HAFFENREFFER MUSEUM
Mount Hope Grant, Brown University
Bristol, Rhode Island

April 25, 1961

Dr. Froelich Rainey, Director
University Museum
33rd and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Frol:

How could I hesitate to accept your offer of the loan of the German resistance instrument in return for an article for "Expedition"? As I see it, I am the winner both ways. Seriously, you can depend on us to follow directions and use the instrument for all it is worth. It seems to me that if it does work, this will open up all kinds of possibilities for the Arctic research in earlier time levels. I am keeping fingers crossed for a Denbigh burial but will happily accept whatever turns up on those early beaches. If it is inconvenient for Mr. Linington to come up here, just let me know and Anderson and I will drive down to get instructions.

We look forward to your next visit and to your bringing more Raineys with you.

Sincerely,

Louis

J. L. Giddings
Director

JLG:mt

Archaeological Techniques
Dr. Ralph Solecki – Columbia Univ.
Dr. Sheldon Judson – Princeton Univ.
" Albert C. Spaulding – National Science Fdn
Washington – D.C.

May 5, 1961

Dr. J. L. Giddings
Director
The Haffenreffer Museum
Mount Hope Grant, Brown University
Bristol, Rhode Island

Dear Louis:

We have had so many requests for information about the use of geophysical instruments for archaeological prospecting, that I decided that it is now wise to get together five or six of the people from different institutions to explain what we are doing and to arrange for the loan of instruments to these people for experimentation in their particular fields. It would be necessary to have Richard Linington here with the results of his experimentation at Tikal, in Guatemala, during the past several weeks. He should continue there through most of May, but will certainly be back here in the Museum on the first of June. Therefore, I wonder if you could join us in my office at the University Museum say around 10: a. m. on June 1st, so that we can work this thing out, explaining the use of the instruments and schedule them for different field jobs during the coming year.

I expect to get off for Italy on the 9th of June and so I hope that the 1st of June will be convenient for you to meet with us.

At the moment, it looks as if the most successful instrument available is the small German-made resistance apparatus. We now have one of these and three more on order. The British Proton-Magnetometer costing something over $2,000 is rather too expensive for us to duplicate, but it can be loaned out at different times to any of you when research jobs do not overlap. The small percussion instrument which Linington is now also using in Tikal so far has not been very successful, but it may improve when he learns more about utilizing it. The newer sonic device we are trying to develop, through

develop through Texas Instruments certainly will not be available for some months, but all the information we can get from actual field testing with the present instruments will certainly help in the new design.

I do hope you can make it on June 1st.

Sincerely yours,

FR:ah

Froelich Rainey
Director

September 12, 1962.

Miss Marjorie S. Tomas,
Haffenreffer Museum
Mount Hope Grant,
Brown University,
Bristol, Rhode Island.

Dear Miss Tomas:

Thanks for your note. The information forms are enclosed.

Sincerely yours,

EKR:LF Elizabeth K. Ralph

HAFFENREFFER MUSEUM
Mount Hope Grant, Brown University
Bristol, Rhode Island

September 7, 1962

Miss Elizabeth Ralph
Radiocarbon Laboratory
University Museum
33rd and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Miss Ralph:

Before Dr. Giddings left for Denmark, he asked us to send you certain samples for radiocarbon dating, and we plan to do this before long. Could you send us a supply of forms to use in describing these samples? If so, there is no rush, but we would appreciate your sending them whenever convenient.

Sincerely,

M. Tomas
Marjorie S. Tomas

mt

Thanks for your note. The information forms are enclosed.

EKR

HAFFENREFFER MUSEUM
Mount Hope Grant, Brown University
Bristol, Rhode Island

January 14, 1965

Dr. Elizabeth K. Ralph
Radiocarbon Laboratory
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Dr. Ralph:

Because of your interest in the work of the late Dr. James Louis Giddings, we would like you to know what is being planned by Brown University to ensure the continuation of his important projects.

The Arctic work--particularly the excavation of the Onion Portage site on the Kobuk River--in the 1965 season will be under the over-all direction of Dr. Froelich Rainey of the University Museum, Philadelphia. Dr. Rainey, out of long friendship with Dr. Giddings, will forego some of his own research interests to carry on the project for Brown University and the National Science Foundation--for which we are deeply grateful.

Working closely with Dr. Rainey, and in charge of the day-to-day digging will be Mr. Douglas Anderson (M.A., Brown University, 1962), now completing work for the Ph.D. at the University of Pennsylvania, and a veteran of four seasons' work in the Arctic with Dr. Giddings. Mr. Anderson is the author of an appendix to Giddings' forthcoming Cape Krusenstern report and has excavated in Greenland as well as in Alaska. His close work with and understanding of Dr. Giddings' Arctic sites make him uniquely qualified to carry on this work. At the end of the 1965 summer, Mr. Anderson will return to Brown University as an Instructor in Anthropology and to the Haffenreffer Museum, where he will continue analysis of the Onion Portage material.

Mrs. J. L. Giddings, herself an anthropologist and her husband's close associate in all matters, will become Acting Curator of the Haffenreffer Museum commencing January 25, 1965.

Those with whom Dr. Giddings was daily associated, as well as Arctic specialists who were consulted, feel that these appointments are the best possible for carrying on the work so well under way. We feel, in fact, that were Dr. Giddings to have chosen successors, they would have been these very people.

Please accept the good wishes of all at the Museum for your own best year and know that the anthropology-archeology program at Brown University will continue to adhere to the high standards set by Dr. Giddings.

Sincerely,

Sidney Goldstein
Jr.

Sidney Goldstein
Chairman, Department of Sociology
and Anthropology

mt

Survey w. metal detector 12/4/63 plus spot for magnetometer

THE HAGLEY MUSEUM

Eleutherian Mills - Hagley Foundation Incorporated
Greenville · Wilmington 7 · Delaware · OLympia 8-2401

December 2, 1963

Miss Elizabeth K. Ralph
Associate Director
The University Museum
University of Pennsylvania
33rd & Spruce Streets
Philadelphia 4, Pennsylvania

Dear Miss Ralph:

We will be looking forward to your visit on December 7. I am enclosing a brochure which will give you directions for finding the Museum. If agreeable to you I will meet you at the Museum building at 10 a.m. Should you prefer another hour, would you please telephone me at Market 7-3991.

Sincerely yours,

James B. Akerman

James B. Akerman
Exhibit Lab., Supervisor

JBA:f
Enc.

Frank Bowles SA 6-5670
Bruce Lutz 665-6063 (609)
Gayle Wever EV 2-7457

Marcia Rose LO 4-3700
(home, Kingsley 6-1828)

Dr. Rainey Niagara 4-9289

THE PENNSYLVANIA STATE UNIVERSITY
WALNUT BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Anthropology

Area Code 814
865-2509

March 25, 1970

Morrisville
215-295-2423

Elizabeth K. Ralph
The University Museum
33rd & Spruce Streets
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Miss Ralph:

I am writing you in regard to two items. First, let me acknowledge your communication regarding the deadline and the guide for the preparation of the manuscript. It looks as if I will be able to submit a manuscript during the month of April. The second item that I wanted to correspond to you about concerns a student of mine, Miss Ann Hagan. Miss Hagan has just graduated from The Pennsylvania State University with a major in anthropology and she is returning to the Philadelphia area to seek employment on a full time basis for one or two years. She has worked very closely with me in the laboratory and I have had a chance to train her in the attribute analysis of lithic artifacts and also in obsidian hydration dating. She has turned out to be one of my best students in laboratory work and in addition, has performed in a superior fashion in theoretical courses dealing with archeology.

I am very anxious to have her go on to graduate work in archeology sometime in the near future and I wanted to acquaint you with her availability in the hope that you may have a laboratory assistant position available that she might apply for. I have asked her to make an appointment to see you sometime during the first part of April.

Sincerely,

Joseph W. Michels, Acting Head
Department of Anthropology

JWM:cl

May 2, 1968

Dear Walter:

I am just back and referring to yours of April 24 regarding the magnetometer survey on the Foundation property. Of course we will be glad to do this, and I will get Henry Borstling on the job since Beth is now in Greece. Henry can only work on weekends so if you will give me an optimum time, I will get Henry on the phone and set it up. I don't think any compensation is necessary except for perhaps a few dollars for any expenses that Borstling might have. He is not now employed by us but is glad to do this sort of thing for his own interests.

We will be getting together soon again on the Bicentennial business.

All the best,

Froelich Rainey
Director

Mr. Walter J. Heacock
General Director
Hagley Foundation Incorporated
Greenville
Wilmington 7, Delaware

FR/jt

ELEUTHERIAN MILLS - HAGLEY FOUNDATION INCORPORATED

Greenville · Wilmington 7 · Delaware · OLympia 8-2401

April 24, 1968

Dr. Froelich Rainey
Director
The University Museum
University of Pennsylvania
Thirty-third and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Fro:

Several years ago Miss Elizabeth Ralph was here on the Foundation property to give her class experience in an industrial archaeological dig, and we are about to undertake a new project here where similar underground detections are required. Miss Ralph, I have learned, will be leaving the country shortly, but she has suggested that one of her students who is trained to operate a protomagnetometer would be qualified for the job. She suggested that I write to you to see if this person could spend a Saturday or Sunday with us preliminary to some excavations. We would hope to do this within the next month or so.

If this arrangement can be made, I would like to know what compensation would be appropriate and whether or not the payment should be made to the student or to the University.

Yours very truly,

Walter

Walter J. Heacock
General Director

WJH:f

P.S. I have read the bicentennial report with great interest, and I assume the task force will be meeting soon to discuss it.

WJH

UNIVERSITY of PENNSYLVANIA
PHILADELPHIA 19104

The Faculty of Arts and Sciences
DEPARTMENT OF PHYSICS

September 5, 1979

Dr. h.h. Hame
c/o Prof. Giorgio Stacul
Istituto di Storia Antica
Universita di Trieste
Trieste, Italy

Dear Dr. Hame:

Thank you very much for the copy of "Dwelling- and Storage-Pits at Loebanr III."

I have enjoyed reading it very much. I appreciate the acknowledgement to me, but it was not necessary.

Sincerely yours,

Elizabeth K. Ralph

EKR/jkc

Mr. John Hampton,
National Monuments Record,
Air Photographs Unit,
Fortress House,
23 Saville Row,
LONDON, W1X 1AB,
England.

10 May 1978.

Dear John,

Thank you for your letter of 23rd February and for the interesting article about "King Chester's City".

In December I had an aneurism in my brain, and was in the hospital for almost four months. I am now recovering and am working at least part-time. The worst part is that my legs had a long rest, and I now have difficulty walking.

We all like our new director. There are, and will be, changes in the Museum. We expect to have a new British person in charge of MASCA, and I shall pay more attention to ^{14}C dating. This is just as well, especially with my inability to walk well.

I hope that you are well.

With best regards,

Elizabeth K. Ralph.

ROYAL COMMISSION ON
HISTORICAL MONUMENTS
(ENGLAND)
NATIONAL MONUMENTS RECORD
(INCLUDING THE NATIONAL BUILDINGS RECORD)
Air Photographs Unit
Fortress House, 23 Savile Row, LONDON, W1X 1AB
Telephone: 01-734 6010

23 Feb 78

Dear Beth,

I thought you might be interested to see the attached in view of your past activities in the area. In 1975 (a dry summer) in took more air photographs of the area, which revealed yet more detail.

Enough of Kingsoke: how are you? I hope you are keeping well. I gather you have a person not unknown to us in charge of the museum: has this resulted in policy changes?

Best wishes

Yours ever

John Hamplr.

Dr. E.K. Ralph.

ARCHAEOLOGY TODAY

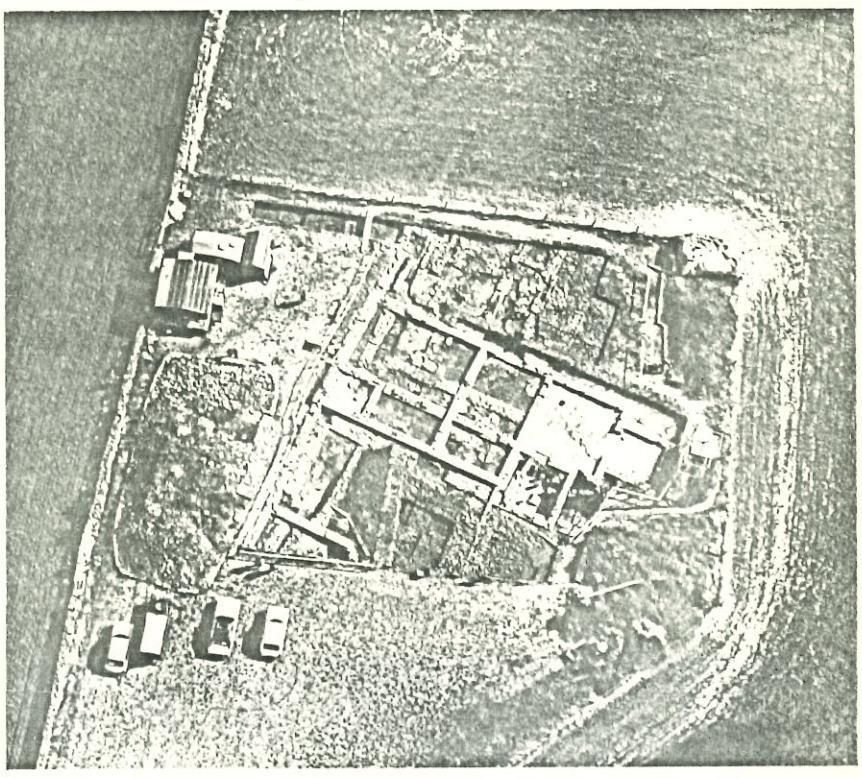
EXCAVATING "KING CHESTER'S CITY"

By JOHN HARRIS

THE observant map reader and traveller through South Gloucestershire intent to discover the remoter parts of the area will notice a triangular area of underpopulated land bounded on the north by the A4135, on the east by the A46 as far south as Upper Kilcote, and towards the west by the line of the escarpment where it drops steeply and suddenly down into the Vale of Berkeley. Points on the triangle might be Kingscote village, Wotton-under-Edge and Leighterton village with its well known long barrow beyond the A46. The area is riven by a number of conjoined heavily wooded valleys touching four isolated houses in their parks at Ozleworth, Newark, Boxwell and Lasborough. This is strange, haunted country where the spirits of the place make their presence felt. Man has been exercising his customs and rites here a long time and has left his ghosts, particularly around Newark and Boxwell. Barrows and tumuli abound, and any ploughed field will release hundreds of microlithic tools and fragments of pottery and brick. Even today there are still those in Wotton who tell the stranger of witches' covens on the uplands beyond Ozleworth.

Kingscote is a good case history to show the continuing value of the oral tradition. Even when writers on Roman roads identified a route from the Roman military camp of White Walls near Easton Grey, skirting Lasborough to the east and passing south of Kingscote Park, thence probably to the old Severn crossing from Arlingham to Newnham, or traced a road from Cirencester (Corinium) to Chavenage Green, and on to Kingscote, they never realised the geographical significance of Kingscote and its immediate area as a potential ideal settlement for man. As long ago as 1779 Rudder in his *New History of Gloucestershire* conveyed the legends of Roman occupation that were still gossiped over in the village. It has taken archaeologists two centuries to show how right he was. He relates that the Domesday Chingescote signified the King's Wood, that the "inhabitants have a tradition, that there was once a city here, of the name of King Chester", associating it with "a Roman station at a place called the Chestles". King Chester's city is now known as the Chessells Roman Town and is being excavated by the Kingscote Archaeological Association under its very capable Director, Ted Swain. The Association now receives grant support from the Imperial Tobacco Company, whose headquarters are in Bristol.

This area of uplands marks the highest point in this south-western spur of the Cotswolds. Water is prolific and springs pour into the still lonely and deserted valleys that must once have been full of wild boar and pigs attractive to the prehistoric hunters. On these uplands ancient man has settled for over 5,000 years. South of Kingscote village on the A4135 is an ancient inn called Hunter's Hall. From it the Romano-British settlement spreads in a segment from west to south-east and covers nearly 200 acres in which more than 100 occupation spreads have been identified by aerial photography. It is bisected by at least two newly discovered roads and its central area are fields still known as Lower, Middle and Upper Chessalls. This is a large settlement by any standards, but as yet it is not clear whether it included an occupation area devoted to groups of buildings in the more urban sense, or whether buildings for farming, military or domestic use were spread haphazardly over the site. The present building undergoing excavation is an urban type of Roman plan rather than a rural Roman villa, and shows a palimpsest of occupation extending from the late 1st century to the 4th century AD.



