225.
Dr. H. E. Malde, Branch of Central Environmental Geology, U.S. Geological Survey, Federal Center, Denver, Colorado 80225.
Dr. R. E. Wilcox, Branch of Field Geochemistry and Petrology, U.S. Geological Survey, Federal Center, Denver, Colorado 80225.
Prof. Jose Luis Lorenzo, Chief, Departamento de Prehistoria, Instituto Nacional de Antropologia e Historia, Moneda 16, Mexico 1, D.F., Mexico.
Dr. R. C. Burton, Chairman, Department of Geology and Anthropology, West Texas State University, Canyon, Texas 79015.
Dr. Cynthia Irwin-Williams, Department of Anthropology, Eastern New Mexico University, Portales, New Mexico 88130.

September, 1973

March 18, 1970

Mr. Lee Langan
Environmental Measurements, Inc.
215 Leidesdorff Street
San Francisco, California 94111

Dear Lee:

Fro just left for California and he must have cleared his desk beforehand because he sent your letter of December 19, 1969, down to us.

In regard to freezing parts of the plain of Sybaris, it sounds interesting, but we have now finished our work there. However, the Italians, at last, have plenty of money for excavations and are presumably working there. If the company that has developed this technique wants to pursue the matter, they should write to:

Professor Giuseppe Foti
Soprintendenza alle Antichita della Calabria
Reggio Calabria, Italy

Perhaps, someday soon we can find some technique that will enable us to work together again.

With best regards,

Elizabeth K. Ralph

EKR/ek

20 Oct, 1966

Memorandum from . . .

EDWARD LARRABEE

P.O. Box No. 296
Churchville
Pennsylvania
18966

Dear Beth,

Here is the article I mentioned — the moral of which is, never trust a pseudo-varve, — or, one year's deposit may turn out to be one minutes. These really looked like varves, down to grading of material, etc.

Also, sending copy of my C.V., to note an aerial photo thing, if of interest. Nothing technical — just unusual to find a proven Indian site in this area by aerial.

Hope to see you again soon.

Yrs,

S. + E.

Memorandum from . . .

EDWARD LARRABEE

23 Oct., 1966

P.O. Box No. 296
Churchville
Pennsylvania
18966

Dear Beth

I don't have any separate copies, but have some extras of the whole issue of the W. Va. Arch., so am sending you one.

My wifes name is SUSAN KARDAS L.—, known as Sue. She rcd. her B.A. in Anthro. at Santa Barbara (one of Jim Deetz's students), and then attended the U of Ill. at Urbana last year, before we were married last summer. Besides 3 yrs. of digging in Calif. she dug at Fort Ligonier in 1965, and did site survey in the Pac. N.W. w/me last summer. She hopes to work on the Del. Val. Expressway, if + when that digging starts.

(over)

In the meantime she is looking for an anthropology or archaeology job, since it seems that the expressway dig will be till next spring before work starts. (Yes, we talked to Mrs. Della Vigne) So if you know of a nice job do let us know. Incidentally, Sue is negotiating to dig the Thomas Massey House, near Media, but that won't pay until next Spring either, even if the Committee does hire her, so its no immediate help.

See you soon.

Yrs.
Edward

Techniques

January 20, 1965

Dear Don:

When we discussed about a complete series, we really meant a series from particular sites or limited areas. We would be very happy to run such a series as the one you describe especially if you have good stratographic control. We generally do not charge for running samples from the areas in which we are interested, but if someone has a grant we are always glad to have all or part of the expenses paid for. If you could raise even as much as $25 per sample, it would help, but if you cannot, we are prepared to do the seven or eight samples you mention.

Since I am probably going to be away most of the rest of the month, and a good part of February, please write your decision to Mr. Robert Stuckenrath, here at the Museum. If you decide to go ahead, he will send you sample information sheets.

With all best wishes,

Sincerely yours,

Alfred Kidder II
Associate Director

Mr. Donald W. Lathrap
Department of Anthropology
University of Illinois
Urbana, Illinois 61803

AKII/vg

UNIVERSITY OF ILLINOIS
DEPARTMENT OF ANTHROPOLOGY
137 Davenport Hall, Urbana, Illinois 61803

January 6, 1965

Dr. Alfred Kidder II
University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pennsylvania

Dear Dr. Kidder:

As you know, I wrote to Bill Coe a short time ago requesting information about the possibility of the University of Pennsylvania lab doing some of my radiocarbon samples. In his answer he suggested that I write directly to you and also mentioned that the Pennsylvania lab would only undertake to do a complete series. I have already had four samples accepted at the Yale lab, but could provide very extensive series from particular sites or limited areas. I wonder if what is meant by a complete series is all of the samples collected by a particular expedition or all of the samples from a particular site or limited geographical area. If the second interpretation is the correct one, I would like to request information about submitting a series from the Upper Pachitea region. I am of course interested in the cost of such assays if the Museum would accept such a series. I believe we have seven or eight good samples from this area.

I am sorry that I did not have more time to talk with you during the Detroit meetings. We will be getting out a progress report on the Peruvian expedition soon and I will certainly send you a copy.

Sincerely yours,

DWL

Donald W. Lathrap

DWL:ms

I think 2nd meaning, don't you? And, of course we can use all the money he can spend. I'll bring over some sample information sheets for him.

Bob Stuckenrath

Exchanges

March 31, 1965

Dear Don:

In spite of the fact that your series is split, the Radiocarbon people think we should undertake to run the rest of it. However, according to the rotating schedule of the Laboratory, it would not normally come up for a year and a half, since South America is not due until then. But, they tell me if you are desperate they might be able to put the samples in before going on to the Arctic. If this is the case, you should send them as soon as possible to Mr. Robert Stuckenrath, here at the Museum. He is in charge of the Laboratory. Stuckenrath also suggests that it would be well for you to let us know the Yale sample number and date as soon as you get them, so that appropriate reference may be made in our date list. I should add that the year and a half is only approximate - it could stretch to even longer than that,- so I strongly advise that you send them in right away if you want them done here.

I will be seeing you in May,

Sincerely yours,

Alfred Kidder II
Associate Director

Dr. Donald W. Lathrap
Department of Anthropology
University of Illinois
Urbana, Illinois 61803

UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 4

The College

DEPARTMENT OF PHYSICS

March 31

Dr. Kidder:

I think, too, that we should take them. If Lathrap is willing to wait a year and a half, all well and good. If he's desperate, or if you feel some hurry is indicated, we might stick them in the works when Tikal is finished before we go on to the Arctic. In the latter case, Lathrap had best send them on soon, so we can have them on hand for argument.

If we do take these samples, might ask Lathrap to send us the Yale sample number and date as soon as he gets them so that we can make appropriate reference in our date list. It's bad enough having a series split without obscuring the fact.

Bob.

UNIVERSITY OF ILLINOIS
DEPARTMENT OF ANTHROPOLOGY
137 Davenport Hall, Urbana, Illinois 61803

March 26, 1965

Dr. Alfred Kidder II
Associate Director
University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Kidder:

My letter to Yale was not in time and the sample from the Upper Pachitea was already in the works. There are still at least eight samples from this area with very good stratigraphic context and in a demonstrable chronological relationship, and we are still most anxious to have these run. I am putting in for a grant from the Research Board which would include a $40 per sample fee. My money for samples from the initial grant is all used up. I did not wish to proceed any further in this matter until I informed you that unfortunately the one sample from this set could not be recovered from Yale. I hope this will not completely destroy your interest in our series, but if you have a firm policy in this respect I certainly understand its justification. I will await an answer from you on these matters before proceeding any further.

I am very much looking forward to having a chance to talk to you at the meetings.

Sincerely yours,

Don

Donald W. Lathrap

DWL:ms

Bob - I think we should take these, in spite of all our at Yale. I realize that there would have to be a considerably larger of lots before we could get to SA again. What do you think?

AK

Dr. Steinbrecher

October 21, 1966

Mr. Edward Larrabee
P.O. Box No. 296
Churchville, Pennsylvania 18966

Dear Edward:

It was good to see you and to meet Sally (?). Thank you for your note and enclosures.

If you have an extra copy of your article entitled "The Identification of a Village Site by Aerial Photography" we would very much like to have it. In our Information Center, we have a great many inquiries about the applications of aerial photography.

With best regards,

State of New Jersey
GLASSBORO STATE COLLEGE
GLASSBORO, NEW JERSEY

ART DEPARTMENT

Dr. Richard Law
January 23, 1965

Miss Elizabeth Ralph
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Miss Ralph:

Among my responsibilities in the Art Department at Glassboro State College is instruction in Art History wherein I make considerable reference to the Libby process of radiocarbon dating. Also my daughter shows a deep interest in archaeology as a field of study. Currently she is working on a project paper on radiocarbon dating for a high school science class. We both have read Willard Libby's Radiocarbon Dating, we have perused several encyclopedias, and we have studied your displays at the Museum so that we are familiar with the basic concepts or principles of dating by analysis of radioactive carbon content although much of the physics and chemistry is beyond our comprehension at the moment.