1—CHESSELLS ROMAN TOWN, IN GLOUCESTERSHIRE, UNDER EXCAVATION BY THE KINGSCOTE ARCHAEOLOGICAL ASSOCIATION. **In local tradition it was once named King Chester's City**

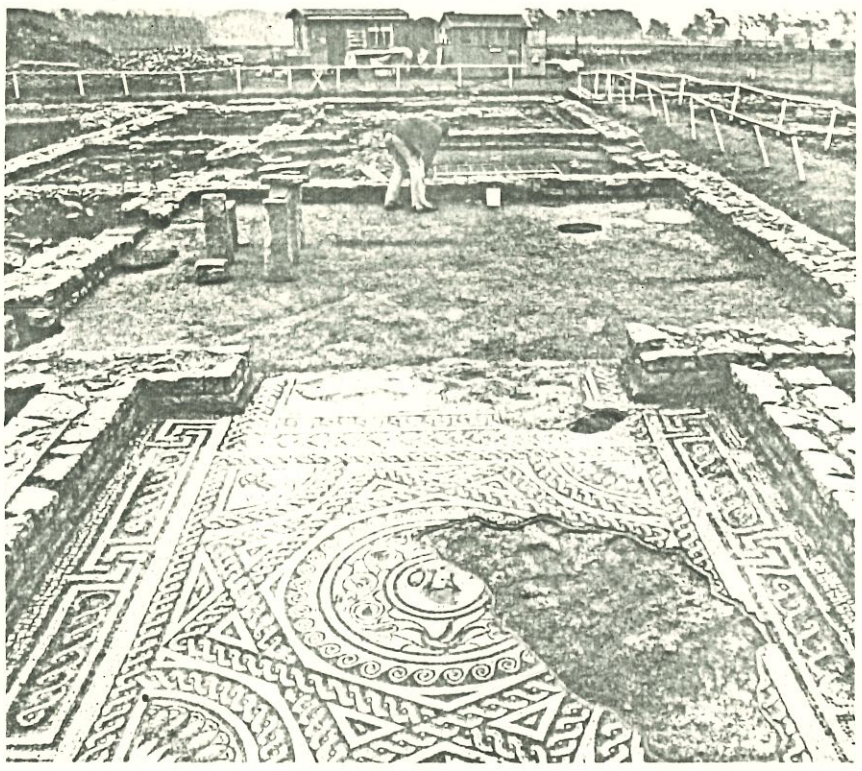
So far eight rooms have been examined, and a group of three retain an intact hypocaust of 109 stone pillars, with two conjoined tesselated pavements, one of Venus, and a more damaged one of Dolphins, both possibly of the Durnovarian school of the 4th century. The most remarkable find from the Venus room was a collapsed frescoed wall painting now in process of partial reconstruction in the Association's Kingscote workshops. A mythological scene is being pieced together which has been tentatively identified as Achilles in the Court of Lycmides on Skyros.

One of the most potentially exciting discoveries has been the very latest right at the end of this past season of digging. In investigating a new area adjacent to the house a massive wall was located that seems to extend for more than a hundred yards. In addition to these major finds there are, of course, masses of minor objects from the various levels.

There is certainly a cemetery site, a temple, and a protective fort south-east of Hunter's Hall. Some questions cannot yet be answered. King Chester was obviously more than just a farming settlement and may well turn out to have coalesced as an urban community. Whether it was abandoned slowly or suddenly may never be answered, but it could have been razed by maurauders in the 7th and 8th centuries. The fanciful and romantically inclined may prefer to associate King Chester with King Arthur. What is certain is that the Kingscote Archaeological Association are engaged upon what will prove to be one of the most significant Romano-British excavations in the county and have many years of their careful and exemplary digging to come.

The site is open to the public, access from A4135 west of Hunter's Hall, from Easter weekend onwards, 10am to dusk weekends; 10am to 6pm weekdays. There is a small admission charge to cover excavating costs. Buffet lunch is available at Hunter's Hall.

Illustrations: Kingscote Archaeological Association.



2—LOOKING ACROSS THE SITE, WITH THE TESSELATED PAVEMENTS IN THE FOREGROUND

August 4, 1966

HAN

TO WHOM IT MAY CONCERN:

Mr. Mark Han, Research Chemist and a valued member of our staff in our Applied Science Center for Archaeology, has been doing pioneering work in thermoluminescence, or the dating of ancient pottery. He will be participating in the NATO-USAF Advanced Research Institute on Application of Thermoluminescence to Geological Problems, in Spoleto, Italy, in September 1966.

On his way back to the United States, Mr. Han would very much like to be able to visit a similar laboratory at Oxford, England.

Any courtesies or assistance extended to Mr. Han will be greatly appreciated by this institution as well as by me personally.

Most sincerely yours,

Froelich Rainey
Director

TUESDAY AFTERNOON

Shelburne-Empress, Coral Reef Room (Lobby Floor)

Symposium on Industrial Carbon and Graphite

F. Rusinko, Jr., *Presiding*

2:00– Introductory Remarks. **F. Rusinko, Jr.**
2:10–21. Preparation of Carbon Metallurgical Electrodes from Low-Temperature Lignite Coke and Lignite Pitch Binder. **J. S. Berber, R. L. Rice.**
2:40–22. The Effect of Pitch Quinoline Insolubles on Graphite Properties. **J. J. Ferritto, J. Weiler.**
3:00– Discussion.
3:15–23. Electrode Tests of Purified Coke from Coal in Aluminum Manufacture. **V. L. Bullough, L. O. Daley, W. R. Johnson, C. J. McMinn.**
3:40–24. The Irreversible Expansion of Carbon Bodies During Graphitization. **L. I. Grindstaff, M. P. Whittaker.**

WEDNESDAY MORNING

Shelburne-Empress, Coral Reef Room (Lobby Floor)

Symposium on Industrial Carbon and Graphite

F. Rusinko, Jr., *Presiding*

9:00–25. Graphite Tape—Its Manufacture, Properties, and Uses. **J. F. Revilock.**
9:25–26. Carbon Foam—Its Preparation and Properties. **R. A. Mercuri, T. R. Wessendorf, J. M. Criscione.**
9:50– Intermission.
10:00–27. Some Experimental Techniques Used in Carbon Reaction Studies. **L. Kurylko, R. W. Froberg, R. H. Essenhigh.**
10:30–28. On the Use of Phosphates to Inhibit Oxidation of Industrial Carbons. **R. W. Broberg.**

Division of The History of Chemistry

M. Gorman, *Chairman*

Sister St. John Nepomucene, *Secretary-Treasurer*

MONDAY MORNING AND AFTERNOON

Claridge, West Room (Mezzanine)

Symposium on Archaeological Chemistry

R. H. Brill, *Presiding*

9:00– Introductory Remarks. **R. H. Brill.**
9:05– 1. Egyptian Blue—Its Preparation and Use as a Pigment and Modelling Material. **W. T. Chase.**
9:40– 2. A Study of Temperatures Used in Firing Near Eastern Pottery. **F. R. Matson.**
10:15– Intermission.
10:25– 3. Gilding of Metals—Techniques Employed in Antiquity and Reproduced in the Laboratory. **H. N. Lechtman.**
11:00– 4. The Techniques of the Luristan Smith. **C. S. Smith.**
11:35– Informal Discussion.
2:00– 5. Analyses of Metal Artifacts from Ancient Afghanistan. **E. R. Caley.**
2:35– 6. Compositions of Some Copper-Based Coins of Augustus and Tiberius. **G. F. Carter.**
3:10– Intermission.
3:25– 7. Trace Impurity Patterns in Copper Ores and Artifacts. **P. R. Fields, R. W. Ramette.**
4:00– 8. Rapid Non-Destructive Activation Analysis of Silver in Coins. **A. A. Gordus.**
4:35– Informal Discussion.

TUESDAY MORNING AND AFTERNOON

Claridge, West Room (Mezzanine)

Symposium on Archaeological Chemistry

R. H. Brill, *Presiding*

9:00– Introductory Remarks. **R. H. Brill.**
9:05– 9. Efflorescent Salts on Objects in Wooden Museum Cases. **E. W. Fitzhugh, R. J. Gettens.**
9:40–10. Two Examples of the Use of Chemical Analysis in the Solution of Archaeological Problems. **E. T. Hall.**
10:15– Intermission.
10:25–11. High Resolution Gamma Ray Spectroscopy Applied in the Analysis of Ancient South Arabian and Mayan Pottery. **E. V. Sayre, L. H. Chan.**
11:00–12. Trace Element Analysis of Pottery by Neutron Activation. **I. Perlman, F. Asaro.**
11:35– Informal Discussion.
2:00–13. Compositional Categories of English and American Pottery of the American Colonial Period. **J. S. Olin, E. V. Sayre.**
2:35–14. Activation Analysis—A Useful Method for Archaeological Chemistry. **G. W. Leddicotte.**
3:10– Intermission.
3:25–15. Trace Component Analysis in American Obsidians. **F. H. Stross, J. R. Weaver.**
4:00–16. Activation Analysis Identification of the Geologic Origins of Prehistoric Obsidian Artifacts. **A. A. Gordus, J. B. Griffin, G. A. Wright.**
4:35– Informal Discussion.

WEDNESDAY MORNING

SECTION A

Claridge, West Room (Mezzanine)

Symposium on Archaeological Chemistry

R. H. Brill, *Presiding*

9:00– Introductory Remarks. **R. H. Brill.**
9:05–17. Determination of the Origin of Greek Amber Artifacts by Computer-Classification of Infrared Spectra. **C. W. Beck, A. B. Adams, G. C. Southard, C. Fellows.**
9:25–18. Gas Chromatography Methods for Bone Fluorine and Nitrogen Composition. **D. W. Groff.**
9:45–19. Potential of Thermoluminescence Dating. **E. K. Ralph, M. C. Han.**
10:15– Intermission.
10:30–20. The Colonial Period Obsidian Industry of the Valley of Mexico. **J. W. Michels.**
11:00–21. Application of Nuclear Track Studies to Archaeological Chemistry. **R. L. Fleischer, P. B. Price, R. M. Walker.**
11:30–22. Ceramic Analysis: The Interrelations of Methods; The Relations of Analyst and Archaeologist. **A. O. Shepard.**
12:30– ***Divisional Luncheon*** (Dexter Chemical Award), Claridge, East Room (Mezzanine). Speaker: **A. J. Idhe**, University of Wisconsin. Subject: The Duality of Biochemistry.

SECTION B

Helium Centennial Symposium

Joint with Division of Chemical Education (see page 109)

WEDNESDAY AFTERNOON

Claridge, West Room (Mezzanine)

General

M. Gorman, *Presiding*

2:00– Introductory Remarks. **M. Gorman.**
2:10–23. Some Empirical Chemical Knowledge of the Early North American Indian. **P. S. Cohen.**

2:10– 8. The Reaction Between Nitric Oxide and Bis-trifluoromethyl Peroxide (1). **J. W. Hogue, J. B. Levy.**
2:30– Discussion.
2.35– 9. Reactions of N,N-Bis(trifluoromethyl)hydroxylamine with Sulfur and Nitrogen Halides. **J. A. Lott, D. P. Babb, K. E. Pullen, J. M. Shreeve.**
2:50– Discussion.
2:55–10. The FCl_2^+ Cation. **K. O. Christe.**
3:15– Discussion.
3:20–11. Rate Constants in Oxygen-Fluorine Systems. The Thermal Dissociation of Oxygen Difluoride. **W. C. Solomon, J. A. Blauer, S. T. Rose, F. C. Jaye.**
3:35– Discussion.
3:40–12. Nucleophilic Substitution of Bromine on Phosphorus with Fluorinated Anions. Formation of μ-Oxo-difluorophosphine, μ-Oxo-difluorophosphoryl and μ-Oxo-difluorothiophosphoryl Compounds. **M. Lustig.**
3:55– Discussion.
4:00–13. NMR of the 'Trans' and 'Gauche' Rotamers of Tetrafluorohydrazine. **F. A. Johnson, B. F. Aycock, C. Haney, C. B. Colburn.**
4:15– Discussion.

WEDNESDAY MORNING AND AFTERNOON

Sheraton-Deauville, Rainbow Room (Street Level)

General

C. B. Colburn, *Presiding*

9:00– Introductory Remarks. **C. B. Colburn.**
9:10–14. Addition of Haloalkanes to Olefins. **P. Tarrant, J. P. Tandon.**
9:30– Discussion.
9:35–15. Mechanism of Thermal Decomposition of Perfluorobicyclohexyl. **F. W. Bloch, D. R. MacKenzie, V. H. Wilson.**
9:50– Discussion.
9:55–16. Chemistry of "Hot" Alkyldifluoramines. **C. L. Bumgardner, E. L. Lawton, K. G. McDaniel, H. Carmichael.**
10:10– Discussion.
10:15–17. Acidity of Fluorocarbons. Carbanion Studies of Hydrogen-Deuterium Exchange Reactions of 2-Substituted 1,1,1,3,3,3-Hexafluoropropanes. **K. J. Klabunde, D. J. Burton.**
10:35– Discussion.
10:40–18. The Stereochemistry of the Nucleophilic Displacement of Chloride Ion on Several Beta-Substituted 1-Chloroperfluoroolefins. **H. C. Krutzsch, D. J. Burton.**
11:00– Discussion.
11:05–19. Preparation and Reactions of Mercury(II) Bis(trifluoromethyl)Nitroxide. **J. M. Shreeve, P. M. Spaziante, H. J. Emeleus.**
11:20– Discussion.
11:25–20. A Study of the Reaction of PentafluoroPhenyllithium and Tetrafluoroethylene. A New Synthesis of Perfluorostyrene. **J. M. Antonucci, D. W. Brown, L. A. Wall.**
11:45– Discussion.

J. D. Park, *Presiding*

2:00– Introductory Remarks. **J. D. Park.**
2:10–21. Anomalous Reactions of Organomagnesium Reagents with Perfluoroaromatic Compounds. **W. L. Respess, C. Tamborski.**
2:25– Discussion.
2:30–22. The Chemistry of 1-Lithio-2-Chloroperfluorocycloalkenes. **J. D. Park, C. D. Bertino, B. T. Nakata.**
2:45– Discussion.

Division of Fuel Chemistry

E. Gorin, *Chairman*
M. D. Schlesinger, *Secretary-Treasurer*

MONDAY MORNING AND AFTERNOON

Shelburne-Empress, Coral Reef Room (Lobby Floor)

Symposium on Synthetic Fuels from Coal

E. Gorin, *Presiding*

9:00– Introductory Remarks. **E. Gorin.**
9:05– 1. Synthetic Fuels from Coal—General Prospects. **N. P. Cochran.**
9:30– 2. G. C. Methods Developed on the BCR Gasification Program. **T.-C. L. Chang, R. A. Glenn.**
9:45– 3. Heat Capacity of Coal. **A. L. Lee.**
10:00– 4. Fluid Bed Gasification of Pittsburgh Seam Coal With Oxygen and With Air. **A. J. Forney, R. F. Kenny, J. H. Field.**
10:25– 5. Coal Hydrogasification Catalyzed by Aluminum Chloride. **W. Kawa, S. Friedman, L. V. Frank, R. W. Hiteshue.**
10:50– 6. Coal Char Gasification in an Electrofluid Reactor. **A. H. Pulsifer, T. M. Knowlton, T. D. Wheelock.**
11:15– 7. Kinetics of Lignite Char Gasification—Its Relation to the CO_2-Acceptor Process. **G. P. Curran, C. E. Fink, E. Gorin.**
11:40– 8. Coal and Char Transformation in Hydrogasification—Lignite to Low-Volatile Bituminous Coal. **D. M. Mason.**
2:00– 9. Integration of Coal-Based Pipeline Gas and Power Production. **C. L. Tsaros.**
2:25–10. Optimization of Fixed-Bed Methanation Processes. **C. Y. Wen, P. W. Chen, K. Kato, A. F. Galli.**
2:50–11. Production of Synthetic Fuels from Coal by Hydrogenation Under Medium Pressures. **S. A. Qader, R. A. Haddadin, L. L. Anderson, G. R. Hill.**
3:15–12. Kinetics of Hydrogenolysis of Low-Temperature Coal Tar. **L. L. Anderson, M. L. Badawy, S. A. Qader, G. R. Hill.**
3:40–13. Kinetics of Hydrocracking of Coal Extract with Molten Zinc Chloride Catalysts in Batch and Continuous Systems. **R. T. Struck, W. E. Clark, P. J. Dudt, W. A. Rosenhoover, C. W. Zielke, E. Gorin.**
4:05–14. Fluo-Solids Combustion Process for Regeneration of Spent Zinc Chloride Catalysts. **C. W. Zielke, R. T. Struck, E. Gorin.**
4:30–15. The Hydrogenation of Coal with Carbon Monoxide and Water. **H. R. Appell, I. Wender.**

TUESDAY MORNING

Shelburne-Empress, Coral Reef Room (Lobby Floor)

General

R. T. Struck, *Presiding*

9:00–16. Spectroscopic Evidence for the Occurrence of Nitrates in Lignites. **C. Karr, Jr., P. A. Estep, J. J. Kovach.**
9:30–17. Solvation and Reductive Alkylation of Coal via a "Coal Anion" Intermediate. **H. W. Sternberg, C. L. Delle Donne.**
10:00–18. Desulfurization of Coal-Oil Mixtures by Attrition Grinding with Active Iron Powder. **J. Winkler.**
10:30–19. Some Pumping Characteristics of Coal Char Slurries. **M. E. Sacks, M. J. Romney, J. F. Jones.**
11:00–20. Controlled Low-Temperature Pyrolysis of Benzene-Extracted Green River Oil Shale. **J. J. Cummins, W. E. Robinson.**
11:40– ***Divisional Business Meeting.***
12:30– ***Divisional Luncheon*** (Storch Award), Shelburne-Empress, Manor Room (Street Level).