We are writing to request an interview with you or a member of your staff in order to further understand the dating process in operation. Perhaps you could show us samples of a case history and/or a stage of a test in progress from your current work. We would like to ask questions concerning the reference of radiocarbon dating to other dating methods. If you could help us in some way we would appreciate it very much.

Sincerely,

Richard Law

Dr. Richard Law
Associate Professor of Art

Dear Miss Ralph,

Thank you very much for the time you spent with me during our interview.

The radiocarbon method of dating became much clearer and more than just a series of equations and words as did the other processes I saw.

Thank you again for your time spent with me and the pictures and other information that you gave me.

Sincerely,
Rijn A. Law

PROF. ACTIVITY

August 3, 1967

Mrs. Barbara Lawn
C-14 Dating Laboratory
David Rittenhouse Lab.; Room BW-4
33rd & Walnut Streets
Philadelphia, Pennsylvania

Dear Mrs. Lawn:

On behalf of the teachers of the NSF Summer-Academic Year Institute at Temple University, I would like to thank you for the very informative and interesting talk and tour of your C-14 facilities on August 2, 1967. We also appreciate the time you took from your very busy schedule in order to help explain to us this very complicated process. I am sure that we will be able to put this information to use in our future classes.

Again thank you very much. With kind regards,

Yours truly,

ALVIN J. K. WON
Ritter Hall; Room 262
Temple University
Philadelphia, Pa. 19122

PRESERVATION COPY, 03/19/2014

January 3, 1963

The Honorable Ibrahim Husayn El-Ahdab
Ambassador for Lebanon
Sheraton Park Hotel
Washington, D. C.

Sir:

My purpose for writing you is a short note that appeared in one of the newspapers here just yesterday. The newspaper story told of one of the famous cedars of Lebanon dying and collapsing from an unknown disease.

To familiarize you further with this purpose, let me briefly explain the scientific investigation in which we are, at present, engaged at the University Museum. This refers to the Carbon-14 Laboratory of the University of Pennsylvania, which is sponsored jointly by the University Museum and the Physics Laboratory. We are now in the process of measuring a long series of wood samples of known age. These measurements will help to determine, indirectly, the "half-life" of Carbon-14 or the constancy of cosmic ray intensity. Also, these measurements will enhance the accuracy of calibration for samples of unknown age. To carry out our measurements, we have, thus far, obtained basically two types of trees: the Sequoia gigantea and the Pinus aristata. We are still in the process of obtaining data from these and they will be published in due time, probably within a year and a half.

The reason for this rather lengthy background is to acquaint you in some detail with our purposes and to ask you whether it would be possible to obtain, either directly through you or any other Institution or Government Agency which you may suggest, a segment of a cross section of this cedar of Lebanon that collapsed. This segment should be about 2 or 3" thick, about 1' wide and reaching from the bark of the tree to and including its center or "pith" year. This would give us enough material to make our Carbon-14 determinations.

The Honorable Ibrahim Husayn El-Ahdab
Ambassador for Lebanon

January 3, 1963

Please feel free to inquire further about this if you feel there is a chance that we might obtain the section desired.

With best wishes, I am

Sincerely yours,

Henry N. Michael

HNM/jaw

Arch Technology

Applied Science Center for Archaeology

THE UNIVERSITY MUSEUM • UNIVERSITY OF PENNSYLVANIA
33rd & SPRUCE STREETS • PHILADELPHIA 4, PENNSYLVANIA
Froelich Rainey, Director EVergreen 6-7400 (Area code 215)
Elizabeth K. Ralph, Associate Director
EVergreen 6-0100 Ext. 8168 (Area code 215)
Cable Address "Antique"

January 15, 1963

Dr. Froelich Rainey
c/o Mr. Max McCullough, Special Assistant
Educational and Cultural Affairs
Department of State
Washington 25, D. C.

Dear Dr. Rainey:

Sorry to have missed you just before you left for the airport. Ann explained to me that you needed details about the case of the Cedars of Lebanon. My idea was that perhaps you could find time to stop at the Near Eastern desk and ask the cultural attache to contact his counterpart in Beirut and arrange for the acquisition of a section of the tree in question.

The attached letter to the Ambassador for Lebanon will explain the details. We have also sent a similar letter to Dr. Baramki at the American University in Beirut and he has already suggested that we write to the Department of Agriculture of the Republic of Lebanon. We will do so, but, in the meantime, it would not hurt to contact through the Near Eastern desk.

Hope this is not too much bother,

Sincerely,

Henry

Henry N. Michael

HNM:pc

LABORATOIRE
D'ETHNOLOGIE ET D'ARCHÉOLOGIE
TCHADIENNES

Jean-Paul Lebeuf
Directeur de Recherche au C.N.R.S.

8, Rue Henner, PARIS IXe
TÉL. : 874-26-33
Adresse télégraphique :
SCIENSUMAINE PARIS 084

Paris, le 28 mai 1969

Monsieur le Professeur RAINEY
Director
The University Museum
University of Pennsylvania
Thirty-third and Spruce Streets

PHILADELPHIA, PA 19104
(Etats-Unis d'Amérique)

L/358/69

Mon cher Collègue,

Après plusieurs déplacements et quelques occupations absorbantes à mon laboratoire, je peux enfin répondre à votre télégramme et vous exprimer toute ma reconnaissance pour votre aimable démarche auprès de la Wharton School.

Je ne sais ce qui s'est produit dans l'envoi du dossier de mon neveu à cette institution, mais depuis, son prochain mariage a modifié ses projets ou, plutôt, l'a amené à les reporter. Il ne se rendra donc pas cette année aux Etats-Unis, prévoyant d'y venir plus tard lorsque la formation qu'il reçoit actuellement en France sera suffisante pour qu'il puisse suivre avec tout le profit maximal les cours américains qui l'initieront complètement à son métier.

En vous renouvelant mes excuses pour mon retard à vous répondre et mes remerciements pour votre démarche, je vous prie de croire, mon cher Collègue, à mes meilleurs sentiments dévoués.

J.-P. Lebeuf

Professeur J.-P. Lebeuf

September 4, 1968

Mr. J. E. Mitchell, President
Lehigh Testing Laboratories, Inc.
P.O. Box 1241
Wilmington, Delaware 19899

Dear Mr. Mitchell:

Under separate cover we are sending sample nos. P-1505 and P-1506 for carbon analysis. These samples have been pretreated with HCℓ so that we are interested in knowing their organic carbon contents which remain. Maximum precision is not required.

A purchase order is also being sent separately.

Sincerely yours,

Elizabeth K. Ralph

EKR/emf

H. W. LEIGHTON LABORATORIES

DIVISION OF
MANUFACTURERS ENGINEERING AND EQUIPMENT CORPORATION

RADIATION COUNTER TUBES ----- IONIZATION CHAMBERS ----- COUNT RATE METERS

Sales & Manufacturing Offices
~~York & Sunset Lane, Hatboro, Pa.~~
~~Telephone: OSborne 5-3302~~
250 TITUS AVE. WARRINGTON, PA.
DIAMOND 3-6600

Research & Development Laboratories
26 Herman Street, Glen Ridge, N. J.
Telephone: Glen Ridge 2-5824

March 9, 1964

Mr. Robert Stuckenrath, Jr.
Radiocarbon Laboratory
University of Pennsylvania
Department of Physics
Philadelphia, Pa. 19104

Dear Mr. Stuckenrath:

This will acknowledge your letter of March 2.

Presently our shipping records indicate that ten counters were picked up by your personnel on February 17 against our shipping order L-1178. The price for repair of these counters is $19.00 each.

With regard to these counters, we wish to indicate that some of these counters date back to as far as 1959. In many cases they have been repeatedly back here for repair. Now, it is hardly fair to us to send counters back for repair and then pick them up without issuing any purchase order to permit invoicing, then proceeding to send more counters for repair as indicated in your letter of March 2.

It is the purpose of this letter to indicate that we will require a purchase order covering repair of the ten counters picked up on February 17.

In addition, our personnel are being instructed not to proceed with any work on the counters returned on March 2 without a purchase order to cover these. There is no warranty policy on these counters. Our personnel cannot be responsible for counters that have been used in the field for periods of time such as that indicated in your letter and we cannot possibly maintain a business wherein no purchase orders are issued to permit invoicing.

H. W. LEIGHTON LABORATORIES

250 TITUS AVENUE - WARRINGTON, PENNA.
Diamond 3-6600

To repeat, we require a purchase order to cover the repair of counters delivered to your personnel on February 17 and we will require a purchase order before any work will be done on the shipment indicated in your letter of March 2.

Thank you very much for your attention.

Very truly yours,

H. W. LEIGHTON LABORATORIES

G Bergson

Gustav Bergson

GB/ef

CC: Mrs. R. Moore

March 11, 1964

Dr. Gustav Bergson
H. W. Leighton Laboratories
Div. of Manufacturers Engineering & Equipment Corp.
250 Titus Avenue
Warrington, Pennsylvania

Dear Dr. Bergson:

If our memories have not failed us, Mr. Stuckenrath and I recall that we were waiting to receive from you the estimate of the cost of repairing the geiger counters which were sent to you many months ago.

Since you have now furnished that information for the 10 counters returned to us on February 17 (shipping order L-1178), we have initiated a purchase order for these at $19.00 each.

Will you please send us a written estimate of the cost of repair of all of our counters now in your custody. Please note that the 9 counters which were returned to you most recently had been repaired (or replaced) previously in March 1963. It is annoying (and costly for us) that these counters, whether new or repaired, do not last for even one whole year.

Sincerely yours,

EKR:lm

Elizabeth K. Ralph

September 12th, 1973

Dr. Alfonz Lengyel, Director
Classical Art and Archaeology Program
Northern Kentucky State College
Highland Heights
Kentucky 41076

Dear Dr. Lengyel,

Our MASCA Newsletter on the subject of Radiocarbon corrections, has, at last, been published. It may be more lengthy and detailed than you anticipated for reprinting in Acta Toscana.

However, if you do want to reprint it, I shall be glad to send you photographs of the figures.

Sincerely yours,

Elizabeth K. Ralph

INSTITUTO VENEZOLANO DE INVESTIGACIONES CIENTIFICAS (I.V.I.C.)
(Adscrito al Ministerio de Sanidad y Asistencia Social)

Apartado 1827
Caracas - Venezuela

Cables: IVIC - CARACAS
Teléfono: 71.92.24

Caracas, March 1, 1960

Dra. Beth Ralph
Philadelphia.-

Dear Beth

My best wishes that you and your mother are well. I wrote you last month. I havent received any answer from you; I would like to receive on e very much. I sent you one picture of my wedding in my last letter, please advise me if you receive that picture.

How is your work. I am going to start my work about C-14 very soon. I am receiving the equipment.

My best regards to you, to your mother, to Robert and to Ellen.

Sincerely,

Gladys León de Pinto

Gladys León de Pinto

replied 3/6/61
ma
H3

Caracas, May 3, 1960

Dra. Elizabeth Ralph

Philadelphia.-

Dear Beth:

It has been a long time since I last hear from you and I wonder How you are. How is your mother, I hope She is well and you are happy again together with her. I and my husband are vere happy and we are wishing you can find the right man and then to have many children. Please advise us about it; we will be very glad when that is possible.

How is your work. Did you start again ?. I think to start approximately in August, if all the equipment have arrived.

With my best regards to your mother, Ellen, Robert and to Louise, I am

Sincerely

Gladys Leon de Pinto

Gladys Leon de Pinto

Note: I would like to write you longer than this one, but I don't know English well and it is difficult for me.

INSTITUTO VENEZOLANO DE INVESTIGACIONES CIENTIFICAS (I.V.I.C.)
(Adscrito al Ministerio de Sanidad y Asistencia Social)

Apartado 1827
Caracas - Venezuela

Cables: IVIC - CARACAS
Teléfono: 71.92.24

Caracas, June 14 1961.

Dra. Elizabeth Ralph
Philadelphia

Dear Beth:

What happened?. I am sincerely wishing to hear from you. I have sent many letters to you but I have'nt received notice from you. I hope your mother is enjoying good health.

Every day that passes I feel more like going back to United States. My husband is very interested too, perhaps in the future we may be able to go there.

Please write to me or else I might think you already forgot me.

Many regards from my husband and I, for you and your mother.

Sincerely,

Gladys León de Pinto

Gladys León de Pinto

replied 6/20/61

INSTITUTO VENEZOLANO DE INVESTIGACIONES CIENTIFICAS (I.V.I.C.)
(Adscrito al Ministerio de Sanidad y Asistencia Social)

Apartado 1827
Caracas - Venezuela

Cables: IVIC - CARACAS
Teléfono: 71.92.24

Caracas, August 14, 1.961

Dra. Elizabeth Ralph
Philadelphia.-

Answered 8/28/61

Dear Beth:

The equipment for Carbon-14 almost all has come; I think in the next week I am going to start to assemble the equipment; about it I want to ask you something. I don't remember What have I with KOVAR SEAL. Please tell me what is the aplication of it. I am manufacturing the furnaces now.

How is your mother. I want to hear from you and from her, but you don't like to write me.

My husband and my mother send you and to your mother many regards. My best regards to you , your mother, Louise Ellen and to Roberts, I am

Sincerely,

GLeón Pinto
Gladys León de Pinto

Excuse my mistakes.

INSTITUTO VENEZOLANO DE INVESTIGACIONES CIENTIFICAS (I.V.I.C.)
(Adscrito al Ministerio de Sanidad y Asistencia Social)

Apartado 1827
Caracas - Venezuela

Cables: IVIC - CARACAS
Teléfono: 71.92.24

Caracas August 3, 1.961

Dra.
Elizabeth Ralph
Philadelphia.-

Dear Beth:

Prof. Cruxent has received a letter from Dr. Kidder in which he tells him thar the University of Pennsylvania is not the place to undertake training of this kind. I am really interested to pursue my studies towards a M.S. degree specializing in Analytifcal Chemistry, at the same time, I would have to cover special courses of Chemistry applied to Archeology.

I wrote to University of Illinois giving information about that. I am receiving now the equipment for C-14; at last I am going to start, I need to do it very quickly.

How is your mother. I want to write to her but I missed her address, please send me it.

My best regards to your mother, Ellen, Louise and to Roberts, I am

Sincerely,

G. León Pinto

Gladys León de Pinto.

August 28, 1961

Gladys Leon de Pinto
Instituto Venezolano de Investigaciones Cientificas
Apartado 1827
Caracas, Venezuela

Dear Gladys:

Since Beth is on vacation, I'll try to answer your question about Kovar seals. These seals are used to join metal tubing to glass tubing ; one end is metal tubing bonded to glass and then graded to pyrex tubing.

To use the seal, you must first clean the metal end to a shiny brightness with emery and then "tin" it with standard soft solder. Do nut use silver solder for the glass will melt at those temperatures. The pyrex end is then simply blown to glass tubing while the metal end is soldered to metal tubing.

We order our Kovar seals from the Stupekoff Division on the Carborundum Company, Latrobe, Pennsylvania, and I'm sure they would be glad to send you their catalog and price list.

Good luck with your laboratory.

Sincerely yours,

Robert Stuckenrath, jr.

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

DEPARTMENT OF GEOSCIENCES
LABORATORY OF ISOTOPE GEOCHEMISTRY
TEL. (602) 626-1396

LERMAN

July 16, 1981

Dr. Henry Michael
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Henry:

I am glad that Jeff is going to come here sometime soon to finish the writing and the computing needed to finally accomplish the goals of the calibration workshop. I owe you this letter since our last telephone conversation. Several other colleagues have expressed their concern about the delay in this work and in convening the projected meetings. Let me tell you once more that I am the first in being very concerned by the delays introduced in the project. However, I would feel worse not to be using most of my wake-time in applying for grants and/or jobs that would eventually feed my family. This operation is very stressful and time consuming. I have 300 job applications in my files all with negative answers. This means I have been writing and typing myself at a rate of 100 per month since we were informed of the loss of NSF funding. Reading and answering the advertisements in Science, Physics Today, Nature, EOS, Geotimes, etc. takes most of my time. Apart from that I was advised to read the local newspaper for possible openings for any type of job I can get while other support arrives.

As you probably know, the NSF funded 18 months of workshop calibration with only 3 months of salary for me. The rest of the funding had to be raised unless I accepted some 'not-so-funny' suggestions that I eat less.

I am sure you will also understand the delay and difficulties in planning the calibration meetings. First, I had to be sure we could meet. We might have to request conversion of the travel funds to salary funds. The reviewers of the grant proposal clearly demonstrated reluctance to support meetings and suggested we give preference to numerical work. Second, here is where Jeff's contribution is needed to complete the work unless other unforeseen interruptions in funding (with consequent loss of salary support) occur. As Jeff cannot dedicate any time to the workshop while he is in Philadelphia, we must find the way to keep him here 100% immersed in documenting and tiding up his work until it is in "manuscript ready form" and in computer usable software. With the present organization, each interruption sets back the work and we lose time and money. I hope you can help us in this respect to make Jeff's stay as productive as we need.