Elizabeth Ralph
Mark Han

MEMORANDUM

TO: John J. Foote, Assistant to the Provost

FROM: Froelich Rainey, Director, Museum

DATE: January 31, 1967

SUBJECT: re: gifts from Museum Discretionary Fund

In our discussions with Dr. Goddard this morning, I agreed that I would send out a memorandum regarding a payment from the Discretionary Fund to Elizabeth Ralph and Mark Han of the Museum staff and the Physics Department, of $1,250 as a prize for their achievement in developing the thermoluminescence method for dating ancient pottery. My Administrative Assistant will be sending through the forms to your office for this payment, directly.

cc: Dr. Michael Jameson
Mrs. Anne Dellevigne

FGR/vg

Museum Applied Science Center for Archaeology

Froelich Rainey, Director — Elizabeth K. Ralph, Associate Director

THE UNIVERSITY MUSEUM • UNIVERSITY OF PENNSYLVANIA
33rd & SPRUCE STREETS • PHILADELPHIA, PENNSYLVANIA 19104
386-7400 (Area Code 215) — Cable Address "Antique"

November 30, 1977.

Dr. Elizabeth K. Ralph
Associate Director, MASCA
University Museum
University of Pennsylvania

Dear Beth:

Enclosed is a copy of my official resignation, effective December 31, 1977, submitted to Mr. Biddle yesterday. We did have a very brief conversation, in which I expressed my gratitude and appreciation for the years that I was a part of this institution and a member of MASCA, almost from its formation.

During this period of my career, I found myself right in the midst of an expanding new field of science, particularly the application of new technology to areas in the humanities. I feel that I was most privileged to be able to work under your guidance on the exploration of methods that may have been otherwise overlooked. Your advice and encouragement have always provided me with the incentive to pursue new knowledge in diverse fields. You have always set a good example for those who have worked closely with you, and have shown us that hard work does yield results. I should like to carry this on to my new career, and treasure all the good memories of things you have done for me in the past.

As I leave MASCA, my feelings are mixed: on the one hand, I am looking forward to my new position and the potential of being able to work with more varieties of instruments in doing analysis, but on the other, I know that I will miss my work here at the Museum. I certainly hope that some form of cooperation may be forthcoming, and I wish to express my desire to continue my association with MASCA as often as possible.

Again I want to thank you for all your help over the past fifteen years. Gloria and the boys join me in sending you our best wishes and a happy New Year in 1978.

Yours truly,

Mark [HAN]

Museum Applied Science Center for Archaeology

Froelich Rainey, Director — Elizabeth K. Ralph, Associate Director

THE UNIVERSITY MUSEUM • UNIVERSITY OF PENNSYLVANIA
33rd & SPRUCE STREETS • PHILADELPHIA, PENNSYLVANIA 19104
386-7400 (Area Code 215) — Cable Address "Antique"

November 28, 1977

Mr. Martin Biddle
Director MASCA
University Museum
University of Pennsylvania

Dear Mr. Biddle:

This is to inform you - pursuant to our conversation of last week - of my resignation from MASCA as of December 31, 1977.

During my fifteen years as Research Chemist with MASCA, I have enjoyed working on the many pioneer projects and problems associated with the development of thermoluminescence. If possible, I would like to keep my association with the Museum and particularly with the activities of MASCA.

In parting, I would like to express my deep appreciation to those persons in the Museum and particularly in MASCA, and most of all to Dr. Beth Ralph who has guided me over the years through many difficult tasks and situations.

With best wishes, I am,

Sincerely yours,

Mark

Mark C. Han
Research Chemist, MASCA

c.c. Dr. Elizabeth K. Ralph
AAsociate Director MASCA

Beth.

Tuesday, 8 p.m.

HAIN

Dear Mark,

This afternoon Dr. Rainey told me you had some questions about your reappointment and your raise and I thought it might be best if I explained the whole thing in writing.

1. We are all paid on an annual basis and when raises are approved they are given at the beginning of the year. In the case of almost everyone on the Museum staff the period is July 1 to June 30. In a few cases people are paid during the time covered by their grant. In your case that is from September 1 to August 31. At the time you would normally have been considered for a raise your grant had not yet been approved and the question at that time was not to give you a raise but to stretch the funds to pay you and Bruce and Doug until the grant came through, at which time you would get your raise retroactive to September 1.

   Of course the President's freeze changed the whole picture. After it was lifted we talked to various people in the Personnel office who at first said firmly you could receive only 5.5 % effective November 16. Fortunately the matter finally came to the attention of Dr. Austin Bishop who found a loophole that would enable us to give you a maximum raise of $750 retroactive to July 1 even though you would not normally have been eligible for a raise until September 1. He based his judgment on the fact that the July -June personnel were approved for raises as of July 1 and he could therefore say the approval was prior to the freeze. Therefore, in fact you are getting a two month bonus that you would not normally have gotten.

   As for the amount of the raise, the Personnel Department and the Provost's office determine the size of raises and even if the NSF awarded you a $3000 raise they would not approve it if it was not in line with raises awarded to people in similar categories. If you want verification of this fact or additional information concerning salaries, benefits, etc. please do feel free to go to the Personnel Office to discuss all of these matters with them.

2. As for the raises for Doug and Bruce- I don't honestly know what made them approve such a large increase but obviously they must have felt the fellowships were too low. (See copy of memorandum attached which explains how they got around the freeze on this matter).

3. Getting back to why your September salary was delayed - as I have said above most Museum budgets and salaries go from July 1 to June 30 and unfortunately not only is your salary paid on a different time basis but also your budget had run out and I didn't have a new grant to tell me to make up a new budget and of course I didn't think about it. [illegible] When I was finally reminded to do something about paying you it was early September and,as you saw, the Budget was sent to the Provost September 7 by messenger, certainly time enough to see that you were paid by the end of September. Apparently they were swamped in that office and the budget got to the Grant office September 21 too late to be processed by Personnel in time for the end of the month payroll. I am truly sorry that you were inconvenienced and had to wait even a few days for that check.

I hope the above information will clarify any questions you have and please feel free to tell me about anything else that is troubling you.

Best wishes,

Gloria

c.c. Miss Ralph, Dr. Rainey

May 5, 1961

Dr. George M. A. Hanfmann
The Fogg Museum
Harvard University
Cambridge 38, Massachusetts

Dear Dr. Hanfmann:

We have had so many requests for information about the use of geophysical instruments for archaeological prospecting, that I decided that it is now wise to get together five or six of the people from different institutions to explain what we are doing and to arrange for the loan of instruments to these people for experimentation in their particular fields. It would be necessary to have Richard Linington here with the results of his experimentation at Tikal, in Guatemala, during the past several weeks. He should continue there through most of May, but will certainly be back here in the Museum on the first of June. Therefore, I wonder if you could join us in my office at the University Museum, say around 10 a. m. on June 1st, so that we can work this thing out, explaining the use of the instruments and schedule them for different field jobs during the coming year.

I expect to get off for Italy on the 9th of June and so I hope that the 1st of June will be convenient for you to meet with us.

At the moment, it looks as if the most successful instrument available is the small German-made resistance apparatus. We now have one of these and three more on order. The British Proton-Magnetometer costing something over $2,000 is rather too expensive for us to duplicate, but it can be loaned out at different times to any of you when research jobs do not overlap. The small percussion instrument which Linington is now also using in Tikal so far has not been very successful, but it may improve when he learns more about utilizing it. The newer sonic device we are trying to develop through Texas Instruments certainly will not be available for some months, but all the information we can get from actual field testing with the present instruments will certainly help in the new design.

I do hope you can make it on June 1st.

Sincerely yours,

Froelich Rainey,
Director

FR:ah

FOGG ART MUSEUM · HARVARD UNIVERSITY
CAMBRIDGE 38, MASSACHUSETTS

May 8, 1961

Dr. Froelich Rainey
The University Museum
33rd and Spruce Streets
Philadelphia 4, Penn.

Dear Dr. Rainey:

It is an excellent idea and very generous of the Museum to try to bring together people interested in geophysical instruments for archaeological prospecting.

Since Dr. David Greenewalt, Dept. of Geology and Geophysics, 20 D-224 M.I.T. (UNiversity 4-6900, x 3786), is consultant on geophysics to the Archaeological Exploration of Sardis and since he understands the matter as I do not, I've taken the liberty of following your handwritten suggestion and asked him to represent the Archaeological Exploration of Sardis at the meeting in your office on June 1 at 10 a.m.

Thank you ever so much for arranging this colloquium and for letting us know about it.

Sincerely yours,

George M.A. Hanfmann

Visited 6/20/74
Talked to Rick
Quite intelligent

APPLICATION

SOCIAL SECURITY NO. 035-32-7857

NAME MARIA HANUSHEVSKY DATE JUNE 19, 1974

ADDRESS 169 NORTON ST NEW HAVEN CT BIRTH PLACE GERMANY DATE Dec 5, 1946

MAIDEN NAME (if married woman) _____ TEL.NO. 203-624-5443

SPECIAL SKILLS (machines, etc.) Please see Resume FOR ADDITIONAL INFO.

PREVIOUS EMPLOYMENT RECORD

EMPLOYED BY	ADDRESS	POSITION	DATES FROM—TO	REASON LEFT

EDUCATION **DEGREES AND DATES**

_____

_____

_____

REFERENCES (Give name, address and phone number (if known) of three personal refs.)

_____

_____

_____

More suitable for Info. Ctr

RESUME

Name: Maria Hanushevsky Age: 27

Address: 169 Norton Street Phone: 203-624-5443
New Haven, Conn. 06511

Work History: I am presently involved in publishing a pamphlet about a portion of the lower Connecticut River as an experiment in designing visual material in natural history. I am also photographing spider webs for a visual project and working on my drawings with the intention of putting together a small showing of my work.

Thames Science Center
New London, Conn.
Wrote and designed a ten unit series -
See What's In The Sea - for the Center.
September - December 1973

Thames Science Center
New London, Conn.
Helped to design and teach a one day field trip program in marine biology for teenagers.
June 1973

Massachusetts Institute of Technology
Center for Advanced Visual Studies
Cambridge, Mass.
As a student at the Center I originated and helped to develop a proposal for an outdoor exhibit that was to be constructed as part of a festival on the Charles River. I also worked in the planning and construction phase of an exhibit for the blind at the Tactile Gallery of the Wadsworth Atheneum, Hartford, Conn.

Barnard College
New York, N.Y.
Assisted in editing Biological Conservation
by Dr. David Ehrenfeld
October - December 1969

Work History (cont.)

Yale University
Economic Growth Center
New Haven, Conn.
Research Assistant in Economics
January - October 1968

Exhibitions:

"The New England Experience", a Photographic Exhibit, DeCordova Museum, Lincoln, Mass.
June - September 1972

Wesleyan University Student Printmaking Exhibit
Dartmouth College, Hanover, N.H.
Spring 1973, Fall 1972

Special Skills:

YMCA certified Scuba diver
American Camping Association certified trip leader
Slalom and downriver canoeist

Graduate Education:

Massachusetts Institute of Technology
Center for Advanced Visual Studies
Cambridge, Mass.
Special Student
December 1971 - June 1972

Weseleyan University
Middletown, Conn.
Studio Course in Printmaking
September - December 1971

Undergraduate Education:

Connecticut College
New London, Conn.
Field Course in Marine Botany
June - July 1972
Field Course in Marine Biology
June - August 1971

Barnard College
New York, N.Y.
Attended: 1965-67, 1969-71
Degree: BA in Environmental Conservation 1971
Field Course on Rural and Urban Problems in Soil Conservation, New Brunswick, N.J.
June 1971
Independent Field Study of the Vegetation Along the Lower Connecticut River
August - September 1970

Awards:

First Prize, Dartmouth College Student Printmaking Exhibit Spring 1973
Henry Sharpe Prize in Conservation 1971
Dean's List 1970-71
Herbert Maule Richards Grant for Botanical Research 1970
Barnard College Summer Grant for Study on the Connecticut River 1970

Extracurricular Activities:

Summer Grants Committee, Department of Environmental Conservation, Barnard College 1970-71
Curriculum Planning Committee, Department of Environmental Conservation, Barnard College 1969-70

References:

Dr. David Ehrenfeld
Prof. of Biology
Rutgers University
New Brunswick, N.J.
Home Address:
141 Beechwood Avenue
Middlesex, N.J. 08846

Dr. Robert DeSanto
Biological Consultant
C.E. Maguire Co.
Hartford, Conn.
Home Address:
8 Sylvan Glen
East Lyme, Conn. 06333

Prof. David Schorr
Art Department
Wesleyan University
Middletown, Conn.

Languages: Russian, Ukranian, Reading French

CHARLES H. HAPGOOD
R. F. D. 3
WINCHESTER, NEW HAMPSHIRE 03470

October 11, 1978

Mrs. Elizabeth K. Ralph, Associate Director,
The Pennsylvannia Museum,
33rd and Spruce Streets,
Philadephia, Pa.

Dear Mrs. Ralph,

I want to thank you for your letter of Sept. 14, with the enclosed article by Carriveau and Han. I think that in view of the conclusions they reached it would hardlyseem practical to go to the trouble and expense of making additional tests either on the original figurines tested under Rainey, nor on the figurines I presented to the Museum. I therefore wish to withdraw my request for more tests. I have been motivated only by a search for truth, as I am sure you know.

However, when I presented my figurines to the Museum I did so only under the impression that the vindication of their authenticity made them incalculably valuable. For many reasons I would very much have liked to keep them, and even perhaps eventually return them to the Juksrud family. But I thought then that their importance required that they be given the security of an important museum.

Now I feel very differently. I assume they have no real importance to the Museum. Therefore I would be most obliged to you if you would be so kind as to return them to me.

I have deeply appreciated the cooperation of the Museum in this matter.

Very sincerely yours,

Charles Hapgood

Charles H. Hapgood

EG&G

geoMetrics
395 Java Drive/P.O. Box 497
Sunnyvale, California 94086 U.S.A.
(408) 734-4616
Cable: "GEOMETRICS" Sunnyvale
Telex No: 357-435

1-HARCOURT

October 19, 1981

Hi, Beth!

Shelly

Marian Griffith
Harcourt Brace Jovanovich, Publishers
757 Third Avenue
New York, N. Y. 10017

Dear Marian:

Today I received your letter of October 9 requesting publication permission for two figures for your book, ARCHAEOLOGY.

There are several problems related to your request. First, the instruments used in the San Lorenzo, Mexico, example were not called proton magnetometers; they were actually cesium magnetometers. Second, I do not have easy access any longer to the original artwork.

May I suggest that you write to Dr. Elizabeth Ralph at the University Museum, University of Pennsylvania, 33rd and Spruce Streets, Philadelphia, Pennsylvania 19104. Beth Ralph can provide you with photographs of the cesium magnetometer at San Lorenzo, photographs of proton magnetometers in various places in the world, and copies of the computer-generated maps from San Lorenzo. I have telephoned her regarding this request and am sending a copy of your letter and this letter to her for information purposes.

In any event, I am enclosing a signed copy of your release in case you still require it.

Sincerely,

Sheldon Breiner
President

SB:crm
Enclosure
cc: Elizabeth Ralph

Harcourt Brace Jovanovich, Publishers

757 THIRD AVENUE, NEW YORK, N.Y. 10017 TELEPHONE 888-4444 CABLE: HARBRACE

COLLEGE DEPARTMENT

October 9, 1981

Dr. Sheldon Breiner
Geo Metrics
395 Java Drive
P.O. Box 497
Sunnyvale, California

Dear Dr. Breiner,

Harcourt Brace Jovanovich, Inc. is currently preparing for publication a college textbook entitled ARCHAEOLOGY: FIRST PRINCIPLES by William Rathje and Michael Schiffer. As part of our illustration program we would like to include:

1. Proton-magnetometer map of San Lorenzo, Mexico, showing the anomalies.
2. Photo of man using proton-magnetometer at the site of San Lorenzo.

We are hoping you will be able to supply us with a black and white print suitable for reproduction. If color is all that is available, we can make a conversion. We are requesting permission to reproduce this material on a one-time, nonexclusive, inside textbook basis, World Distribution rights, English language only.

You may indicate permission by signing this letter in the space provided below. Also, please indicate preferred credit line. The original should be returned to us and the photocopy kept for your files.

As we are on a very tight schedule, we would appreciate your prompt consideration of this request. Thank you for your assistance.

Sincerely,

Marian Griffith
Art Editor
College Production

I hereby grant permission to Harcourt Brace Jovanovich, Inc. to reproduce the material described above in ARCHAEOLOGY: FIRST PRINCIPLES by William Rathje and Michael Schiffer or any other figures from the subject article which appeared in American Scientist October 1975.

Sheldon Breiner — Signed

Oct 14, 1981 — Date

courtesy, Sheldon Breiner — Preferred credit line

UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 19104

The Faculty of Arts and Sciences

DEPARTMENT OF PHYSICS

October 28, 1981

Ms. Marian Griffith, Art Editor, College Production
Harcourt Brace Jovanovich, Publishers
757 Third Avenue
New York, New York 10017

Dear Ms. Griffith:

Shelly Breiner has asked me to send you some photographs of our cesium magnetometer survey at San Lorenzo, Mexico. If these are not sufficient, please let me know. For photographs of complete Olmec heads and figures, you will have to contact Dr. Michael Coe, Dept. of Anthropology, Yale University.

Since I was in charge of and did most of the work for the cesium magnetometer survey, I shall appreciate it if you will acknowledge me as well as Shelden Breiner.

Sincerely yours,

Elizabeth K. Ralph

EKR/mic

UNIVERSITY INTRAMURAL CORRESPONDENCE

Geology Dept.
2/24/72

Beth

Ron Hartman from Aero Service was in today and I told him about your work in Jalisco area hoping he might come up with some good aerial photos, or source of same. He said he'd look into it. Meanwhile could you send him reprints of your papers in Science 153 1481-1491 (1966) and Geoexploration 6, 109-122 (1968).

I enclose his card. He was kind enough to give us a talk on mineral exploration. Say you'd be glad of any relevant aerial photos (e.g. stereo) if indeed you'd find them useful.

Ian Harker
[IAN HARKER]

February 29, 1972

Dr. Ronald R. Hartman
Aero Service Corporation
4219 Van Kirk St.
Philadelphia, Pa. 19135

Dear Dr. Hartman:

The reprints that Ian Harker mentioned that you would like to have are enclosed.

If you have good aerial photos of Jalisco areas, we should very much like to have some or know where they may be obtained. Last winter and again in April this year, we shall be working in the region of the Magdalena Lake Basin with headquarters at Etzatlan. I can be more specific about the possible archaeological sites with the help of a map if you would like this information.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

AERO SERVICE
DIVISION OF LITTON INDUSTRIES

AERO SERVICE CORPORATION · 4219 VAN KIRK STREET · PHILADELPHIA, PENNSYLVANIA 19135

PHONE: (215) 533-3900 · CABLE: AERCORP · TELEX: 845-139

March 13, 1972

MUSEUM APPLIED SCIENCE CENTER FOR ARCHAEOLOGY
The University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Attention: Ms. Elizabeth K. Ralph

Dear Ms. Ralph:

Your letter to our Mr. Ron Hartman has been referred to me for reply.

I have checked our film library and, regretfully, advise you that we do not have any available photography of the Jalisco area of New Mexico. I would suggest you contact one of the many California photogrammetry companies who may have coverage.

Good luck.

Very truly yours,

AERO SERVICE CORPORATION

Ellwood Ott
Manager, Photographic
Product Sales

EO:dc

Anth. Techniques

MEMORANDUM:

TO: President Gaylord P. Harnwell

FROM: Froelich Rainey

DATE: August 13, 1966

SUBJECT: Foundation financing for the Applied Science Center for Archaeology

ASCA has been functioning now for about five years, under annual appropriations from the National Science Foundation and gifts from private individuals. It has become the center, in the United States, for experimenting in archaeological techniques, similar to the Laboratory at Oxford. It has produced two outstanding achievements. One, perfecting the thermoluminescence method of dating fired clays, and two, the development of a new cesium magnetometer for archaeological exploration. Moreover, we are working in many different fields. The center for underwater archaeology is now also here at the Museum, and its future depends upon additional technical developments in search apparatus, sensing apparatus and so forth. We have just completed our first experiment with aerial photography with a new multiband camera. We continue research with various nuclear techniques for the identification of materials. We have instituted a study of ancient metallurgy, also with newly developed techniques. And finally, our studies of the radiocarbon method and related subjects having to do with the carbon-14 content in the atmosphere, are continued.

Our biggest problems is long-term financing, which will allow us to employ additional scientists, full time, in ASCA. For example, we now have a young geophysicist, Frank Morrison, from Berkeley, working with us on survey instruments and who is also trained in electronics. He completes his Ph. D. degree this year and I think would come here to the University if we had the funds to assure him a salary for five years. We have been spending about $50,000 to $100,000 a year, made up of separate small grants on a yearly basis, but we have been unable to expand to keep in step with the rapidly developing technology.

It seems to me the best possibilities for foundation financing, are The Ford Foundation, The Scaife Foundation, the Atomic Energy Commission and the National Science Foundation. As you know, we fall between the two stools of science and the humanities and I hope you may be able to cut this "Gordion knot", which is really just semantics, with the foundations.

Although the science versus humanities thing plagues us financially, it is still one of the most exciting and appealing facets of this whole project, because as you know, we really have had people from both sides of the fence working very happily together for the past five years.

CARYL P. HASKINS
SUITE 600
2100 M STREET, N. W.
WASHINGTON, D. C. 20037

(202) 833-1720

November 19, 1974

Dear Dr. Colburn,

Thank you so much for your welcome letter of November 4, which was more than appreciated.

It would be hard to tell you how gratifying it is to us all that you did like the cover and article in the last edition of the American Scientist on "Twenty-five Years of Radiocarbon Dating." This is a special tribute to the Editor of Scientist, Miss Jane Olson, and her remarkable staff.

It is a very special pleasure to know that you are a fellow Schenectadian. Despite the considerable population of our city, and the considerable population that it has "exported" over the years, it is not often that one is in contact with a fellow-townsman. It is particularly gratifying, and I shall indeed look forward so much to accepting your kind invitation to meet you at the Museum and see the facilities of the Applied Science Center and the Radiocarbon Laboratory if this ever becomes possible.

With many thanks again, and every good wish,

Most sincerely,

Caryl P. Haskins

Dr. O. C. Colburn,
Museum Applied Science Center for Archaeology,
The University Museum F1,
33rd & Spruce Streets,
Philadelphia, Pennsylvania 19174.

May 25, 1961

Prof. C. H. E. Haspels
Institute of Archaeology
Weesperzyde 33
Amsterdam, Netherlands

Dear Prof. Haspels:

COPY

Dr. Mellinck has asked me to write to you in regard to C^{14} dates for the Gordion Midas Mound (Tumulus MM). Our dates which were obtained before 1960 are reported in the enclosed reprint on page 47. As explained on pages 45 and 46, these were calculated with the Libby half-life value (5568 years), and no correction is needed for the so-called Suess effect (depletion of the modern atmosphere). The errors quoted are primarily the standard statistical deviations (one sigma).

The situation today is, however, somewhat more complicated because of a possible change in the half-life value. Our measurements of samples of known age indicate that the "effective" half-life for the average dats should be greater--approximately 5800 years. This is supported additionally by a recent determination made by the National Bureau of Standards with value of 5760 $^{+70}_{-30}$ years. Ellen Kohler and I have submitted a paper to the American Journal of Archaeology (for the October 1961 issue) in which 14 C^{14} dates for Gordion are reported with dates calculated with both the 5568 and 5800 half-lives. The latter makes the B.P. dates in our Date List III 4% earlier.

This whole half-life question and also the problem of C^{14} dates obtained from inner wood (which is not contemporaneous with dates of construction) are discussed in this article. I shall be glad to send you a reprint as soon as available.

Sincerely yours,

Elizabeth K. Ralph
Carbon-14 Laboratory

EKR:gm

AJA reprint

ARCHAEOLOGISCH-HISTORISCH INSTITUUT DER UNIVERSITEIT
ALLARD PIERSON STICHTING, WEESPERZIJDE 33, AMSTERDAM (O)

HOOGLERAAR-DIRECTEUR: PROF. DR. C. H. E. HASPELS

14.7.61

Dear Miss Ralph,

May I thank you very much for your offprint on the subject of the Gordion tumulus, and your explaining letter.

I am looking forward to the offprint of your forthcoming article in the A.J.A.; as Miss Mellink told you perhaps, I am studying rock hewn tombs in a region of volcanic tuff, not too far away from Gordion, where I have nothing whatever to go on for dating, except the shape of the tombs being akin to those of Gordion.

Therefore this question to

me is of great importance.

With many thanks for all the trouble you are taking.

Yours sincerely

C.H.E. Haspels.

16.11.61

With many thanks for the A/A. offprint! I am going to discuss it with one of my colleagues, who is professor of chemistry at Delft.

Yours sincerely

Chr Harpels

[HARPALS]

to Prof E. K. Ralph.
the University of Pennsylvania.
Philadelphia.

AEROGRAMME

LUCHTPOSTBLAD

Miss Elizabeth K. Ralph
Department of Physics
University of Pennsylvania
Philadelphia 4
(Penna.
U.S.A.

PAR AVION / PER LUCHTPOST

EXPÉDITEUR / AFZENDER

Weesperzijde 33
Amsterdam.

NIETS INSLUITEN!

INDIEN ZULKS TOCH GESCHIEDT, DAN WORDT DEZE BRIEF PER BOOT/TREIN VERZONDEN

RUIMTE VOOR SLUITKL

WASHINGTON STATE UNIVERSITY
PULLMAN, WASHINGTON 99163

DEPARTMENT OF GEOLOGY
A. C. 509 335-3009
Afifa Hassan

Dear prof. Fleming:

please find enclosed are the requested photograph of calcite inclusions in bone, also a copy of my Ph.D. dissertation and a copy of a manuscript which has been submitted for publication in ACS. (advances in chemistry series)

I have not yet received the reprints of ~~the~~ my paper in Archaeometry As soon as I receive them I'll send one to you. Also I have a paper coming soon in Radiocarbon V. 19 #3 1977 with John D. Termine and C. Vance Haynes, Jr. on Mineralogical studies on bone apatite and their implications for radiocarbon dating which I'll be sending to you as soon as I receive the reprints.

please advise if I can be of more help.

I would appreciate receiving a copy of your article when it is done.

sincerely

Afifa Hassan

RUTGERS UNIVERSITY *The State University of New Jersey*

DOUGLASS COLLEGE
New Brunswick, New Jersey 08903

5 May 1975

Dr. Elizabeth K. Ralph, Associate Director
Museum Applied Science Center for Archaeology
The University Museum
University of Pennsylvania
Philadelphia, PA. 19104

Dear Dr. Ralph:

I want to take this opportunity to personally thank you and your most generous colleagues at MASCA for a very educational morning at the University of Pennsylvania facilities last Saturday (3 May 1975). Again, I heartily apologize for our rather tardy arrival and any schedule inconveniences this may have caused you and your associates. The students and I greatly enjoyed the visit and found the trip well worth the $2\frac{1}{2}$ hour drive it finally took us from New Brunswick. As a new reader on the MASCA Newsletter mailing list I shall look forward to learning about your latest research endeavors.

Gratefully,

Paul F. Healy, Ph.D.
Assistant Professor
Department of Archaeology
Douglass College
Rutgers University

HEALY & BAILLIE
29 BROADWAY
NEW YORK, N. Y. 10006

NICHOLAS J. HEALY
ALLAN A. BAILLIE
RICHARD T. O'CONNELL
THOMAS L. ROHRER
SIRIUS C. COOK
NICHOLAS J. HEALY, JR.
BRUCE A. McALLISTER
RAYMOND A. CONNELL
JOHN C. KOSTER

WILLIAM F. LOSQUADRO
JACK A. GREENBAUM
JOHN P. McMAHON
GLEN T. OXTON
EDWARD J. MILLER
WALTER I. SKINNER

H. VICTOR CRAWFORD
WILLIAM G. KAELIN
COUNSEL

WHITEHALL 3-3980
(AREA CODE 212)
CABLE ADDRESS: MAINBRACE
TELEX 422089
TWX 710-581-6199

September 26, 1975

Dr. Elizabeth K. Ralph
The University Museum Fl
University of Pennsylvania
33rd & Spruce Streets
Phila., Pa. 19174

Dear Dr. Ralph:

Thank you so much for your letter of September 24th enclosing the material on the Soiltest drills. I would be most appreicative if you could also forward the material on the Mobile drill if your colleague can find it when he returns.

Finally, have there been any publications describing the method you utilize and the results of your efforts?

Again, any help you can provide would be greatly appreciated.

Very truly yours,

NJHjr:jp

Nicholas J. Healy, Jr.

Rainey [Paper - Archaeology AJA

Bruce

September 24th, 1975

Mr. Nicholas Healy, Jr.
29 Broadway
New York, N.Y. 10006

Dear Mr. Healy,

Our catalog of Mobil M-30 and their other drills has disappeared. Unfortunately, we cannot trace it through the purchase order because we rented and paid for it in Italy.

Soiltest, Inc. (2205 Lee Street, Evanston, Ill. 60202) manufactures a variety of drills. Two of these are shown on the enclosed Xerox copies. The price list was published in 1972.

If you are still interested in the Mobil drill, a colleague who might be able to find the catalog will be back in two weeks.

Sincerely yours,

Elizabeth K. Ralph

October 10, 1975

Mr. Nicholas J. Healy, Jr.
Healy & Baillie
29 Broadway
New York, N.Y. 10006

Dear Mr. Healy:

We have continued to search for the Mobile drill with no luck. I have found out that it is not made by the Mobil Oil Co. in Dallas, nor the Mobile Co. in Philadelphia.

I have enclosed a copy of an article by F. Rainey in which our work at Sybaris is summarized.

Sincerely yours,

Elizabeth K. Ralph

AMERICAN SCHOOL OF PREHISTORIC RESEARCH
A DEPARTMENT OF
THE PEABODY MUSEUM OF HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS 02138, U.S.A.

HUGH HENCKEN
Chairman and Director of Prehistoric Studies

Ralph —
Can you help Hugh on the above — who is doing this sort of thing
Fro

April 6, 1971

Dr. Froelich Rainey
University Museum
33rd & Spruce Streets
Philadelphia, Pennsylvania

Dear Fro,

Since you are especially interested in technology applied to archaeology, perhaps you could help me with the following problem. I am at present publishing one of the Iron Age cemeteries in Slovenia excavated before 1914 by the Duchess of Mecklenburg. The material is here, the contents of some 350 graves. There are two major classes of pottery, grubby local types and types resembling the north Italian wares of Este, the well known red footed vases with black bands. The question is this. Did the Illyrian Iron Age people of Slovenia imitate these red and black Este vases, or did they import some or all of them. Indeed some look like local imitations while others look more like imports.

It occurs to me that an examination of sherds of all of these classes of pottery might show whether they were made of the same clay or not. This might not prove very much, but it might give some hints, especially if the supposed imitation Este vases were of different clay from the more authentic looking ones.

Any help that you might give approaching this problem would be gratefully received.

All good wishes.

Yours ever,

Hugh

Hugh Hencken

HH:jh

Ray - away
Dec. '73 - June '74

March 1, 1973

[JOHN HEDRICK]

Dear Beth,

I'm sorry to not writing sooner, but the work has kept me pretty busy. Things are going extremely well, and I think that another Penn student is coming out on the first of May. I can use the help, as many of the men here will not work in the area which I am excavating now. It is a taboo place and now only one man goes into the bush area with me.

Paradise this aint! The flies are really thick and cause much disease. I have AT ALL TIMES at least five tropical ulcers that won't even respond to penicilin. David is fairing very well considering the hardships and now attends the native school in the mornings. He doesn't learn much, but he has a lot of friends. His accent is so thick that I have trouble understanding what he is saying.

Karen is working in Australia. We went down for the Christmas holidays and she decided to stay on for a week or so to work some of the clubs there (with the guitar and voice!☺. She found a job doing radio and TV commercials and is now planning on returning sometime in April. I suspect that she will stay until it is time to return as there is absolutely nothing for her to do on the island. The work experience is good for her though, and she feels that the job may lead to a similar one in the US when we return.

Speaking of returning. How will the lab be set up for assistants? I would very much like to take up my old job if there is going to be an opening. I have nothing to do but the dissertation on my return; so my time will be open. I'm not the best worker in the world, but at least you would know what you are getting.

How did the TL of those lousy pacific sherds go. I heard from Davenport that Mark was having some problems with the inclusions in the temper. Would it be possible to run a few more samples. I have five sites that I am working, and all seem to be rather important in the Pacific picture. Some charcoal and a lot of charred bone is starting to come out now with a good stratigraphic

position. I had some from before, but the experience is now allowing me to read the stratigraphy much better now and can tell the intrusions from the in situ hearths and lenses. Is there a possibility of doing some C14 along with the TL as a check. Everything seems to be coming from a single horizon, split because of disturbance by tree roots and weather into two levels. The bone, charcoal and sherds all come together in deep pits, so the age of each should be the same once the pit is pinned down. Would you like a sample of all three for a test run? I can use the data and thought that the lab might be able to do some cross-checking.

I hear that a PhD is starting at the lab and that the room next door is being converted, at least the vines are vibrating with that info. How are the counters working out. Is Benny functioning up to specifications yet? I had a chance to nose around Henry Polach's lab while at Canberra and it is not so shiney and new now. He does things a bit differently, but essentially the same. His setup for the computer is a nice one, but the dates come out only when the thing coughs about every 6 months.

If you are able to accept any of my work should I send it directly or through Davenport? I don't anticipate much C14 work, and could probably wrangle a little CAK money if the lab is bogged down too much. We are starting to pin down the settlement picture here and finding a lot of trading networks extending all the way from New Guinea. Really exciting stuff, but no golden artifacts, just a lot of black dirt with broken pots. If the soil were right, there is a lot of magnetometer work here locating old house platforms, garden fence lines, etc. Don't know how the soil would react, but will bring back a sample and see what happens. Could you tell me how much I should bring, etc?