I will surely also appreciate very much all your help with long term suggestions concerning my funding. I hope that you will understand the causes of the delay in the calibration work. I will keep you informed of our progress.

Best personal regards,

J. C. Lerman
Research Associate

JCL/ez

cc: P. E. Damon
E. Ralph

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

DEPARTMENT OF GEOSCIENCES
LABORATORY OF ISOTOPE GEOCHEMISTRY
TEL. (602) 626-1396

July 16, 1981

Dr. Elizabeth Ralph
Radiocarbon Dating Laboratory
University of Pennsylvania
Philadelphia, PA.

Dear Dr. Ralph:

I received, in due time, your letter with the information about the possible work related to the algerian laboratory but I have not as yet received any information directly from Dr. Benzias. Other prospects of funding did not develop. I am surviving with a 2 months grant from the Research Corporation and the lab is doing some commercial work. I would appreciate any further suggestion for funding that you might have.

I am attaching a copy of a letter about the calibration work.

With my best personal regards.

Sincerely,

J. C. Lerman
Research Associate

JCL/ez

cc: P.E. Damon

replied 4/18/72

Eastern Michigan University
Ypsilanti, Michigan 48197

March 21, 1972

Elizabeth Ralph
Associate Director
Museum Applied Science Center for Archaeology
University of Pennsylvania

Dear Ms. Ralph:

Barbara Ford's recent article in Saturday Review on your activities with MASCA prompt me to write. Until some nine years ago I was associated with University of Michigan Memorial Phoenix Project and had as well a life long interest and professional training in Archaeology. I was at that time working on an alternate dating system which was abandoned when I moved schools and professions.

Admittedly the idea is something of a long-shot but many times I have wondered if, perhaps it should be followed up. I shall, therefore, pass along the idea in its rudimentary shape in hopes that it may serve some purpose to you and your associates.

As a well known matter, isotopes have been observed to migrate within large ore-bodies as a function of time and isotope weight. Ideally suited for such determination is, of course, silicon with its two natural isotopes, one of which may be made radioactive by neutron bombardment.

The basic premise refers to the obvious matter that if migration occurs in large ore-bodies it likely takes place in small ones as well - even in bodies as small as arrowpoints, etc., which are frequently very high in silicon content. Another interesting point about such artifacts is that at the time of manufacture new surfaces are created, thus rendering the specimen homogeneous in distribution of isotopes at that time. A still further interesting point is that many stratified sites obviously employed the same quarries for their cherts, chalcedonies, etc. for thousands of years, and in particular areas, such as the cave sites

of Kentucky, Alabama, etc., these specimens have been held at almost constant temperature since the time of deposition (important because migration is also temperature dependent).

I believe this matter could be checked very easily by preparing some thin sections of worked material from various levels of a stratified deposit, bombarding them with neutrons and preparing autoradiographs of the bombarded specimens. If it works, of course, one should be able to produce a comparative series which could be extended way back past effective C-14 dating and could be made to apply to individual archaeological specimens torn from original associations.

The central reason I did not follow through on this was that a cave site I believed to have access to for acquisition of specimens was thoroughly rifled by a farmer with a tractor who removed the entire contents of the cave, put the dirt in wagons and drove them into a creek, from which he later removed all salable archaeological specimens and the immediate possibility of my study. I did have some material from a previous dig, but not enough, unfortunately, to make a good test.

I have, in the past, discussed this with a number of persons having nuclear backgrounds. The source of their concern centers around the possible lack of homogeneity of the specimens themselves and on the basis of this reservation declined to pursue the matter further. They may be right of course, but then they may also be wrong. But it seems wrong not to check such an easily accomplished task.

Please, however, if the idea hits your imagination, feel free to pursue the idea, since my current professional activities guarantees that I shall not be able to follow it any further.

Sincerely,

Roger L. Leatherman

Roger L. Leatherman
Professor of Education

P.S. I am most interested in your new cesium magnetometer. Any information or references to it would be highly appreciated.

RL/sd

April 18, 1972

Prof. Roger L. Leatherman
Department of Education
Eastern Michigan University
Ypsilanti, Michagan 48197

Dear Prof. Leatherman:

Thank you for your suggestion of studying the migration of silicon isotopes in arrowpoints, etc. It is an intriguing idea, and I plan to discuss it with geologists and nuclear physicists as time permits.

I have enclosed a reprint from Geoexploration in which our cesium magnetometer is described.

Sincerely yours,

Elizabeth K. Ralph

EKR/mm
Enclosure

Dr. Faul,
What do you think of this idea?
Beth

Not much.
H.

Eastern Michigan University
Ypsilanti, Michigan 48197

March 21, 1972

Elizabeth Ralph
Associate Director
Museum Applied Science Center for Archaeology
University of Pennsylvania

Dear Ms. Ralph:

Barbara Ford's recent article in Saturday Review on your activities with MASCA prompt me to write. Until some nine years ago I was associated with University of Michigan Memorial Phoenix Project and had as well a life long interest and professional training in Archaeology. I was at that time working on an alternate dating system which was abandoned when I moved schools and professions.

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Sincerely,

Roger L. Leatherman

Roger L. Leatherman
Professor of Education

P.S. I am most interested in your new cesium magnetometer. Any information or references to it would be highly appreciated.

RL/sd

YALE UNIVERSITY
DEPARTMENT OF HISTORY OF SCIENCE AND MEDICINE

333 Cedar Street
New Haven 11, Connecticut

March 24, 1962

Miss Elizabeth K. Ralph
Applied Science Center for Archaeology
University of Pennsylvania
Philadelphia 4, Pa.

Dear Miss Ralph:

My husband left for India before your letter arrived. I had hoped to be able to forward his mail to him but he found it necessary to change his plans. As a result I am holding it for him.

He will be pleased, I know, that you will give a paper and he will be most interested in the plans for the new center.

He will need an abstract (not more than 200 words) by May 1 so he can plan the program. I hope that this will not inconvenience you.

Yours truly,

Mary Levey

(Mrs. Martin Levey)

4 October 2969

Miss Elizabeth K. Ralph
Museum Applied Science Center for Archaeology
University of Pennsylvania
33rd & Spruce Streets
Philadelphia, Penn. 19104

Dear Beth:

Thanks for your letter, and the notice that the samples had arrived in good order.

Your information on the core sampling will be most helpful, thanks.

If you don't mind, please have the wood sent on to me, for I wish to have the wood identified. Send it COD or any way you can and I'll reimburse you.

Thanks again for all you did and are doing to help us, it is very much appreciated. Hope all goes well with you.

Sincerely,

Dave

John D. Lewis

Col. John D. Lewis
15th Artillery Group (AD)
Fort Bliss, Texas 79918

THE LIBRARY OF CONGRESS
WASHINGTON, D. C. 20540

REFERENCE DEPARTMENT
MAP DIVISION

July 5, 1967

File
Jennette
Dr Rey Rey
I have seen this but you might try to get a copy. FEB
Please return letter for reply

Dear Professor Rainey:

I am sending this letter from my office in the Library of Congress to supplement our recent telephone conversation from my office in the U.S. Geological Survey. It is entirely possible that I did not describe with sufficient accuracy a book on the location of archaeological monuments for you to identify it as one with which you are already acquainted.

The book is one published by the ITEK Company (Alexandria, Virginia office) for the National Park Service. The study was made by ITEK in conjunction with a program for reservoir construction in order to find archaeological sites before they would be flooded. The publication is identified as Archaeological Photointerpretation for the National Park Service. It was published under contract WA-SO-II-65/1 and published August 27, 1965. It is sometimes referred to informally as the "Nebraska Survey of 1965." The report was not intended for public distribution, but I believe you could obtain a copy from the National Park Service. If you do not have this report and wish to borrow a copy, Mr. Edward Risley, Division of Earth Sciences, National Academy of Sciences, Washington, D.C. 20418, would be glad to lend you his personal copy.

We continue to maintain an interest in your work on the identification of archaeological sites through the use of infrared and other remote sensing devices over areas in Italy and the western United States. I understand that Lt. Williams at the Air Force Research Laboratory in Cambridge has some coverage for Italian sites, but I assume it is the same material that you obtained some time ago. If your analysis of more recently obtained imagery from Italy or the western U.S. appears to warrant any joint venture between your work and the Geographic Applications Program supported by NASA, please let me know. I can join you in Philadelphia on very short notice.