Would like to hear how the lab is running and how everyone is doing. How is Doug getting along in the TL lab, is he still there? I feel almost lost without hearing the latest on Sandy. Ask Barbara to write and fill me in on the details.

My most sincere regards from the hot, sweaty, steamy, tropical jungle. Howpe the air conditioning and heating systems are functioning better than they are here.

Jack

July 2, 1970

TO WHOM IT MAY CONCERN:
This will confirm the fact that JOHN HEDRICK is a member of the Museum Applied Science Center for Archaeology and is entitled to any courtesies extended to University of Pennsylvania employees.

Sincerely,

David Crownover
Executive Secretary

April 10th, 1973

Mr. John D. Hedrick
Box 45, P.O.
Santo, New Hebrides

Dear John,

Many thanks for your letter of March 1st. I returned from Egypt toward the end of March, went on an AIA lecture tour, and am now just settling down in the labs. I can sympathize with your problem of the flies - they were terrible in Egypt too.

About your returning here, we shall be glad to have you back. If you overlap with Ray we may not be able to offer free tuition but you probably do not need that anyway. Also, if you overlap with Ray, we may have to scrounge around for funds for a few months until, hopefully, a new bristlecone grant comes through. This might come about in September '73 at the earliest. I am just now starting to write the proposal.

While I have been writing this letter, Ray just received the news that his wife is pregnant - baby due in early November.

About TL, Mark has been struggling with your sherds, and has found that they are not datable. Their alpha activity is very low - 1 to 2 counts/hour above background. But, even worse, they have very low susceptibility to radiation damage, i.e., no Artificial-TL; and as a consequence, they have no measurable Natural-TL.

Perhaps, the "sand" that was used contained no quartz. If you can bring home samples of all of these "building" materials, perhaps, we can find out what is wrong.

We are looking forward to your return.

With best regards,

Beth Ralph

UNIVERSITY of PENNSYLVANIA
PHILADELPHIA 19104

The Faculty of Arts and Sciences

DEPARTMENT OF PHYSICS

April 30, 1981

Dr. John Hedrick
Quantitative Ecology
5312 Banks Street
San Diego, California 92110

Dear Dr. Hedrick:

We have agreed to date more or less 20 samples in our radiocarbon laboratory. We plan to start to date these within 4 months unless we have a serious breakdown in the lab. Samples are to be supplied by you. The cost per sample is $200.

I hope that this schedule will be satisfactory.

Sincerely yours,

Elizabeth K. Ralph, Director
Radiocarbon Laboratory

EKR:bh

April 15, 1971

Dr. Hugh Hencken
American School of Prehistoric Research
The Peabody Museum of Harvard University
Cambridge, Massachusetts 02138

Dear Dr. Hencken:

Fro Rainey has sent your letter of April 6th to me. For determining the possible differences between two or more types of clay, I think that the best technique is trace element analysis. This can be done in two different ways -- by emission spectrographic analysis or by neutron activation. The latter is now considered to be more sensitive. The two people who have the most success with the neutrons are as follows:

Dr. E.V. Sayre
Department of Chemistry
Brookhaven National Laboratory
Upton, New York

Dr. Isadore Perlman
Lawrence Radiation Laboratory
University of California
Berkeley, California 94720

Unfortunately, we do not have equipment for either type of analysis here. If I have not answered your question, please let me know.

Sincerely yours,

Elizabeth K. Ralph

EKR/jc

August 13, 1968

Dr. B. Bart Henson
7608 Teal Drive, S.W.
Huntsville, Alabama 35802

Dear Dr. Henson:

Dr. Rainey has asked me to reply to your letter of August 1st in regard to magnetometers.

I have enclosed copies of a few articles including a draught copy of a chapter for a guidebook in which their use is described more fully. The instrument developed most recently by Varian is the Model V-4971 (literature attached) which sells for $5,750. For more information about this, I suggest that you contact Dr. Sheldon Breiner, Analytical Instruments Division, Varian Associates.

Sincerely,

Elizabeth K. Ralph

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO — SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF ANTHROPOLOGY BERKELEY, CALIFORNIA 94720

Oct. 17, 1968

Dear Miss Ralph—

This is in response to your letter of March (!) 19, 1968. Since the Olympic tracks are now built in the Coricancha B quarry it may be hard to even do more work here.

I thought you might check the sherd TL "date" with UCLA-228.

Hastily,

RF Heizer

Ask Dr. Kidder

3.13.68

Professeur H. Hesse
Centre d'Etudes Geophysiques
Garchy-Nièvre, France

Cher Professeur Hesse,

Votre article "Mesures et interprétation en prospection geophysique des sites archéologiques du Nil" nous interessons beaucoup.

C'est possible que le site où quelques membres de notre musée travaillaient en campagne maintenant soit d'une manière semblable. Celui-ci est

Arabeh el Madfuneh
(Abydos)
Sohag (Balliana), Egypt

De vos mesures du susceptibilité magnétique des matériaux il se peut que Arabeh el Madfuneh donne les anomalies d'une prospection magnétique avec les magnétomètres.

J'enclos un de nos publications et je vous prie d'envoyer votre publication definitive, le paraîtra. Nous voudrons bien d'avoir aussi autres de votre rapports techniques.

D'avance, nous vous remercions de votre réponse. Accepter, s'il vous plâit, l'assurance de nos sentiments distingués.

Sincerement,

Elizabeth K. Ralph

EKR/abn

RESEARCH REACTOR INSTITUTE
KYOTO UNIVERSITY
KUMATORI-CHO, SENNAN-GUN
OSAKA, JAPAN

April 8th, 1975

Dr. Elizabeth K. Ralph
Museum Applied Science Center for Archaeology
University Museum, University of Pennsylvania
Philadelphia, Pennsylvania
U.S.A.

Dear Dr. Ralph :

I was working on thermoluminescence dating and now I am working on soucing i of stone artefacts by use of X-ray fluorescence analysis. At the time of the first international sympsium on luminescence ~~dating~~ dosimetry in 1965, I visited your laboratory. An yearly journal named as Archaeology and Natural Science in Japanese is published from my laboratory and Dr. Hann contributed an introductory paper about the activity of MASCA in 1972 issue.

In the coming July, I will attend an international conference (Colloque Weyl IV) on radiation chemistry which will be held at Michigan State University. After or before the conference, I would like to visit your laboratory. The schedule of my visit is tentatively arranged on 25th of June or 14th of July. I like to visit Dr. Harbottle of BNL on 27th of June or 11th of July. Is it convenient for you ? I can prepare some talks on my work on sourcing of stone artifacts and a review on works in archaeological science carried in Japan.

Please send my best regards to Dr. Hann.

Sincerely Yours

T. Higashimura

Takenobu HIGASHIMURA

April 15, 1975

Dr. Takenobu Higashimura
Research Reactor Institute
Kyoto University
Kumatori-Cho, Sennan-Gun
Osaka, Japan

Dear Dr. Higashimura:

We shall be glad to have you visit our laboratories. I hope to be back from Europe by June 25th, but will definitely be here on July 14th.

We are eager to hear about your work on sourcing of stone artifacts. However, it is difficult to organize a seminar after classes end in May, but most of our MASCA group will be here.

Sincerely yours,

Elizabeth K. Ralph

C-14

March 26, 1963

Dr. Peter Paul Hilbert
Institut fur Volkerkinde and der Universitat
Mainz, Germany

Dear Dr. Hilbert;

I am sorry that there was such a delay in our communication.

The laboratory reports that they combined samples Three, Four and Five and that they have infomed you of the date. This is unfortunate; the rest of the samples are reported to be much too small. I am anxious to know whether the results are approximately what you had expected they would be. The inclusion of sample Four would presumably give a later result but one that might be useful as a terminus for the Caiambe phase.

With kindest regards,

Sincerely yours,

Alfred Kidder II
Associate Director

AK/vv

UNIVERSITY INTRAMURAL CORRESPONDENCE

3/25/63

Dr. Kidder —

We've already burned these samples and forwarded the dates to Hilbert Jan. 18, 1963.

Unfortunately, we followed the directions of his letter of July 8, 1962, and combined Samples #3, 4, 5 as one. Now it seems we shouldn't?

The rest of his samples are hopelessly small or uncharred bones which are most unreliable.

Bob.

Mainz, 15. 3. 1963

Bob Stuckenrath

Dr. Alfred Kidder II
University of Pennsylvania
Thirty-Third and Spruce Street
Philadelphia 4, Pen.

Dear Dr. Kidder!

Strange things happen. By way of my brother-in-law, Dr. Harald Sioli, director of the Institut for Hydrobiology (Max-Planck-Gesellschaft) who is travveling at the Amazon now I got a letter from you who just went underground at the Goeldi-Museum for over a year. Dr. Sioli picked it up there and send it to my at the Institut for Ethnology of the University of Mainz. (Letter from 25. 1. 1962)

In this letter you were asking me about the possibility of combining the samples 3, 4, and 5 from Lake Caiambé for Carbon-14 testing. I am really happy that you still have the intention to work with this material, because it ist the one horizont I do not have C14 data.

Would the combination of sample 3 and 5 from Caiambé give a result? Sample 4 is still in the Strata of the following Teffé-Phase and can only be used separately. 3 and 5, however, are from strata both marking the last third of the Caiambé Phase.

Thanks again, dear Dr. Kidder, for your kindness!

With my best regards,

Sincerely yours,

Peter Paul Hilbert

Peter Paul Hilbert

Institut für Völkerkunde an der Universität
Mainz, Germany

SAMPLE INFORMATION REQUIRED FOR C-14 DATES

To: E. K. Ralph, Department of Physics
University of Pennsylvania
Philadelphia 4, Pennsylvania

1. Descriptive name or site, and brief explanation of significance of sample or site.	Lago Caiambé, type site of the Caiambé-Phase oldes ceramic complex known untill now from the Rio Solimões (Middle Amazon)
2. Substance of which the sample is composed; if a plant or animal fossil, the scientific name if possible; otherwise the popular name; but not both. Also, where pertinent, the name of the person identifying the specimen.	charcoal
3. Precise geographic location including latitude-longitude coordinates.	mouth of the Lago Caiambé to the Rio Solimões, right shore. 3° 30' south and 64° 30' west of Gr. Amazon Valley, Brazil
4. Occurrence and stratigraphic position in precise terms.	Sample 3: Cut I, Stratum 75-90cm, beginning of teh Caiambé Phase Sample 5: Cut III, strata 90-105cm
5. Date of collection and name of collector.	24. 3. 59. Peter Paul Hilbert
6. Name of person submitting the sample to the laboratory.	Dr. Alfred Kidder II
7. Any further necessary explanation.	
8. Reference to relevant publications.	" New Stratigraphic Evidence of Culture Change on the Middle Amazon (Solimões)", Publ. of the 34. Intern. Congress of Americanists, vienna 1960
9. Comment, usually comparing the date with other relevant dates, for each of which sample numbers and references must be quoted.	

Peter Paul Hilbert

Institut für Völkerkunde
a. d. Universität Mainz / Germany

Gallery of Western Art

656 Hobart Place, N.W.
Washington, D. C. 20001
(202) 234-2774

HAMPTON R. PEARSON
Director

CLINARD HINSON
Curator

March 21 , 1975

Professor E. K. Ralph
C-14 Laboratory
University Museum
Philadelphia , Pa.

Dear Dr. Ralph ,

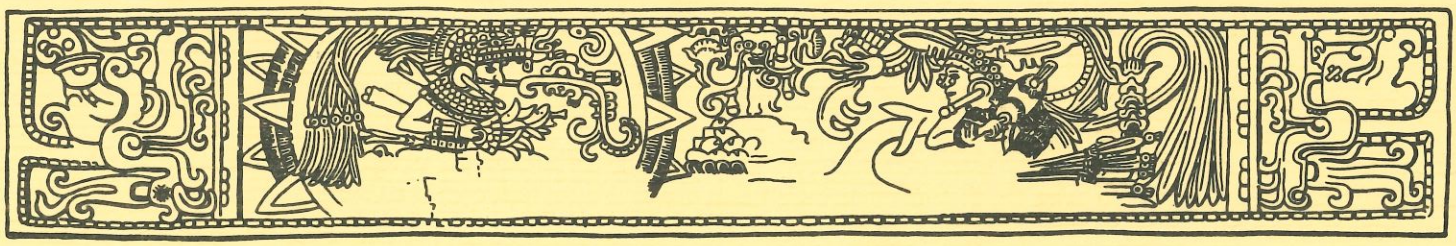
This note is to confirm our appointment for Monday , March 24th for thermo-luminescent dating . I will be arriving in the afternoon.

After checking the core of the casting , I determined that there is , indeed , more than three grams of siliconic and feldsparic material present . As this is in evidence , I shall proceed with its movement .

Yours truly,

Clinard W. Hinson

cs/CWH



HISTORIC LANDMARKS ASSOCIATION
P. O. Box 15312
Nashville, Tennessee 37215
March 23, 1972

3/24

Miss Elizabeth Ralph
Applied Science Centre for Archaeolgy
University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Miss Ralph:

Historic Landmarks Association, an educational non-profit organization, has assumed ownership of an old log house said to have been the temporary home of James Robertson, founder of Nashville, Tennessee.

We are attempting to document the age of this house (and, therefore, the authenticity of the above claim) and feel that it might be helpful if we could have the age of the logs ascertained.

Do you perform this type of analysis? Do you charge for the service; if so, what is the charge? What size specimen would you need for this determination?

If you do not do this type of work, could you suggest someone who would be willing to help us in this project?

We look forward to hearing from you in the near future.

Yours truly,

Gladys S. Hamilton

(Mrs. Charles M. Hamilton)
President

GSH:cfl

CENTER FOR
CULTURAL AND TECHNICAL INTERCHANGE
BETWEEN EAST AND WEST

A project of the Government of the United States in cooperation with the University of Hawaii

HONOLULU, HAWAII 96822 *Cable: EASWESCEN*

May 28, 1965

Dear Froh:

Have any good C14 dates on any of the levels at Mellaart's Catal Huyuk site been released? I note from his 1964 article in Scientific American that you were doing a run on some of his materials.

Anything you can tell me will be appreciated.

Sincerely,

E. Adamson Hoebel

P.S.: I am spending a pleasant, hardworking year here and will be back at Minnesota later this summer.

June 28, 1965

AIR MAIL

Dr. E. Adamson Hoebel
Center for Cultural and Technical
Interchange between East and West
Honolulu, Hawaii 96822

Dear Dr. Hoebel:

Dr. Rainey has asked me to reply to your letter of May 28th. Please excuse the delay - unfortunately, your letter rested in a pile while Dr. Rainey was in Italy. Now, he has gone to Alaska.

I have enclosed a copy of our C-14 dates for Çatal Hüyük. These will soon be published in Radiocarbon, Vol. 7 (1965) as part of our Date List VIII by R. Stuckenrath and E. Ralph. The values calculated with the 5730 half-life are the more realistic ones.

Sincerely yours,

Elizabeth K. Ralph

EKR/deh

Encl.

Beth –
replied
2/16/66

The Old Vicarage,
Great Milton,
Oxon.

10th Feb., 1966

Dear Ellen,

I dont know if I should write to you or Miss Ralph. Work on the pottery from our Knossos excs. of 1957 – 61 has gone (or will soon have gone) far enough for fairly firm archaeological dating of the deposits from which we recovered charcoal, and I would like to get the samples from our deposits despatched to you for C14 analysis while I am in Crete now, from mid-Feb. to mid-April.

Are there any hints about packing ? They are at present in envelopes, cardboard boxes and tins. Will it be in order to leave them thus, ensuring that they wont squash, and put them inside a plastic bag, and then in one or more small wooden crates?

Should I send them to you or Miss Ralph at the Applied Science Center for Archaeology ? (to which I'm sending this letter).

Did I ever write to you in reference to your very great kindness to Peter Warren ? He was most grateful for all the help that you gave him, including the excellent drawings. I've just been reading his thesis which I think will be most useful.

I shall be in Crete from Febl 17th, c/o Villa Ariadne, Knossos, Herakleion, Crete. Could you perhaps reply tome there ?

Hoping to see you here if and when you are in England. We have settled here near Oxford.

Yours ever,

Sinclair [1400]

↑To open slit along here↑

Sender's name and address :

Sinclair Hood,
The Old Vicarage,
Great Milton,
OXON.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE ; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

First fold here

Second fold here →

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

OXFORD
15PM
10 FEB
1966
A

Miss Ellen Kohler,
Applied Science Centre for Archy,
The Univeristy Museum,
33rd & Spruce Sts.,
PHILADELPHIA,
Penn.,
U. S. A.

↑To open slit along here↑

Techniques

January 9, 1970

Dear Professor Hood:

Just to follow-up on the plan to attempt more dependable dating in the late Bronze Age for the Mediterranean, I thought you would be interested to know that Professor Soderbergh at Uppsala is joining with us and actually turning our whole plan into a general international job involving many people. I do hope we get some results before long.

Soderbergh himself will be in Egypt this winter collecting those short-lived organic materials, and I expect he will also visit Crete in search of this kind of material. As you can guess, the sort of thing we want just does not turn up as a result of letters written, and I know we are going to have to have somebody on the job to select this kind of material on the spot.

All best wishes,

Froelich Rainey
Director

Professor Sinclair Hood
The Old Vicarage
Great Milton, Oxford
ENGLAND

FR/j

THE OLD VICARAGE, GREAT MILTON, OXFORD, OX9 7PB TELEPHONE GREAT MILTON 202

29th October, 1969

Dear Professor Rainey,

Thank you very much indeed for your most interesting letter of October 15th. I would certainly like to help the project which you have in hand in any way I can. I have not excavated at Knossos myself since 1961, and all dated samples of charred material that were adequate in bulk were sent to Pennsylvania to Miss Ralph some years ago and C 14 dates were obtained. I was dissappointed to find that we had in fact very few dated samples that were adequate in bulk.

In the Museum at Herakleion I believe there are lamps and braziers from well dated tombs and other deposits with charcoal still in them. These I imagine would be ideal for dating purposes, but it may be difficult to arrange for their sacrifice. I should think it would need permission from Athens, even if the Director of the Museum himself was in favour.

What I can do when I am next in Crete is try and mark down and list such items in the Museum at Herakleion or elsewhere. I will also bring your letter to me to the notice of other people excavating in Crete, although your people may be in direct touch with them already. I imagine they have direct contacts with the Greek authorities in Crete, and also with the Italian and the French excavators. If not, they should clearly solicit their collaboration.

As for sherd material for thermoluminescence dating there should be no difficulty in obtaining a full and well dated sequence. But I know that Martin Aitken here demands that the sherds shall have been kept out of the sun, and that they must be brought to the laboratory with a sample of the earth in which they were found. In practice this means that sherds from old excavations are for him of little value. Do you I wonder require similar conditions ? (This information may be on the form which you mention in your letter and say is enclosed.

But I can find no trace of this form, and wonder if it was sent, or I may have mislaid it).

I am unlikely to get to Crete again until the late summer of next year, 1970. In the meanwhile I will bear your letter and your projected work very much in mind, and discuss it with anyone I meet operating in this field. In this way other sources of suitable material may emerge.

With all best wishes,

Yours very sincerely,

Sinclair Hood

Sinclair Hood

Professor Froelich Rainey,
The University Museum,
Thirty-Third and Spruce Streets,
Philadelphia, PA. 19104,
U. S. A.

November 13, 1970

Dear Dr. Hood:

Many thanks for your paper on Kadmos and the Thera problem. Our Radiocarbon and Thermoluminescence project on the late Minoan period has been progressing very slowly because we have not been able to get the short-lived organic material as quickly as we hoped. However, we now to have the grain from the Marinatos' site on Thera and other short-lived organic material from related sites so very soon we should have a precise date on that site whatever it is. We also have pottery from the site for Thermoluminescnnce dating. Our laboratory here is now very optimistic about the dependability of this method.

I am enclosing a more precise correction factor for Radiocarbon dating which, as you know, applies to all Radiocarbon dates previously made with whatever method. It is interesting that our recent Radiocarbon dates on short-lived organic material from the 19th and 20th dynasties in Egypt correspond to the traditional archaeological dates and confirms the correction factor for Radiocarbon. We will be doing much more analysis of materials both from Egypt and Minoan sites and I do hope through your good auspices that we can get some short-lived material from Knossos or other Minoan sites on Crete. Henry Michael from our Laboratory here should be in Egypt and the Mediterranean next summer and if you are to be in Crete at the same time, I would like to have him see you about this. He is very good at coming back with just the kind of material we need.

All the very best,

Froelich Rainey
Director

Dr. Sinclair Hood
The Old Vicarage
Great Melton, Oxfordshire
ENGLAND

Ralph Stephenson

Department of Physics
Florida State University
Tallahassee, Florida
December 2, 1975

What about this one FSU

Dr. Frolich G. Rainey
Director
The University Museum
Philadelphia, Pa.

Dear Dr. Rainey;

My uncle, Prof. C.C. Price of the Department of Chemistry, mentioned to me that he had heard from Dean William Stevens that you were looking for an experimental physicist to develope new methods to locate sites of archeological significance. I thought you might be interested in my qualifications.

I recieved my Ph. D. from Penn in 1972 in experimental high energy physics. There I worked with the late Jules Halpern on experiments using electronic particle detectors. I assisted with the construction of the apparatus, with the taking of data, and with the data analysis. In my dissertation and post doctoral work, I used bubble chambers for particle detection. My most recent job was involved with methods of locating oil and gas deposits. In this work I was most concerned with computerizing the data aquisition, but I also became familiar with the tools used to make electrical, acoustic, and nuclear measurements and thier relation to geologic factors. I would think some of these methods would be applicable to archeological exploration.

From these experiences I think I can offer you general knowlege of physical principals and some specific knowlege of geophysics. Much of my training has been oriented towards penetrating the invisible using physical measurements. If you would like to discuss this matter futher, Iwould like to hear from you. My number is 904-664-1492.

Sincerely,

Charles P. Horne

Charles P. Horne

CHARLES PRICE HORNE
Ph.D., Physics

DEGREES: Ph.D., Physics, University of Pennsylvania, 1972
B.S., Physics, University of New Hampshire, 1966

POSITIONS:
- Senior Research Physicist, Schlumberger-Doll Research Center, Ridgefield, Connecticut, 1974-1975
- Research Associate, Florida State University, Tallahassee, Florida, 1971-1974
- Research Associate, University of Cincinnati, Cincinnati, Ohio, 1970-1971
- Research Fellow, University of Pennsylvania, Philadelphia, Pennsylvania, 1967-1970

MEMBER: -American Physical Society

BIRTH DATE: -June 15, 1943

CITIZENSHIP: -U.S.A.

MARITAL STATUS: -Married, two children

PHONE: -904-644-1492 (Commercial); 904-377-4287 (FTS until Dec. 1, 1975); 946-4287 (FTS after Dec. 1, 1975)

ADDRESS: Department of Physics
Florida State University
Tallahassee, Florida 32306

Dec 20

REFERENCES:

-Dr. V. Hagopian Experimentalist	Dept. of Physics, Florida State University, Tallahassee, Florida 904-644-1492
-Dr. J. E. Lannutti Chief Investigator	Dept. of Physics, Florida State University, Tallahassee, Florida 904-644-1492
-Dr. P.K. Williams Theoretician	Dept. of Physics, Florida State University, Tallahassee, Florida 904-644-1492
-Dr. J.H. Moran Director of Research	Schlumberger-Doll Rsch. Ctr., Ridgefield, Connecticut 16810 203-438-2631
-Dr. W.E. Kenyon Supervisor	Schlumberger-Doll Rsch. Ctr., Ridgefield, Connecticut 06810 203-438-2631
-Dr. M.M. Nussbaum Thesis Advisor	MP Division, CERN, 1211 Geneva 23, Switzerland

U. of Cincinnati
Physics Dept
Cincinnati
Ohio

Dec 20
asked Frati: hardly remembered him
asked Sciarra
Selove

EXPERIENCE:

-Graduate and post-doctoral experience in experimental high energy physics using bubble and spark chambers. Studied properties of strongly interacting particles and resonances.

-Applied Monte Carlo simulation methods to evaluate theoretical models and the effects of experimental biases.

-Jointly supervised the measurement of 500,000 stereoscopic photographs of tracks of high energy particles in bubble chambers, resulting 6×10^8 digitizings stored on 800 tapes, ultimately reduced to one tape for analysis.

-Developed analysis programs to fit experimental data.

-Developed and/or utilized several graphics programs.

-Supervised technical personnel.

-Taught engineering physics.

-Familiar with IBM 360, CDC 6000, PDP 11 and DEC 10 Systems.

-Utilized automatic electro-optical system for precision measurements of photographic film, producing digital tapes processed off-line by pattern recognition techniques.

-Investigated measurements relating to the productivity of oil wells.

-Project leader for application of mini-computers to oil well data processing.

PUBLICATIONS: (All with other authors).

-Higher-Mass Bosons from 7.87 GeV/c $\pi^+ d$ Interactions, Phys. Rev. D6, p. 3047, December (1972).

-Preliminary Results for Four and Six Prong Topologies in 15 GeV/c $\pi^+ d$ Interactions, Bull. Am. Phys. Soc. Wash., D.C., V. 17, p. 539, April (1972).

-Four-pion Decay of the f° Meson, Phys. Rev. D3, p. 3264, June (1973).

-Evidence for the Two Delta Component of the Deuteron, Aix-en-Provence Conference Proceedings, p. 209 (1973).

-The Reactions $\pi^+ d \rightarrow (m\pi)^+ d$ for m=3 to 8 at 15 GeV.c,

Bull. Am. Phys. Soc., New York, V. 17, p. 105 March (1973).

-Possible Existence of a Δ-Δ (1238) Component of the Deuteron, Bull. Am. Phys. Soc., Berkeley, V. 18, p. 1603, December (1973).

-Search for Evidence of a Delta-Delta (1238) Component of the Deuteron, Phys. Rev. Lett., V33 #6, p. 380 (1974).

-The Study of the Reaction $\pi^+ d \rightarrow \pi^+\pi^+\pi^- d$ at 15 GeV/c, Bull. Am. Phys. Soc., Chicago, V. 19, p. 80, February (1974).

-Study of the Reaction $\pi^+ d \rightarrow \pi^+\pi^+\pi^- d$ at 15 GeV/c, Phys. Rev. D11, p. 996, March (1975).

-Search for Charmed Mesons and Baryons in Reactions of 15 GeV/c π^+ Mesons with Deuterium, submitted to Phys. Rev. Lett., September (1975).

-Co-author of five additional papers given at national meetings of the American Physical Society.

Department of Physics
The Florida State University
Tallahassee, Florida 32306

2 January 1976

Prof. William Stephens
Department of Physics
University of Pennsylvania
Philadelphia, Pa. 19104

Dear Dr. Stephens:

Charles P. Horne was a research associate in our high energy group under my general supervision between November 1972 and August 1974. During his tenure at the Florida State University he worked on many aspects of bubble chamber experiments. His major contribution was in data analysis using computer programming both on large computers (CDC6500) and also on small on-line computers (EMR-6050 and to a lesser extent PDP-9). He has a well developed expertise in computer graphics, which he used to display the final results of our physics experiments. Of course the computer effort was only supportive of the data analysis which he undertook for one major experiment: a 900,000 photograph $\pi^+ d$ experiment performed at Stanford Linear Accelerator Center. During his stay at the Florida State University he did some optics work and also supervised several laboratory technicians.

Dr. Horne is a very hard working person who regularly worked more than 60 hours per week. He has a pleasant personality and gets along with coworkers very well. His work effort here has always been excellent and has resulted in several major publications where he had prime responsibility. Since I am not familiar with the kind of work that he has applied for at the museum there, I cannot judge how well he is qualified for that position. I know he is a well read person with diverse interests. Last year he took a job with industry, and I understand that he picked it up very rapidly. His separation from the industrial work was due to the company rather than Charlie

himself. I am sure that if he joins the staff there, he will be a productive person in a very short time.

If you desire more information on Dr. Horne, do not hesitate to call me. My telephone number is 904-644-3734.

Sincerely,

Vasken Hagopian

Vasken Hagopian,
Professor

VH/at

1st letter of recommendation
People in Physics here do not remember him, but his adviser, Jules Halpern died.

UNIVERSITY INTRAMURAL CORRESPONDENCE

Department of Chemistry

If you are interested in him, suggest we get him here for an interview. Beth

January 5, 1976

Professor William E. Stephens
Physics Department
1N12 David Rittenhouse Laboratory/E1

Dear Bill:

This letter is to convey my support for your consideration of Dr. Charles P. Horne for the scientist position which may be available at the University Museum. Charlie (who is my nephew) received his Ph.D. from the University of Pennsylvania several years ago. After postdoctoral work at Florida State, he then spent about a year working for a French Oil Company in Connecticut. I believe that he made an excellent record in his graduate studies here at Penn (nearly, if not, straight "A").

I am really not able to comment professionally on his research, but would like to tell you a bit about him personally. He has always been an unusually sensitive and responsible individual, tall and handsome, with a ready sense of humor. He has a lovely wife and two children. During at least one year here at Penn, he and his wife lived in an undergraduate dormitory and served as counselors, which they found to be an interesting and exciting experience.

He spent one of his undergraduate years (while at the University of New Hampshire) studying in the Indian Institute of Technology (while my brother was a visiting professor there).

He is a superb photographer, especially of nature. Shows of his pictures are indeed a real experience!

I have also frequently had experience with Charlie as a crew on my sailboat. He learned very quickly, proved to be an excellent and reliable crew and was excellent ship's company.

I believe Charlie would bring many talents and capabilities for the unusual kind of job at the museum. I can certainly recommend him enthusiastically.

I might add that he has now left Florida State and can be reached through his mother at 42 W. Del Rio, Tempe, Arizona 85282.

Sincerely yours,

Charles C. Price

CCP:db

University of Cincinnati
Cincinnati, Ohio 45221

DEPARTMENT OF PHYSICS

January 13, 1976

Dr. William Stephens
Department of Physics
Tandem Accelerator Laboratory
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Dr. Stephens:

Your recent inquiry about Charles Horne has just reached me.

Since I don't know exactly what the Applied Science group at the Museum does I cannot assess how well Horne would fit in, but let me give you some general impressions of him.

I think he is one of the better students I've seen at the University of Pennsylvania Physics Department (perhaps in the upper 20%), quiet, well mannered, unassuming, very presentable, cultured, with a wide variety of interests in science. In short, while he has a very high degree of intelligence and knowledge and a very serious scholarly commitment to learning, I think he lacks the drive to succeed in particle physics now that the days of intense competition are upon us. That may be the Museum's gain.

If you have further specific questions please feel free to write or call me (513) 475-2236.

Sincerely,

Mirko M. Nussbaum
Professor of Physics

MMN:sd

RESEARCH LABORATORY FOR ARCHAEOLOGY
AND THE HISTORY OF ART

TEL. 55211

[HORNBLOWER]

6 KEBLE ROAD
OXFORD

September 20th 1962

Dear Dr. Ralph

Many thanks for your letter. I'm so sorry this thesis wasn't returned to you straight away – I've been frantically busy & I'm afraid the matter rather slipped my mind.

My apparatus does now appear to be in reasonable working condition – greatly to my relief. I still have to calibrate various pieces of equipment, but I hope that in a month or so's time I shall be ready to take some serious measurements. So if you could help by sending me some specimens, I should be most grateful. I shall start the programme by taking some qualitative measurements, in order to check that my theory has some validity: so what I would really like would be to have some specimens known to be genuine, with brief details of their history, plus some which you believe to be fakes. Do you think this would be possible? The size doesn't matter, though obviously the larger the better; the only thing of importance is that the outer surface should be marked in some way.

A fellow countryman of yours, Dr. Stiffler, arrived at the Clarendon last week. He is an expert on the self-diffusion of gold-silver-copper alloys & appears most interested in our problems, so I am hoping to obtain some interesting results in the near future.

With many thanks for your help & interest

Yours sincerely Penny Hornblower.

February 28, 1973

Dear Mr. Howard:

It was good to hear from you in your letter of February 1, upon my return from Indonesia and I am glad to know what you are doing these days. Incidentially, I also stopped over in Cairo on my way back to keep in touch with our three expeditions there.

As for the Mansoor Collection, I hardly know what to say. Scientifically we can only authenticate the age of pottery or terra-cotta figurines with our new thermoluminescence process. There is no way to fix the age of bronze or stone objects. After 25 years as the director of the Museum I have no confidence really in experts who authenticate objects on the basis of style. I find they very often disagree. We have had objects here which have been debated for twenty years. So what does one do about ones Mansoor Collections? I know from our Egyptian Department that the Museum collection is well known and debatable. Our Egyptian experts can, of course, look at it and give you their opinion, but chances are it would just be one more opinion of experts. This whole problem gets worse with the high price of antiquities and we are desperately trying to stay clear of such controversy. Anyway, all the best to you.

Sincerely,

Froelich Rainey
Director

Mr. John R. Howard
LEWIS AND CLARK COLLEGE
Office of the President
Portland, Oregon 97219

Portland, Oregon 97219
Telephone (503) 244-6161

Lewis and Clark College

Office of the President

February 1, 1973

Dr. Froelich Rainey, Director
University of Pennsylvania Museum
33rd & Spruce Streets
Philadelphia, Pennsylvania 19106

Dear Fro:

It is hard for me to believe that it has been 16 years since I saw you last. I left the University of Pennsylvania in 1957 to take on the problems of the liberal arts college. After three years as Vice-President of Lake Forest College in Illinois, I accepted the Presidency of Lewis and Clark College in 1960 and am well into my 13th year here. The life is in every way satisfying and Ruth and I love the Pacific Northwest. I hope all goes well with you. Your great reputation is well accepted out here, in God's country, and the University of Pennsylvania Museum is a respected place.

I write now with what for me is a problem, but a fun problem. Some months ago a professor in our law school (a remarkable story in himself: a scientist, blinded in a laboratory explosion, who picked up the pieces and studied law and graduated as the top student in the entire United States, receiving honors from the White House) introduced me to two men, Egyptian born--William E. Mansoor and Robert Mansoor. They are two of the several children of a noted art collector and dealer in Cairo in the pre-Nasser days. The brothers and the rest of the family jointly own a collection of Tel-El-Amarna period sculptures, inherited from their father, which are outstanding. My wife, Ruth, and I have seen approximately 25 of the pieces and are thrilled with them.