Sincerely,

Arch C. Gerlach.
Arch C. Gerlach, Chief
Geography and Map Division

Dr. Forelich Rainey
University Museum
33rd and Spruce Streets
University of Pennsylvania
Philadelphia, Pennsylvania 19104

COPY

February 28, 1963

Dr. P. H. LiCastro
Box 661
State College, Pa.

Dear Dr. LiCastro:

Dr. Rainey has returned at last, but the time is so short - we both leave for Italy in the middle of March, that we are wondering if you would mind waiting until we return in August.

With more time then and also with more test data from our field work in Italy, we hope that we shall be able to make more specific plans for future work, and that we can make arrangements for your participation.

I'm sure that we shall benefit from your experience with instruments for underground exploration.

Sincerely yours,

Elizabeth K. Ralph

EKR/deh

Prof. Michaels

MRS. RICHARD KIMBALL LINCOLN
SCHOOLMASTER LANE
DEDHAM, MASSACHUSETTS
TEL. 617-326-5827

Dorothy Weeks

Rosemary Perrell
Dean at Pembroke
biologist

January 19th

Dear Beth,

Last week the editor of the school newspaper asked me to write an article on opportunities for women in science. I would appreciate any comments you might have on the subject-fields that are appropriate, preparation-graduate degree? etc..Are more women going into physics? I blithely agreed to write this, and am now beginning to realize I know very little about the subject-help!

My life is busy and hectic, as always. I am still teaching at Dana Hall, PSSC Physics, CHEM chemistry, and a physical science course. On the side I sponsor an Outing Club which just started this year-we run about 4 events each weekend, which keeps me active somehow. I retired from competition this year in hockey and squash, but seemed to have become quite involved so I am not sure it accomplished anything!

Let me know if you are ever up here-would love to see you. And, thank you for all the wealth of information which you can produce, hopefully!

Sincerely,

Betty

Amer. Inst. of Physics
Amer. Phys. Society

Committee in Wash.
R

4-5/yr.

library field - ms - scan

Medical Sch.
Women in Sci.

7442

Dr. Eleanor Dolan
Amer Assoc. of Univ. Women
2401 Vir. Ave.
Wash. D.C.

January 28, 1964

Mrs. Richard Kimball Lincoln
Schoolmaster Lane
Dedham, Massachusetts

Dear Betty,

Please excuse my delay in answering your letter of January 19th. I hope that I am not too late with some vague information about opportunities for women in science.

I have not read anything specifically on this subject for many months, but remember that there have been articles in SCIENCE and in the latest issue (January 24th), there is an article on scientific and engineering manpower that mentions that the percentages of women in these fields is not increasing. Another journal that may have some articles is PHYSICS TODAY.

Dr. Brownlee, Dean of Women here, has suggested three people to consult or write - namely,

Dr. Dorothy Weeks
28 Dover Road, Wellesley

Dr. Rosemary Perrell, a biologist and
Dean at Pembroke in Providence

Dr. Eleanor Dolan
Amer. Assoc. of University Women
2401 Virginia Ave., Wash., D. C.

If you talk to Dr. Weeks, please give her my best regards.

There are a few more women studying physics here than there used to be, but compared with the total enrollment, the percentage has probably dropped. The Math-Physics Librarian has suggested that there is a great demand for science librarians, especially with an M.S. degree. This field seems to be more heavily populated with women than others, but there is a scarcity of feminine M.S. degree holders.

Mrs. Richard Kimball Lincoln January 28, 1964

Your life does sound busy. Perhaps, the hockey and squash were less time-consuming than the Outing Club. My main exercise this winter has been wood-chopping, but I keep thinking I'll play squash some day.

With best regards,

EKR:ek

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THE LITTLEMORE SCIENTIFIC ENGINEERING CO.

RAILWAY LANE,
LITTLEMORE, OXFORD.

Telephone: Oxford 78563.

E. T. Hall, D.Phil.

MJA/REB/LSEC

31st January 1961.

R. E. Linington Esq.,
The University Museum,
University of Pennsylvania,
Thirty-Third and Spruce Street,
Philadelphia, 4.

Dear Linington,

I am pleased to inform you that your ELSEC Proton Magnetometer was dispatched to you by air today. We have included a total of two detector bottles, as we were uncertain from your instructions whether two or three were required. If in fact you require a total of three, let us know, and we will dispatch one as soon as possible.

As regards the cost, the position is that one bottle is included in the over all price of £780, and each extra bottle costs £15 (see our letter of 19th November).

We hope you will have satisfactory service with this instrument, and look forward to hearing from you. Assuring you of our best attention at all times.

Yours sincerely,

E. T. Hall.

ASC17

THE LITTLEMORE SCIENTIFIC ENGINEERING CO.,
RAILWAY LANE,
LITTLEMORE, OXFORD. Tel. Oxford 78563

PROTON MAGNETOMETERS

New Developments May 1963.

Dear Sir,

You have at some time expressed an interest in our Proton Magnetometers and we are taking the liberty of sending to you certain details which we hope you may find of interest.

For those of you who have bought instruments, we hope that you have been having satisfactory service and that you may be persuaded to buy other equipment from us.

Magnetometer Type G.

This instrument replaces all previous models (types B to F as well as FS and RF). It is equally applicable for simple use in the field as well as more sophisticated recording applications. For recording the necessary information is brought to a 12 pin plug into which is plugged the recorder control unit.

Those of you who have bought RF or FS instruments can use them with our new recording instruments, but a few (about three) very minor wiring alterations may be necessary depending on the type number.

Recorder Control Type 614 for Trace Recording.

We have now supplied many of these instruments to customers who have used them for aerial and seagoing surveys as well as for ground station work. Details and specification of this instrument are enclosed.

Recorder Control Type 615 for Trace Recording.

The type 614 unit has one disadvantage. If the

field strength is fluctuating between full scale deflection and just over full scale, the pen will keep travelling from one end of the chart to the other. For instance if the magnetometer readings are varying between 50095 and 50105 and we are recording the last two digits on the recorder having a full scale deflection of 100 units, the pen will go from one end to the other perhaps many times. The type 615 control unit has been designed to obviate this. In fact the chart is graduated 0 to 110 and when in the region 100 to 109, the pen stays at the right hand side of the paper; only when above 109 will the pen travel to the above 10 position to the left of the paper. This modification makes interpretation of the chart easier. The recorder uses 6 inch wide chart rolls and may be powered by 230 volts A.C. or 24 volt D.C. without modification. Otherwise the specification of this recorder is similar to the 614 unit.

Punch Tape Recording.

We have undertaken a number of "one off" projects involving punch tape output systems. We are always keen to quote for such equipment. Before doing so we would need a specification of your requirements. This should include type of code and hole system, and other relevant details, number of readings per minute required and whether any time correlation is to be provided by a digital clock which is also to be punched-out. Technical assistance can be given by our staff in making such decisions. A visit to our laboratories to discuss details of proposed special equipment is often useful.

Air or Sea Going Detector.

Due to the fact that very low-microphonic cable has become available, we have now found it unnecessary to use external preamplifiers with the associated difficulties of tuning, and the large size of "fish" or "bird". We have developed a highly satisfactory rubber encapsulated detector which is water-tight and may be connected to the aeroplane or ship-borne magnetometer unit by the special cable up to at least 1000 feet in length.

New Brass Connectors for Magnetometer Cables.

Certain of our customers have experienced difficulties

with the aluminium plugs and sockets used. The reason for the aluminium alloy types being used in the first place is that they are totally non-magnetic. However, there is no reason why brass connectors (these are fairly magnetic) should not be used at the control unit end of the cables. These brass connectors are similar but have a very coarse thread and will not bind. We would be pleased to supply an adaptor kit to any purchaser. (Price £2). Remember these are only suitable for one end of the cable. The aluminium connections on the detector end must be cleaned and well greased periodically.

Finally I would like to point out how our magnetometer sales have been increasing. We believe this is due to the high reputation which has been gained by our instruments together with an efficient servicing organisation. To give an idea of the scope of our business, I am enclosing a list of some of our customers, who own ELSEC instruments - I feel the list is self-explanatory - and I hope you may be tempted to purchase one of our instruments (or if you already have one, to buy another!) knowing that you are in good company.

Yours faithfully,

E. T. Hall.

Director.

Tikal, 29 March, 1961
El Peten
Guatemala

Dear Beth -

Richard has arrived (with temperature that has turned into a nasty cold), and has found that the magnetometer doesn't seem to work very well. He says that the magnetic field here seems to be 0.863 oersteds, whatever that means - though, it gathers, this batteries were low, and has to change - & a large he seems extraordinarily helpless - But that as it may, he wants to have the things tested on the enclosed bit of paper sent as soon as possible. They should be shipped & air to our new agent in Guatemala City (the former one is on his way to Lebanon to raise chickens). Our new one is

c/o Miss Joya Hairs ← Richard Livingston
Apartado 1159
Guatemala City
Guatemala
CA.