We have visited on the upper Nile, have enjoyed the great collection in the museum in Cairo, and have seen the Nefertiti in Germany.

The question inevitably arises as to the authenticity of the pieces. The family is caught in the middle in a remarkable struggle among the Egyptologists, curators, and carbon dating experts. They have 12 or 15 people of some international reputations who certify their belief that the figures are clearly Tel-El-Amarna period, and three or four strategically located people (Boston, New York and Berlin), who challenge the pieces and imply that they are not of that period and of little value. I have seen the pieces and I know they are beautiful. The entire collection has never been pulled together and shown publicly. Because of my affirmative interest, the brothers have offered to let Lewis and Clark College sponsor or co-sponsor the first-ever exhibition of the entire 41 piece collection.

For good reason museums are loath to get into the authentication business and I can see why they would be loath to exhibit a collection which might be somehow "suspect." All of us have read of the inflated values given art objects by some owners after their pieces had been "loaned to the Metropolitan Museum," etc. I have, for example, been fascinated by the controversy over the authenticity of the famous Greek bronze horse in the Metropolitan Museum.

Clearly, authenticating their age would be helpful to everybody concerned. Is it possible to get an analysis of the dates from some reputable person or agency whose judgment would be generally respected? Can you direct me to such a person? Is there a Government agency equipped (and willing) to do such work?

The Mansoors, of course, have much to gain in setting a value on their collection if they can settle this question to everyone's satisfaction. My interest is less with the values involved than in the processes of getting at the truth and with the role of my College as sponsor of an exhibition. With authentication, we would pull all the stops and invite national attention. If the controversy about their importance continues, we would be hesitant to spend a major effort seeking national publicity.

Can you counsel me on this matter in an informal way? (Or formally, as a paid consultant, if you prefer.) I'd be appreciative.

Ruth and I lived in the Lafayette Headquarters House, Valley Forge, when we left Philadelphia. As I remember, you were then just down Yellow Springs Road apiece. Are you still there? (Did you know Ira and Lauretta Keller? They are also alumni of "The Covered Bridge at Valley Forge," were friends of Libby Wildman and are our close friends out here now.)

Cordially,

Jack Howard

John R. Howard

Acad Things

THE PENNSYLVANIA STATE UNIVERSITY

UNIVERSITY PARK • PENNSYLVANIA

College of Mineral Industries
Department of Geophysics and Geochemistry

7 April 1961

Mr. Froelich Rainey
The University Museum
University of Pennsylvania
Thirty-third and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Mr. Rainey:

In answer to your recent letter, I would be happy to talk to you and Mr. Linington any time you want to come to University Park. I will be out of town the weeks of April 10 and 17, and would suggest anytime on the 25th or 26th or the afternoon of the 27th. How does this sound to you?

Most sincerely yours,

B.F. Howell Jr/mhk

B.F. Howell, Jr.
Head, Department of
Geophysics and Geochemistry

BFH/mhk

April 21, 1961

Dr. B. F. Howell, Jr.
Head, Department of Geophysics and Geochemistry
The Pennsylvania State University
University Park, Pennsylvania

Dear Dr. Howell:

I have delayed in answering your letter of April 7th, hoping I would hear soon when Linington will return from Guatemala. There is still no word, but I'm sure we cannot get out there before April 27th, because I'm again going back to Dallas to talk to McDermott on the 26th. However, it should be early in May and I will 'phone you as soon as I get back from Texas.

Sincerely yours,

FR:ah

Froelich Rainey
Director

March 30, 1961

Dr. Benjamin F. Howell, Jr.
219 Mineral and Science Building
University Park, Pennsylvania

Dear Dr. Howell:

We here at the University Museum have set up a center for the study of new archeological techniques and, as a part of that, we've been working with the Texas Instruments Company experimenting with geophysical prospecting methods adapted to archeology. This work is under the direct supervision of Richard Linington, physicist from Oxford. One of the things we have been trying to develop is a high frequency impulse instead of percussion with the present geophysical equipment used by Texas Instruments. Yesterday Mr. McDermott of Texas Instruments called to suggest that we get in touch with you to see if you could give us a hand in developing this kind of instrument. We are operating on a National Science Foundation grant and have some funds to do this, although I amnnot sure they're adequate. However, we are reapplying in May and I should very much like to explore the possibilities of this with you before that time.

Unfortunately, Linington is now in Tikal in Guatemala trying out three different types of instruments at the site there and he will not return until sometime late in April. It would be rather pointless for me to discuss this with you since I do not have the technical knowledge, but if you are interested I would like to come up to University Park as soon as Linington gets back and go over our work so far. Would you let me know if this is something which would interest you and if we might get together sometime late in April?

Most sincerely,

Froelich Rainey

FR/sj

February 9, 1967

HRB-Singer Inc.

Dear Mr. Musser:

I had a brief talk with Mr. Anderson concerning your interest in infrared photography at a recent meeting in Newark, and now I see that he sent you a note about this.

We have had some success in aerial survey for archaeology with infrared photography and infrared scanning in a recent experiment with the U. S. A. E. in southern Italy. We are just now about to try another experiment over archaeological sites in Arizona. There are a lot of things that puzzle me about this. I do not really understant how infrared films record buried archaeological features and also, I am not really informed about the different types of film. We expect to make another aerial survey using infrared photography over the site of Sybaris in southern Italy, in April, and I should be taking the infrared rilm from here for the Italian plane crew.

Any information you could give me about this would be very much appreciated.

Most sincerely yours,

Froelich Raihey
Director

Mr. Glenn L. Musser, President
HRB-Singer, Inc.
Science Park
State College, Pennsylvania

FGR/vg

cc: Mr. Anderson

THE SINGER COMPANY
THIRTY ROCKEFELLER PLAZA · NEW YORK 20, NEW YORK

RESEARCH AND DEVELOPMENT DIVISION

February 2, 1967

Dr. Glenn L. Musser, President
HRB-Singer, Inc.
Science Park
State College, Pennsylvania

Dear Glenn:

Infrared Photography

Last Tuesday evening, I had the pleasure of attending a lecture by Dr. Froelich Rainey of the University of Pennsylvania on the latest developments in archeological research which touched, in particular, on the application of new techniques to the science of archeology. I was thoroughly fascinated by his explanation of the use of infrared photography in archeological explorations.

In a chat with Dr. Rainey later that evening, I mentioned that HRB-Singer had pioneered in the infrared photography field and suggested that he get in touch with you should he wish further information on this subject. This is to advise that you may hear from Dr. Rainey in this regard and if you should have the opportunity to meet him, you will find him a most interesting person.

Sincerely,

R. H. Anderson

RHA/cb

Enclosure

cc: Dr. F. Rainey

March 11, 1967

Techniques

Dear Mr. Stingelin:

Many thanks for your very comprehensive letter of February 23rd regarding infrared and aerial purveys. We are presently doing one more experiment in Arizona with the Air Force, and another one in April in southern Italy, with the Italian Aero Service. So, the chances are very good that I will be in touch with you again for your advice and comments.

This seems to me the most interesting field in archaeology, and none of us here really know very much about it, so we really appreciate your advice.

Most sincerely yours,

Froelich Rainey
Director

Dr. Ronald W. Stingelin
Research Geologist
HRB- Singer, Inc.
Science Park
P. O. Box 60
State College, Pa. 16801

FGR/vg

Rolfe
ASCA
I have replied
7/11.

H R B - S I N G E R , I N C .

SCIENCE PARK, P.O. BOX 60 • STATE COLLEGE, PA. 16801 • PHONE 814 • 238-4311

23 February 1967

Dr. Froelich Rainey, Director
The University Museum
University of Pennsylvania
Thirty-Third and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Rainey:

In reference to your recent letter (February 9, 1967) to Dr. Glenn L. Musser concerning the usage of IR films in detecting buried archaeological sites, I have prepared the following explanations for the questions submitted.

There are two basic infrared films on the market manufactured by Kodak; Panchromatic IR and Ektachrome IR Aero (camouflage detection film (CD)). The black and white IR film is also available in a high speed form. Both films utilize an IR absorbing layer in their emulsions which is sensitive to near IR radiation (approximately .72 to 1.2 microns and most sensitive between .77 and .84 microns). A series of filters are available to achieve desired effects. With the CD film, a G-15 (yellow) filter is commonly used; and with the black and white film, a wratten 25 (red) or 89B(IR) filter. The number 25 filter transmits radiation of wavelengths .58 microns or longer and the 89B, .70 and longer. Use of a filter is mandatory since the IR absorbing layer has a peak absorption in the blue end of the visible spectrum which is greater than its peak in the IR region. Without the use of a filter the film will not record in the IR region since it will be masked by the blue end of the visible spectrum. CD film is very similar to Ektachrome Color in having a 3-layer emulsion containing 3 primary color absorbing pigments. The major difference is that CD film has had its response shifted to the upper end of the visible spectrum and into the near IR. The three layers have their peak absorption in IR, red, and green wavelengths. Since this is a false color film, objects reflecting IR light will be portrayed in red, red light will show up green, and green light will appear blue on the transparencies. The fact that reflected radiation from leaves is primarily in the IR is the reason healthy vegetation appears red on this film type.

In all of these films, reflected IR radiation is being recorded. In using thermal IR scanners, the middle (2.5-5.6 micron) and far (5.6-14 micron) IR bands are being investigated and energy being

recorded is chiefly emitted radiation. Nighttime surveillance is therefore possible with these scanners. If use of thermal line scanners is desired in the daytime, spectral filters must be used and some of the energy recorded in the middle IR region will be reflected IR.

Infrared radiation is greatly absorbed by water vapor. Moist areas on the ground will absorb more IR radiation and will reflect less than adjacent drier areas. In the case of buried archaeological sites which are covered by some porous overburden, moisture differences may occur over buried surfaces of relief that will be recorded on the surface by changes in IR reflection.

When considering infrared scanning, the radiation emittance of a body is dependent not only on its temperature but on its physical characteristics. Slight changes in the overburden composition or compaction over buried sites may cause a change in the heat budget at the surface and result in a different emissivity for these areas over adjacent areas. Emissivity is merely the numerical value of the amount of radiation being emitted by a body at a given temperature divided by the radiation being emitted by a perfect absorber and radiator (blackbody) at the same temperature. The value will always range between 0 (perfect reflector) and 1 (perfect emitter).

In planning any terrain survey careful consideration should be given to what is being sought after and under what conditions optimum detection would occur. Careful choice of film type and filter combination for photographic IR work and detector type, resolution, and sensitivity for thermal work will insure the best chances for conducting a successful survey. Meteorological conditions and the time of day or night a survey is conducted will influence the result.

I hope that my brief explanation will be of use to you in your future work. HRB-Singer, Inc.'s Environmental Sciences Branch would be available should you require assistance in planning your survey and/or in the interpretation phase.

If I can supply any additional information, please feel free to ask at any time.

I am enclosing a few references about IR that I happen to have on hand for a seminar.

Cordially yours,

Ronald W. Stingelin

Ronald W. Stingelin, Ph. D.
Research Geologist

RWS:ms

Enclosure

REMOTE SENSING APPLICATIONS IN VEGETATION ANALYSIS

References and Suggested Readings

1. Proceedings of the Third Symposium on Remote Sensing of Environment, Oct. 14-16, 1964, Infrared Physics Laboratory, University of Michigan.

   Colwell, Robert N. and Olson, Don L., Thermal Infrared Imagery and Its Use in Vegetation Analysis by Remote Aerial Reconnaissance, p. 607-621.

   Cooper, Charles F., Potential Applications of Remote Sensing to Ecological Research, p. 601-606.

   Gates, David M., Characteristics of Soil and Vegetated Surfaces to Reflected and Emitted Radiation, p. 573-600.

2. Proceedings of the Fourth Symposium on Remote Sensing of Environment, April 12, 13, 14, 1966.

   Shay, J.R., Some Needs for Expanding Agricultural Remote Sensing Research, p. 33-36.

   Hoffer, R.M., Reger, A.H., Shay, J.R., Vegetative, Soil, and Photographic Factors Affecting Tone in Agricultural Remote Multispectral Sensing, p. 115-134.

3. Photogrammetric Engineering.

   Tarkington, R. G. and Sorem, A.L., Jan. 1963, Color and False-Color Film for Aerial Photography.

4. Fundamentals of Infrared Technology, Holter, Nudelman, Suits, Wolfe, and Zissis, Macmillan Co., N.Y. (1962).

5. Infrared Radiation, Hackforth, H.L., McGraw Hill, N.Y. (1960).

6. Harris, D.E., Woodbridge, C.L., 1962, Terrain Mapping by Use of Infrared Radiation, Trans. of the Nat. Elect. Conf., Vol. XVIII, Oct. 8, 9, 10, 1962.

7. Kodak Color Data Book E-74

January 25, 1968

Mr. J. Carol Dean
HRB-SINGER, INC.
State College
Pennsylvania

Dear Mr. Dean:

Several years ago, we had a discussion about metal detectors. As I remember, your company was experimenting with some improved types which were then classified. I am wondering now if you have any information which can be released about more sensitive portable metal detectors. I have enclosed a reprint from Science in which our interests and activities are described.

Two articles on infrared scanning, one by R. W. Stingelin and one by W. M. Knuth and W. Fisher of your company have just appeared on my desk. I don't know who sent them nor to whom they were sent, but we are grateful to have them. If HRB-Singer infrared scanning services are available for surveys at archaeological sites, could I trouble you or someone to send me an approximate estimate of the cost.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

cc. to Dr. Rainey

H R B - S I N G E R , I N C .

SCIENCE PARK, P.O. BOX 60 • STATE COLLEGE, PA. 16801 • PHONE 814 • 238-4311

January 30, 1968

Miss Elizabeth K. Ralph, Associate Director
The University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Miss Ralph:

With regard to your inquiry dated January 25, 1968, there still is not much that I can tell you at the present time about the details of our work with magnetometers and metals detectors because the security classification is CONFIDENTIAL.*

However, we have made considerable developmental progress in areas of interest to your application, namely, portability, orientation insensitivity, and gradiometry, all without loss of basic sensor sensitivity. While the reference publication you thoughtfully enclosed did not go into much detail about your field problems, our own experience suggests that the above progress would be of benefit to your magnetic field measurements.

With respect to an all-metals detector, as you are well aware, an inherent range limitation exists, but the near-field induction technique does offer the capability to distinguish among various types of metals, to a degree. We also have developed methodology for providing a range estimate and target size estimate; this may be applied to and instrumented for, either type of locator. There is no security classification relative to the latter, but we do have a patent pending on the techniques.

Relative to our IR work, I have passed along a copy of your letter to the people so engaged and they will answer your inquiry separately.

It was a pleasure to hear from you again, and hopefully, the security wraps may soon be removed; we are most interested in your problems and would appreciate the opportunity, and freedom, to work with you.

Yours very truly,

J. Carroll Dean

J. Carroll Dean
Staff Engineer

* Should you choose to pursue this further, you may want to contact Mr. B. H. Tabb, ORD-0534, Naval Ordnance Systems Command, Washington, D. C. 20360

[HUME]

P. O. Box 1711
Williamsburg, Virginia
23185

March 24, 1964

Miss Elizabeth Ralph
Applied Science Center for
Archaeology
The University Museum
University of Pennsylvania
33rd & Spruce Streets
Philadelphia 4, Pennsylvania

Dear Miss Ralph:

Some months ago Mr. John Dunton of the Fortress of Louisbourg Restoration asked me whether we had any sites which would be suitable for providing you with thermo-remanent magnetism controls. More recently, we have been excavating the site of the John Frederick Amelung glass factory in Maryland which was in operation between 1785-1795; a project which included the clearance of one major factory building which appears to have been destroyed by fire within this period. There is documentary evidence of a fire in the spring of 1790.

I am wondering whether you would be interested in doing some tests on that site to determine the magnetic variation of stones and bricks of various oven structures, as well as examples from the fabric of the building itself, to see whether there is an appreciable magnetic variation which might serve to more closely determine the time lapse (if any) between the final firing of the furnaces and the destruction of the building.

I do not know whether you have already established the secular variation curve for the Maryland area, but if you have, it would be extremely helpful if you could provide us with a terminal date for the building's destruction. While I am personally no longer directing the field work, my colleagues at the Smithsonian, under the direction of Mr. John Pearce, Associate Curator, Department of Cultural History, are prepared to go back to the site to uncover appropriate features. I would suggest that if you are interested, it would be much better for you to extract your own samples, thus insuring that they are recorded exactly as you require them.

I enclose a copy of a recent article in Antiques magazine, which will tell you a little more about the Amelung project. I would like to think that the site will yield information which would be helpful both to you and to us.

Sincerely yours,

J. Noël Hume

INH:dc

Mr. I. Noël Hume
P.O. Box 1711
Williamsburg, Virginia

March 31, 1964

Dear Mr. Hume,

Thank you for your letter of March 24 addressed to Miss Ralph. As she is leaving for England April 1 to attend a conference on thermoremanent magnetism, she would be able to respond to your letter in early May,--with new details from her recent trip.

It may be that your site will provide invaluable samples for initial experiments, but it will probably take years of work in the USA before your question may be answered.

Sincerely yours,

Jeannette M. Flamm
Research Assistant

April 30, 1964

Mr. I. Noel Hume
P. O. Box 1711
Williamsburg, Virginia 23185

Dear Mr. Hume:

Thank you for your letter of March 24th with the suggestion that we take samples of hearths for archaeomagnetic measurements at the site of the John Frederick Amelung glass factory.

We are very much interested in doing this, but I should caution you that we, in collaboration with Princeton University, are just now making a small initial start in a program of archaeomagnetic measurements. Therefore, we haven't yet consulted a sufficient number of references to know what magnetic measurements have been recorded for eastern North America. If none have been made, it will take many years of work before reliable time scales are worked out for precise dating.

However, one has to start somewhere, and if you are willing to wait or, perhaps, not expect useful results from these initial measurements, we should like very much to take samples at your site. We have already taken samples at Louisbourg, Nova Scotia, ones representative of a similar time period, so that yours would be valuable to us at this stage of our progress.

This work is being done by Mr. Hugh W. Bergh, Geology Dept., Princeton University, Princeton, N. J. The best time for him to do this would be after mid-September, if the early fall would be a convenient time to go to the site.

Please contact Mr. Bergh directly for specific arrangements. He will be away on a field trip from June 1st through August and is rather busy in May with his studies.

Sincerely yours,

EKR:pc
cc-Mr. Bergh

Elizabeth K. Ralph

May 1, 1964

Miss Elizabeth K. Ralph
Associate Director
Applied Science Center for Archaeology
The University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Miss Ralph:

Thank you so much for your most helpful letter of April 30. I fully appreciate that archaeomagnetic dating in this area is still in its infancy, and I realize that you will need numerous controls before the technique can be usefully employed. I feel that it is up to all of us that have potentially informative sites to make them available regardless of whether we can hope to obtain specific answers for ourselves.

I am passing a copy of your letter to Mr. Malcolm Watkins at the Smithsonian, who will be responsible for any subsequent arrangements regarding field work on the Amelung site. I imagine that he will follow your suggestion and contact Mr. Bergh in the fall.

Sincerely yours,

I. Noël Hume
P. O. Box 1711
Williamsburg, Virginia
23185

INH:sc

UNIVERSITY OF BRADFORD

Undergraduate School of Studies
in Archaeological Sciences
Chairman A Aspinall BSc MSc MInstP FSA

Bradford West Yorkshire BD7 1DP
Telephone Bradford 33466 (STD Code 0274)
Telex 51309 UNIBFD G

Please quote ref

30.3.78.

Martin Biddle Esq.,
Director,
The University Museum,
University of Pennsylvania,
Philadelphia I9I04,
U.S.A.

Sent to Stuart Fleming
pp. to JRH.

Dear Martin,

As you may know our degree course at Bradford in Archaeological Sciences is unique in that it is a 'sandwich' course in which each student spends the third year of the four year course away from the University in professional training. I try and ensure that each student spends six months in traditional fieldwork and six months in laboratory-type work, hence reflecting the academic structure of the degree. I enclose a list of our current placements for your information.

My reason for writing is to enquire whether there would be any possibility of such an arrangement in your own Museum. We have found the scheme to be mutually beneficient in that the student gains from the experience of working in a professional organisation and at the same time contributes to the work in hand. I for one believe that this type of training will produce the best type of archaeological graduates for the future.

There is a slight drawback in that the students receive no financial support for their professional year and hence have to be employed by the organisation concerned. On this point our only stipulation is that they must receive no less than the equivalent student grant. As transatlantic fares are now relatively cheap the United States is an obvious area of potential and I would be most interested to hear your views. My next batch of students requires places from July/August I978 and then from January/February I979 onwards. If you would be interested in taking this idea any further please let me know and I will let you have further details.

With all good wishes,

J.R.Hunter.

Ron 232-0663

UNIVERSITY OF BRADFORD

UNDERGRADUATE SCHOOL OF STUDIES IN ARCHAEOLOGICAL SCIENCES

PROFESSIONAL PLACEMENTS ACADEMIC YEAR 1977/78

A.E.R.E. Harwell (Radiocarbon Dating), Oxfordshire.

A.E.R.E. Harwell (X-Ray Fluorescence), Oxfordshire.

British Museum (Research Laboratory), London.

Castle Museum, Norwich.

Centre for Geophysical Research, Garchy, France.

Department of the Environment (Analytical), London.

Department of the Environment (Geophysical), London.

Department of the Environment (Environmental), London.

Department of the Environment (Scottish Central Unit), Edinburgh.

East Anglia Survey, Norwich.

Exeter Museum.

Northampton Development Corporation.

RISØ Research Establishment (T.L. Dating), Denmark.

Southampton Archaeological Research Committee.

University College, Dublin, Ireland.

Viking Ship Museum, Roskilde, Denmark.

West Yorkshire Archaeologic al Unit, Wakefield.

York Archaeological Trust, York.

Dr. J. R. Hunter
Professional Training Tutor.

April 26, 1972

Dr. D. J. Huntley
Department of Physics
Simon Frazer University
Burnaby 2, B.C.
Canada

Dear Dr. Huntley:

Thank you for the summary of your course entitled "Physical Science in Archaeology." In our MASCA labs, we do not give formal courses, but we do lecture frequently to visiting classes, etc.

I have enclosed a copy of an article in Science in which our activities are described as well as our Newsletter which you may already have received. On this issue (Vol. 7, No. 2), our book entitled "Dating Techniques for the Archaeologist" is described.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

November 8, 1974.

Dr. David J. Huntley,
Dept. of Physics; 291-3111
Simon Fraser University,
Burnaby, B.C.
Canada V5A 1S6

Dear Dr. Huntley:

A number of people have questioned us about our ± 10-year uncertainty. The ± years is an average guess. Each individual C^{14} date for a dendro-dated sample has an uncertainty of 0.5% or less, in counting rate but when we averaged 9 samples to obtain our regression curve, this became less. Since, with the averaging, it is not truly a statistical uncertainty we did not feel that it should be treated in the usual way as $\pm (X)^2 + (10)^2$.

Under separate cover I am sending you six sections of blueprints of our original plot of Fig. 8 (MASCA Newsletter, vol. 9, no. 1). In our labs we have mounted the six sections on a $2\frac{1}{2}$ x 9 ft. board to form a composite plot.

When we first experimented with thermo-luminescence dating, we tried a number of binders - varnishes, oils, etc. We found that the most satisfactory one is a high viscosity silicone oil made by Dow Corning. (The type that we like the best is not now available). It holds up at 500 deg. C without smoking or deteriorating. We mix the powdered pottery with it to form a slurry and then apply a thin disc of the slurry to aluminum foil by means of a silk screen.

The best person to contact is Dr. Joseph W. Michels, Dept. of Anthropology, 409 Social

Sciences Bldg., The Pennsylvania State University, University Park, Pa. 16802, who can tell you who is doing it on a routine basis.

I hope that these answers are satisfactory. If not, please let me know.

Sincerely yours,

Elizabeth K. Ralph

SIMON FRASER UNIVERSITY, BURNABY, B.C., CANADA V5A 1S6
DEPARTMENT OF PHYSICS; 291-3111

Nov 1, 1974

Dr. E.K.Ralph,
Physics Dept.,
University of Pennsylvania.

Dear Dr. Ralph;

In our work in Archaeometry here some questions have arisen and I wonder if you could possibly answer them.

a) In your prescription for converting C^{14} dates to dendrochronological dates you suggest adding an additional 10 year uncertainty to the C^{14} date to allow for the uncertainty in the curve (circles). Why? This does not make sense to me since it would seem to be analogous to the situation of the sum of two random variables, in which case one takes the root of the sum of the squares (eg: if the C^{14} date was ± 50 years I would use $\pm\sqrt{(50)^2 + (10)^2} \simeq 50$ years). Perhaps I have missed an important point or misinterpreted your 10 year uncertainty.

b) Your correction curves are magnificent; unfortunately the only curve I have seen covering all the data is the one (Fig 8) in the MASCA newsletter and this suffers from variations in alignment and interval size. Do you have better ones available? If so I would appreciate one.

c) We are starting some thermoluminescence work and for some of this we are going to have to use silicone oil (or something like it). We are worried aboutcoating everything with vapour and not going to high enough temperatures - do you know what particular oil is the best to use and what is the maximum temperature one can safely use it at? This information would be a great help to us.

d) I believe that you offer an obsidian hydration measurement service; is this correct? If so could you give us the details of price, time etc.

Thanking you in advance, sincerely

Dave

David J.Huntley

SIMON FRASER UNIVERSITY, BURNABY, B.C., CANADA V5A 1S6
DEPARTMENT OF PHYSICS; 291-3111

Dec 2, 1974

Miss E.K.Ralph,
MASCA,
U. of Pennsylvania.

Dear Miss Ralph;

Thank you very much for your letter of Nov 8th and the blueprints which have just arrived. This generosity of yours is much appreciated and I think will help along the trend of our archaeologists to start converting their dates.

Yours sincerely,

Dave

D.J.Huntley

JOAN HUNTOON BOX 1500 LAUREL HOLLOW ROAD SYOSSET, N. Y. 11791 (516) 692-5229

October 3, 1979

Dear Dr. Ralph:

I am writing to you at the suggestion of Professor Edith Porada of Columbia University with whom I am currently studying.

This summer I was a member of the Mendes Expedition of the NYU Institute of Fine Arts, working in the Egyptian Delta. My particular square included the walls of a very large building in which there were apertures from which I obtained a considerable amount of wood, a small sample of which has been returned to New York.

We would like to have the wood analyzed as to type. Unfortunately in the course of being transported from Cairo to New York most of the pieces were pulverized into a fine powder, leaving only a couple of small chunks in tact. We hope it will still be possible for a laboratory to still do something with it.

I look forward to hearing from you soon. Would you also advise me of the fee for such an analysis.

Sincerely,

Joan Huntoon

ASCA

October 4, 1963

Dear Dr. Hurt:

The carbon-14 laboratory director tells me that we could handle the samples recently submitted to you by Rauth. It would probably be next spring before they could be processed, however. If you would like to transmit the money for this job before the end of the year, and if you are not in a great hurry, we would be happy to undertake the dating.

Sincerely yours,

Alfred Kidder II
Associate Director

Dr. Wesley R. Hurt
Director of Museum
University Museum
Indiana University
Bloomington, Indiana

Miss Rolph

INDIANA UNIVERSITY

BLOOMINGTON, INDIANA, 47405

UNIVERSITY MUSEUM
150 MAXWELL HALL

AREA CODE 812
TEL. NO. 337-7224

September 23, 1963

Beth - How about this? If we could get the money he would probably be happy to wait a bit before we do the job.
AK2

Dr. Alfred Kidder, II
University Museum
University of Pennsylvania
Philadelphia 4, Pennsylvania

Dear Dr. Kidder:

I just received from Jose Wilson Rauth, University of Parana, two samples for radiocarbon analysis from the Sambaqui of Saquarema and two samples from Sambaqui of Gomes.

In the original dating of the samples from this two shell mounds done by the Applied Science Center for Archaeology there was not sufficient charcoal for the HCl treatment. The samples that Rauth just sent me are quite large and should contain sufficient material for thorough decontamination. Will the future schedule of the Applied Science Center for Archaeology permit an analysis of this samples? There is still a balance of 260 dollars in the N.S.F. grant I have for radiocarbon dating, but this grant will expire in December, 1963.

If it will be possible to make this analysis I will appreciate your informing me before I send Rauth's specimens on to you.

Sincerely,

Wesley R. Hurt

Wesley R. Hurt
Director of Museum

Lago Santa

File

~~Both Radiocarbon~~

INDIANA UNIVERSITY

BLOOMINGTON, INDIANA, 47405

UNIVERSITY MUSEUM
150 MAXWELL HALL

AREA CODE 812
TEL. NO. 337-7224

October 14, 1963

Radiocarbon

OK? I think we decided this would be a good idea. GR II

Dr. Alfred Kidder II
Associate Director
The University Museum
University of Pennsylvania
Thirty-Third and Spruce Streets
Philadelphia 4, Pennsylvania

Dear Dr. Kidder:

I received your letter of October 4, and have sent in a separate package four cannisters containing two samples for radiocarbon dating from the Sambaqui de Saquarema and two from the Sambaqui do Gomes. The stratigrafic units are indicated in the top cannisters.

Since the N.S.F. grant expires in December, it is best to submit the voucher for payment of this dates in the immediate future. If you can send me a statement of charges addressed to the University of South Dakota for the sum of $260 I will arrange to have the payments made now.

Billed 10/16/63

Sincerely,

Wesley R. Hurt

Wesley R. Hurt
Director of Museum

MINISTÉRIO DA EDUCAÇÃO E CULTURA
UNIVERSIDADE DE SANTA CATARINA
FACULDADE DE FILOSOFIA, CIÊNCIAS E LETRAS

Prof. WESLEY R. HURT
University Museum
150 Maxwell Hall
Indiana University - Bloomington
Indiana - USA

October 21, 1963.

Dear Professor Hurt,

The Chair of Anthropology of this University, of which I am the professor is making archaeological excavations in the shell-mound of Ponta das Almas, Florianópolis, with the same methods and techniques you used in the shell-mound of Macedo.

We have collected some samples of carbon for dating by C14 and following the suggestion of Professor João José BIGARELLA of Curitiba, I would appreciate knowing about the possibility of their being analised at your University without cost to this Chair.

On our part we offer you and your University our cooperation, making available to you all the data and photographic illustrations of the shell-mounds of Santa Catarina that we have located.

Thanking you in advance for your assistance, I remain.

Sincerely yours,

OSWALDO R. CABRAL, M.D., Ph. D.
Professor of Anthropology

December 3, 1963

Dear Dr. Hurt:

I do not believe we will be able to handle samples from Dr. Cabral. We have such a big back log now that it would be well over a year before we could handle it.

I would like to help, but it is just going to take so long that I think it would be better if he tried to find some other laboratory.

Sincerely yours,

Alfred Kidder II
Associate Director

Dr. Wesley R. Hurt, Director
University Museum
University of Indiana
Bloomington, Indiana 47405

INDIANA UNIVERSITY
BLOOMINGTON, INDIANA, 47405

UNIVERSITY MUSEUM
150 MAXWELL HALL

AREA CODE 812
TEL. NO. 337-7224

November 22, 1963

Dr. Alfred Kidder II
Associate Director
University Museum
University of Pennsylvania
Philadelphia 4, Pennsylvania

Dear Dr. Kidder:

I am enclosing a termofax copy of a letter received from Dr. Oswaldo R. Cabral which may be of interest to you in view of the other dates that the University of Pennsylvania has obtained from the shell mounds of Parana.

I gether from Cabral's letter that he has no funds to pay for the cost of radiocarbon analysis. Although I am interested in obtaining the dates from this particular shell mounds the N.S.F. that I had has now expired or I would offer the funds to Dr. Cabral to reimburse the cost of the analysis.

If the University of Pennsylvania is interested enough in the results of Cabral's excavations to undertake the radiocarbon analysis without any foreseable means of financial reimbursement, let me know and I will write to Dr. Cabral.

For my part I am willing to make an appraisal of Cabral's work prior to submiting the specimens for analysis.

Sincerely,

Wesley R. Hurt

Wesley R. Hurt
Director of Museum

Beth— May I hear from you? Hope all goes well— [illegible]

September 2, 1966

Miss Beth Ralph
University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania

Dear Beth:

It was great to see you in Cenchreae, and such a surprise! I dropped in to see you at the museum, and did catch your assistant. I hope the labels that I wrote out were plain, but it was 5:00 and everyone was trying to get out.

At any rate, the pieces are from a number of wrecks, as described on each paper, and were dated by Gerhard Kapitaen with essential research, I believe, by Bernabo' Brea, Superintendent of Antiquities, Syracuse. The various wrecks are named Marzamemi I,II,III,IV; Ognina (sp?). Of course, the pieces are identical to entire amphora in the cargo. One was dated by a coin, as mentioned.

You should find evidence in the literature that soaking in salt water changes the values in thermoluminescence. I do not have the references at hand, but I know Fred Matson at Pennsylvania State has them. I hope that you can get some significant results, and it would certainly make a good paper for the next conference of underwater archaeology, which will be held March 23,24,25 (we hope at the University of Miami).

Best regards to you and let me hear from you please.

Sincerely,

John Huston
President

JH:bg

Department of Greek

The Queen's University of Belfast
Belfast BT7 1NN Northern Ireland Telex 74487

Professor: G. L. Huxley

Tel. 45133 Ext. 377

Our ref. Your ref.

10.XII.1975

Dear Dr Ralph,

I am writing to thank you for allowing me to visit your laboratory. It was kind of you to spend so much time; I found much to interest me, and I hope that we may able to talk again before long. Please convey my thanks to your colleagues also. I wonder what you think of R.M. Clark's article on radiocarbon dating in the December 1975 issue of Antiquity.

With best wishes

Yours sincerely,

G.L. Huxley