I'll be back a week from today - back to all.

Hastily,

Ted Kidder

P.S. Richard has just asked me to ask you to include some spare fuses - he says - "Small (½") Bellingtree glass ended 4 amp. and 7 amp. Pocket Lobelley ~~fuses~~ spare fuses should be on bench or shelves in Room 40 Otherwise please send about ½ doz. of each".

mFd μFd.

Capacitors 1 each of :- (ie 4).

½ ~~μFd~~ mFd , 0.05 mFd (500 μFd)
2 ~~μFd~~ mFd , 0.20 mFd (200 μFd)

+ various others over a range of values. (say what is 10)
1 μF ~~to μF~~ to 10 mFd
Should be fairly small (not electrolytic)
preferably cylindrical eg Astron or Plessey

1:1d.

3/2/75

[??]

Dear Lisa,

Mark Han has Fro's & my approval to go to Bangkok if he can do something useful. However, as you are aware, there is a lot of work to do here, and from what I have gathered from Srisukh's letter of April 22nd, the equipment in Bankok is not suitable. Also he does not seem to know the difference between TL & C^{14} dating.

The TLD reader that he has desribed is not sensitive enough to measure natural TL as required for the dating of pottery. It is designed for work with dosimeters.

Also, for C^{14}, we need to know whether they plan to do liquid scintillation counting of benzene or gas proportional counting, & what equipment they have now.

If they are planning on benzene, it would be much better for them to contact Dr. Henry Polach, Dept. of Geophysics & Geochemistry, Australian National Univ., Canberra A.C.T., Australia 2600 who is not far away, & is an

expert in that field.

Maybe you could list all of their equipment, including manufacturers, & we could discuss this when you return.

With best regards,

EKR

[circa Apr. 20]

MR RICHARD W. LLOYD

DR. Rainey

Re Summer Project in S. Carolina. Techniques

Called Mr. Richard W. Llyod on Tues. Apr. 20 to check on dates for work at the Camden, S. Carolina site for this summer.

He says work with the instruments (preferably the pmag. & the Geohm) will not begin until August 9th. In July - all further details may be arranged with
Dr. William E. Edwards
(Prof. & State Archaeologist)
% Dept. of Anthropology
Univ. of S. Carolina

The local person who will be in charge of work is James L. Anderson
Chrm. of Comm. of Chamber of Commerce.

Work is to be an exploration of brick magazine - & other redoubts (?) - from Spanish S. Carolina Occupation (1770's).

? Do we have other field work for Henry Borstling - for the early part of the summer; - that is June & July.

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INSTITUTO NACIONAL DE
ANTROPOLOGIA E HISTORIA
S. E. P.

DIRECCION DE PREHISTORIA
CHEDRAL MEXICO D.F.

October 1, 1962

Applied Science Center for Archaeology
The University Museum
University of Pennsylvania
33 rd & Spruce Streets
Philadelphia 4, Pennsylvania
U.S. A.

Dear Sir:

We have just learned of the organizations of your center at the University of Pennsylvania, We wish to congratulate you on an achievement that is going to give needed and valuable service to the development of archaeology.

As you probably know, we have several laboratories here to assist us with archaeological work: Chemistry, Physics, Palaeobotany and Palaeozoology, both micro and macro, Petrology and Mineralogy and a conservation workshop.

Could you please inform us as to the organization, methods and what laboratories do you have to pursue your work, also any information that you think would be of use to us on the field.

We would like to mantain contact with all organizations of the kind throughout the world, so if you have a mailing list we would appreciate if we were put on it, also, if you have some publications on your work, would you consider sending them to us, and we will send ours to you.

Also if you are ever in Mexico, please fiel free to come and visit our instalations and give us your ideas on our work here.

We end this letter wishing you good luck in the work of the Center and we remain.

Truly Yours,

José L. Lorenzo

JLL/jrrmo.

INSTITUTE NACIONAL . . . .

July 14, 1967

Dear Dr. Lorenzo,

I have yours of the 5th of July regarding archaeological prospecting equipment. Here is what I recommend to you:

1. The small resistance apparatus called GEOHN, made in Germany and can be purchased for about $100 at National Electronics, P. O. Box 1237, Sheridan, Wyoming, 82801. This is effective down to one or two meters and is very simple to operate.

2. The Elsec Proton Magnetometer, produced at Oxford, England, and obtainable from Littlemore Scientific Engineering Co., Railway Lane, Littlemore, Oxford, England, for about $2500. Very useful where there are magnetic contrasts in the soil.

3. The Cesium Magnetometer, developed by the University Museum and Varian associates in Palo Alto, California. Much more effective than the proton magnetometer, but I do not know the cost, since they are now being produced for the Air Force. You could write to Varian Associates in Palo Alto.

4. Infra-red aerial photography. We are just now experimenting with this in Italy and current results are very good. I have in mind making an experiment with this in the Vera Cruz area, if this can be eventually arranged with your department.

For the moment, I would suggest that you get a GEOHN and experiment with that on some of your highland sites. We will keep in touch about the infra-red experiments.

Most sincerely,

Froelich G. Rainey
Director

Dr. Jose L. Lorenzo
Instituto Nacional de Antropologia e Historia
Departamento de Monumentos Prehispanicos
Cordoba 45, Mexico 7, D. F.

FGR/fbd

INSTITUTO NACIONAL DE
ANTROPOLOGIA E HISTORIA
S. E. P.

DEPARTAMENTO DE
MONUMENTOS PREHISPANICOS

JEFATURA

CORDOBA 45, MEXICO 7, D. F.

ARCHIVO
OFICIO NO 01108
B/3.015 (73)/3

MÉXICO, D. F. 5TH. JULY 1967

DR. FROELICH RAINEY
A.S.C.A.
THE UNIVERSITY OF PENNSYLVANIA
PHILADELPHIA, PENN. 19104

DEAR DR. RAINEY:

FOR A LONG TIME WE HAVE BEEN CONTEMPLATING TO HAVE, FOR OUR OWN EXCAVATIONS, SOMEONE OF THE APPARATUS USED IN ARCHAEOLOGICAL PROPECTING, MAGNETIC OR RESISTIVITY KINDS. NOW WE FEEL THE NECESSITY OF HAVING ONE WHO SHOULD BE APPLIED TO THE MANY EXCAVATIONES WE DEAL WITH ALMOST CONTINUOSLY. OF COURSE, WE KNOW THAT THE RESULTS DEPENDE VERY MUCH ON THE UNDERLYING BEDROCK, THE ORIGIN OF THE SOIL OR BEDIMENTS, ETC. AS THE QUALITY THE FEATURES OR MATERIALS TO BE LOCATED HAVE.

I CERTAINLY PRESENT MY EXCUSES FOR TAKING YOUR TIME BUT I BELIEVE OUR DEMAND WILL RECEIVE YOUR WELCOME. WOULD IT BE POSSIBLE TO HAVE FROM YOU THE INDICATIONS AS TO WHOM TO APPROACH TO BUY ONE OF SUCH APPARATUS? WE NEED YOUR JUDGMENT ABOUT WHICH ONE YOU BELIEVE WOULD BETTER FIT WITH OUR LACK OF TRAINING AND (I AM SORRY TO POINT OUT THIS MATTER) THE ONE THAT HAS A BETTER PRICE FOR ITS PERFORMANCE.

I AM AFRAID I AM PUTTING RATHER A BURDEN ON YOUR SHOULDERS WITH SO MANY QUESTIONS BUT IT WILL NO ESCAPE TO YOU THE IMPORTANCE OF YOUR ADVICE. IN THE HOPE TO RECEIVE YOUR ANSWER IN THE FUTURE, I AM SINCERELY YOURS.

HEAD OF THE DEPARTMENT

ARQGO. JOSÉ L. LORENZO.

March 21, 1970

Dr. Iris Cornelia Love
Research Ass't. Professor of Art History and Archaeology
Long Island University
Brooklyn, New York

Dear Dr. Love:

In checking our file of instruments, we find that you are signed out for one of our Geohm resistivity instruments.

If you do have the Geohm and are not planning to use it in the near future, may we trouble you to return it to us as soon as possible?

Sincerely yours,

E.K. Ralph

EKR/mm

typing:
gross 92.3
errors 2
90.3 net score

UNIVERSITY of PENNSYLVANIA

Room 130 Franklin Building
3451 Walnut Street I6
Philadelphia, Pa. 19174
Interviews 9-12 Mon-Fri or by Appointment

Date 9/30/74

APPLICATION FOR EMPLOYMENT

Mr. ☐ Ms. ☐
Miss ☒ Mrs. ☐ LOWTHER, CAROLYN A.
(Last) (First) (Middle)

Social Security No. 139-38-2511

Present Address 3901 LOCUST WALK PHILA, PA. 19104 Tel. No. 349-8876
(No. and Street) (City or Town) / State (Zip Code)

Date of Birth 7/14/45 Citizen of U.S. YES If not, type of Visa

Position Desired ADMINISTRA. ASST., UNIVERSITY MUSEUM Minimum Starting Salary Date Available IMMED.

How were you referred to the University? Newspaper ☐ Friend ☐ University Employee ☐ Other ☐ I AM A STUDENT HERE

Have you ever previously: — Applied for employment with the University? NO When

Been employed by the University? NO Department When

Please state dates and other details of past and present military status — —

Please state chronic ailments or physical limitations of any nature. — —

EDUCATIONAL RECORD

ELEMENTARY SCHOOL

Name and Location	Date Entered	Date Left	Graduated Yes or No
LIVINGSTON PUBLIC SCHOOLS			X

HIGH SCHOOL

Name and Location	Date Entered	Date Left	Graduated Yes or No	Course
BOONTON HIGH SCHOOL			X	

COLLEGE OR BUSINESS SCHOOL

Name and Location	Date Entered	Date Left	Field of Specialty	Graduated Yes or No	Degree and Date
MT. HOLYOKE COLLEGE	'63	'65	MUSIC	NO	—
U. OF PENN. COLLEGE FOR WOMEN GRAD A & S	'66	'69	MUSICOLOGY	YES	B.A. 1968 grad TISC.U
WHARTON GRAD	'74	---	FINANCE	PRESENTLY ATTENDING	— —
KATHARINE GIBBS SCHOOL	'65	'66	BUSINESS	YES	SPEC. CERT.

SKILLS Typing Speed Shorthand Speed 100 Languages FRENCH, GERMAN, SPANISH

Equipment dictaphone Other

Hobbies, Sports and other activities of Volunteer Social, Civic or Business Nature, including extracurricular activities in School

SWIMMING, JOGGING
ORCHESTRA
"WHARTON WOMEN"

EQUAL OPPORTUNITY EMPLOYER

RESUME

PERSONAL DATA

Name: Carolyn A. Lowther

Address: 3901 Locust Walk
#1115, J458
Philadelphia, Pennsylvania 19104
(215) 349-8876

Birthdate: July 14, 1945

Marital Status: Single

EDUCATION

Institution	Dates	Field of Study	Degree
Mt. Holyoke College S. Hadley, Mass. 01075	1963- 1965	Liberal Arts	---
Katharine Gibbs School 200 Park Avenue New York, New York 10017	1965- 1966	Business	Special Certificate
College for Women University of Pennsylvania Philadelphia, Pa. 19174	1966- 1968	Music	B.A.
Graduate School of Arts & Sciences University of Pennsylvania Philadelphia, Pa. 19174	1968- 1969	Musicology	10 graduate c.u.

HONORS

Phi Beta Kappa, 1968

Hilda K. Nietsche Award in Music, 1968
(Highest grade-point average in Department of Music)

WORK EXPERIENCE

3/73 - 5/74

Olsten of Morris County Inc.
1200 U. S. Highway #46
Parsippany, New Jersey 07054

Administrative Assistant

Positions in Marketing, Finance, Sales, Manpower Development, Scientific Affairs, Personnel, Architecture, Public Relations, Nuclear Engineering

Duties: Correspondence, statistical reports, organization of filing systems, annual reports, manpower training

9/72 - 2/73

K. B. White Temps Inc.
15 East 40th Street
New York, New York 10016

Administrative Assistant

Positions in Law, Transportation, Management Consulting

Duties: Correspondence, filing, typing of wills and research

8/71 - 1/72

San Jeronimo Hotel
Condado Avenue
San Juan, Puerto Rico 00907

Administrative Assistant to Food & Beverage Manager

Duties: Correspondence, filing, inventory, purchasing

1/70 - 7/71

Auchincloss & Lawrence Incorporated
610 Fifth Avenue
New York, New York 10020

Research Assistant, Investments

Duties: Maintenance of 50+ charts of economic indicators, market research, recordkeeping, statistical reports, proofreading of computer print-outs, appraisals of securities

7/69 - 12/69

Interbank Card Association
110 East 59th Street
New York, New York 10022

Member Information Supervisor, Communications Department, Credit Cards

Duties: Supervision of MTST/MTSC workflow and coordination of mailroom activities, correspondence with 200+ member banks, supervision of special projects (geographical listings, statistical reports), liaison with printers

1/69 - 6/69

Dorrance & Company
Philadelphia, Pennsylvania 19107

MTST/MTSC Operator, Editorial Assistant, Publishing

Typing of books, manuscripts, correspondence, proofreading and editing

7/67 - 12/68

Wistar Institute
36th Street at Spruce
Philadelphia, Pennsylvania 19174

Editorial Assistant, Medical Research

Correspondence, Manuscript typing, proofreading

REFERENCES

Ms. Martha Ann Elliott
Vice President
Auchincloss & Lawrence Incorporated
610 Fifth Avenue
New York, New York 10020

Ms. Alice Quill, Director
Katharine Gibbs School
200 Park Avenue
New York, New York 10017

WHARTON INFORMATION

Expected Date of Graduation:	May, 1976
Major:	Finance
Program:	M.B.A.
Courses completed:	APL Programming Calculus Review

Date 9/10/74 Signed Carolyn A. Lowther

67 Chapel Street
Kingston, New York 12401
May 20, 1975

Dr. Elizabeth K. Ralph
Museum Applied Center, Archaeology
The University Museum
University of Pennsylvania
33rd & Spruce Street
Philadelphia, Pa. 19174

Dear Dr. Ralph:

Although you may have a copy of the enclosed article and be aware of the references cited therein, I thought that the factors mentioned which can vary the decay characteristics of radionuclides may be of importance to your radiocarbon - dendrochronology studies. Thus, at the risk of sending you the tenth copy, the enclosed is forwarded to you.

The nonlinearity, or more correctly the deviations from linearity, which occur in some of your C^{14} - dendrochronology date graphs appear to be systematic and very real. I have often thought of this, and wondered about their cause or causes. The possibility of pressure, temperature, and electric field stresses effects may offer plausible explanations.

Wishing you much success in your program and work, I am

Very truly yours,

Peter Love

Peter Love

Enc.

8 December , 1967

Prof. D. Lowe
Department of Earth Sciences
University of Michigan
Ann Arbor, Michigan

Dear Prof. Lowe:

Sheldon Breiner has just told me about a conference on remote sensing that you are planning to hold in April. Our interest in remote sensing is in the detection of buried archaeological features.

If some of the subjects to be discussed are applicable to our interest, I am wondering if it would be possible for me to attend or to receive a copy of the papers given at this conference.

Sincerely yours,

Elizabeth K. Ralph

EKR/abn

October 13, 1966

Techniques

Dear Dr. Lyford:

Thank you for your kind letter of October 3rd and for the interesting suggestions for other applications of our prospecting instruments.

We do not know of any soil scientists or geomorphologists who have used the new instruments which we described, especially the cesium magnetometer, for soil studies. Last winter tests were made for possible military applications of the magnetometer, but other than that, it has been used so far primarily for archaeological prospecting. The sensors, either cesium or rubidium, with more elaborate and less portable detection apparatus, have been used by Varian Associates and various collaborators for a variety of more basic geophysical studies.

Tests of other instruments in your fields of interest may have been performed of which we are not aware. One possible source of information is "Proceedings of the IVth Symposium on the Remote Sensing of Environment", held at the University of Michigan in April 1966. This was just published last week and we have not yet received a copy.

Your suggestion of a trial at the Harvard Forest appeals to us very much. Perhaps it could be arranged for a weekend in the near future before the weather is too cold. We are a bit confused about "Harvard Forests"; is the one you suggested for a trial in Massachusetts or New Brunswick?

Most sincerely,

Froelich Rainey
Director

Dr. Walter H. Lyford, Soil Scientist
Harvard University
Harvard Forest
Petersham, Mass. 01366

FGR/...

HARVARD UNIVERSITY
HARVARD FOREST
PETERSHAM, MASSACHUSETTS
01366

Rolph
Letter say it shall
you or I
write?
FRR

3 October 1966

Dr. Froelich Rainey
Prof. of Anthropology
University of Pennsylvania
Philadelphia, Pa.19104

Dear Prof. Rainey

Congratulations to you and Miss Ralph on the paper Archaeology and New Technology in the 23 Sept. issue of Science. For several years I've seen occasional references in the New York Times to your work with these new devices and have almost written a couple of times to get information.

For years I've had as an ideal for the soil mapper some sort of device one could strap on that would ring bells or move needles as one walked over the landscape. I knew this approach would never come from the men who came into the soils field from geology or agronomy and I had rather guessed the soil engineers might be the innovators because of their strong physics background. Somehow I never guessed the innovations would come from archaeology or anthropology. My own scholastic background was in chemical engineering but I came up through the soil classification mapping field by 23 years in Government and Experiment Station work and since coming here have been in soil dynamics, morphology and biology.

During the last several years I have become acquainted with Fred Johnson and Douglas Byers and visited the Debert site in Nova Scotia and a couple sites on Cape Cod. Slowly and rather reluctantly I have concluded that archaeologists look at the soil in much greater detail than soil scientists, and they have given soil scientists more than they have received in return. Certainly archaeologists have given soils people about the only means of dating the rate of soil development. Soil science can be of more help than it now is and the major drawback right now seems to be a sort of language barrier. While at Debert I had a chance to discuss this with several trained archaeologists and found they had never had an opportunity to study processes of

soil development. They seemed to be fascinated by the things I saw in the soil. In part, because of this I lead a seminar on this subject last spring in the Dept. of Geological Sciences aimed particularly at those who did not wish to specialize in soils but wished to have some soil information as a tool. So far as I know this is the only course devoted solely to soils ever given at Harvard and so of course the archaeology students had no opportunity before. This same is probably true elsewhere because the strongest soils courses generally are at Land Grant Colleges and are given a strong agronomic bias. Furthermore most of the soils textbooks also have the same bias.

Now, back to your new technology. Do you know whether any soil scientists or geomorphologists are using your devices for other than archaeological investigations? I'm not sure of the limitations of your instruments, but is seems to me they could be used profitably to study many soil features such as the presence of fragipans, buried boulders or other rather distinct density gradients in soils, whether of pedogenic or geogenic origin. For example a soil feature I have paid especial attention to here at the Harvard Forest, in New Brunswick, Canada; and this past summer in Sweden, is the marked influence of wind throw of trees on the character of the soil. The pronounced microrelief resulting from wind throw is destroyed when the forest is cleared and the soil repeatedly cultivated but the soil "remembers" the microrelief -- by irregularities in the B horizon below plow depth -- by concentration of coarse fragments in the bottom of former pits -- by inversion of B horizons -- by localization of organic matter -- and in other ways. In fact the pattern shown in your Figure 6 reminded me of patterns of wind throw mounds I have made.

Your new technology offers as many promises for non-archaeological purposes that I hope these will not be overlooked. Hopefully soil scientists and geomorphologists will rush to take advantage of your work, but perhaps they won't because of non-availability of equipment or other reasons. Here at the Harvard Forest we have 100 foot grids on several different tracts and have a good deal of soil and geomorphology information available. It occurred to me that this might be a good place to rather rapidly test your instruments to see if they have promise in other directions. If either you or Miss Ralph or any of your associates would care to try out your devices here I'd be glad to point out some likely places for your exclusive study. Our soils and surficial deposits are representative of large areas in eastern North America and a one-stop-shot might give you a rather confident notion of the applicability to non-archaeological purposes.

Yours very truly,

Walter H Lyford

Walter H. Lyford
Soil Scientist

WHL/s

December 1, 1966

Mr. Walter H. Lyford
Harvard Forest
Petersham, Mass. 01366

Dear Walter:

Many, many thanks to you and to Mrs. Lyford for your kind hospitality during my visit in the Harvard Forest. I enjoyed working with you and, especially, in such pleasant surroundings.

I am leaving for Tucson this evening to look for Indian houses, and hope that the warm sunshine continues there. I'll be glad too if we are able to detect them with the magnetometer.

I have enclosed an article from Science that I thought might be of some interest to you. Probably you have already read it.

With best regards,

Beth Ralph


Millet
215

Mr. G. P. Hammell,
University of
Pennsylvania,
Philadelphia,
Pennsylvania,
U. S. A.

ENERETT: MITTET & CO. A.S, OSLO

Vinter i Norge

Norway, December 21, 1953.

Dear Sir:

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

Sincerely yours,
Marry Lykaas.

Dr Septem in Physics

Lillestrøm, Norway, December 21, 1953.

Mr. G. P. Harnwell,
University of Pennsylvania,
Philadelphia 4,
Pennsylvania,
U. S. A.

Dear Sir:

I thank you cordially for my interesting as well as pleasant stay in the Carbon 14 Age Determination Laboratory at the University of Pennsylvania.

Thank you very much for the certificate of February 25, 1953.

Sincerely yours,

Marry Lykaas,

Marry Lykaas,
c/o Isotope Department,
Joint Establishment for Nuclear Energy Research,
Kjeller per Lillestrøm,
Norway.

CORNELL UNIVERSITY
ITHACA, N. Y. 14850

DEPARTMENT OF ANTHROPOLOGY

McGRAW HALL

file

Rsch

November 17, 1965

Dr. Froelich Rainey
Department of Anthropology
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Dr. Rainey:

Having looked forward for some time to meeting you and seeing your facilities, Bob Ascher and I are very disappointed to tell you that we will be unable to come to Philadelphia as originally planned on November 23. Because of other responsibilities which have come up, we have been forced into this last minute change of plans. I hope we have not inconvenienced you too much.

We are still eager to visit you, and I hope we can write soon and make other arrangements for the near future. Again, I am sorry about this last minute postponement.

Sincerely,

Thomas F. Lynch, jr

Thomas F. Lynch

TFL/j

8 December, 1967

Prof. R.J.P. Lyon
School of Earth Sciences
Stanford University
Stanford, California 94305

Dear Prof. Lyon:

Sheldon Breiner has just told me about the symposium which you held on the subject of remote sensing. He mentioned that it might be possible to obtain a copy of a "suite of pictures" which were prepared for your meetings.

Our interest in remote sensing is in the detection of buried archaeological features. We have recently experimented with aerial infrared photography, and especially with the ITEX nine-band camera (in collaboration with the Cambridge Research Laboratory of the U.S. Air Force). We are anxious to learn more about this and other "remote" techniques that might be applicable to archaeological prospecting.

Any information which you can send us will be very much appreciated.

Sincerely yours,

Elizabeth K. Ralph

EKR/abn

November 7, 1962

Miss Mary C. Lyons
Editor
Wellesley Alumnae Magazine
Green Hall
Wellesley 81, Massachusetts

Dear Miss Lyons:

My Carbon-14 article, of some time ago, wasn't especially exciting, but I shall be glad to try again on the subject of the search for Sybaris for the Alumnae Magazine.

If you find nothing forthcoming in the course of the winter, please don't hesitate to remind me to write it.

Sincerely yours,

Elizabeth K. Ralph '42

EKR:dml

This was done on Tuesday

THE FORD FOUNDATION
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November 1, 1971

Miss Elizabeth Ralph
University Museum
33rd & Spruce
Philadelphia, Pennsylvania

Dear Beth;

I have a question that may not take up much of your time as I suspect it can be answered in one word, i.e., "no". Can anything be done to stone to make a worn inscription readable?

The museum, here, has discovered a stele which would probably be of major importance to Thai history if they could read it, as the characters on one rim show that it is 13th century and the text has something to do with the invention of the Thai alphabet. The face with the main inscription is worn down so that the lines of writing are too faint to be read even in a sharp side light or in the most carefully taken rubbing. I know from my mystery story reading that the police can always recover the erased numbers of car engines by magico-chemical means, and I wondered if anything like that had been tried on stone. It's a very hard, smooth, non-crambly sort of stone.

Hope you had a good summer and have survived the moving and the Grand Opening. Hello to everyone.

Sincerely,

Elizabeth Lyons

Elizabeth Lyons
Project Specialist in Archaeology

copy sent to F.O. Hours 11/9/71

MASCA
11/12/71
airmail

Miss Elizabeth Lyons
Project Specialist in Archaeology
The Ford Foundation
P.O. Box 436
Bangkok, Thailand

Dear Lisa,

It was good to hear from you. No, we do not have an immediate answer for your problem of reading a worn inscription in stone. However, Mr. Otto Haas is about to volunteer his time & reseach facilities to help with archaeological problems such as this. Therefore, we have sent a copy of your letter to him, & we hope that this may be his first challenge.

He has not yet retired from Rohm & Haas, so if interested, there may be a time delay, so I hope that an answer is not needed immediately.

In the meantime, it would help if you could send us a photograph or two of it. I don't suppose it would be possible to send a sample of the stone (~~stem~~

(taken from where it would not damage the inscription). We could scratch it here to find out if some chemical would enhance the contrast between the encised parts & bare stone. If a sample is too complicated, could you find a geologist to identify the type of rock?

Lots of people send you their best regards & so do I,

E K Ralph