

[Undated]

Mrs. Janice Caplan
The Oriental Institute
The University of Chicago
1555 East 58th Street
Chicago
Illinois 60637

Dear Mrs. Caplan:

Thank you for your invitation to spend the night of Wednesday,
December 11th in the Quadrangle Club.

This will not be necessary, however, because I now plan to stay
with friends (Mr. and Mrs. John Leslie) in Winnetka.

I plan to arrive in time for cocktails and dinner with Dr. and
Mrs. Hughes.

Sincerely yours,

Elizabeth K. Ralph

EKR/mrb



CENTER FOR MEDIEVAL AND RENAISSANCE STUDIES
LOS ANGELES, CALIFORNIA 90024

January 17, 1967

Dr. Elizabeth Ralph
Associate Director
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Dr. Ralph:

An International Conference on the Application of Science to Medieval Archaeology is planned for the 27-29 October 1967 at this University under the auspices of the Center for Medieval and Renaissance Studies.

The primary aim of this conference is to illustrate with concrete results how the latest scientific methods may be used in research on Europe and the Near East during the Middle Ages. However the methods themselves may appropriately be discussed where particular problems of methodology are relevant to the time span of interest (c.a. A.D. 300-1600). The term archeology is used in its widest sense and includes any physical object, e.g., a manuscript or an existing building surviving from the period. We are inviting a variety of speakers to deliver papers illustrating specific results obtained by means of the following: dendrochronology; fission track dating; glass and ceramics analysis; magnetic prospecting; metallurgy; radiocarbon dating; resonance spectroscopy; thermoluminescence dating; x-ray emission spectroscopy.

Arrangements are being made with the University of California Press for the speedy publication of the papers presented in a volume of the Contributions of the UCLA Center for Medieval and Renaissance Studies bearing the conference title.

Our program committee cordially invites you to present to the conference a paper on the application of radiocarbon dating or thermoluminescence dating or both in archaeological research in the Middle Ages. Incidentally, this field is developing so rapidly that you may know of significant current projects which have escaped us and should be brought to our attention.

Dr. Elizabeth Ralph
January 17, 1967
PAGE TWO

We will cover your costs for transportation, hospitality for the nights of 26-28, and incidental expenses. There will also be an honorarium of \$150 for your paper.

In the interest of timely publication, may we ask you for an advance copy of your paper at the time of the meeting with changes possible before printing?

Yours very truly,

Rainer Berger

Rainer Berger
Conference Chairman

Lynn White, jr

Lynn White, jr
Director of the Center

RB:LW/bld

January 24, 1967

Dr. Rainer Berger
Center for Medieval and
Renaissance Studies
University of California
Los Angeles, California 90024

Dear Dr. Berger:

Thank you very much for your kind invitation to present a paper to the Conference on the Application of Science to Medieval Archaeology to be held 27-29 October 1967.

I should like to accept, but before a final decision is made, I must mention that we have done practically no dating in our laboratories of Medieval and Renaissance samples. Perhaps, some one from another laboratory will have had more experience in dating these periods.

If I do give this talk, it would have to be primarily on methodologies, perhaps, a combination of radiocarbon and thermoluminescence with emphasis on the advantages of thermoluminescence for specific eras and problems within the time span of A.D. 300-1600. This could be supplemented with a few specific examples of dating in the Medieval Period, but as far as I know, none has yet been done by thermoluminescence.

If this scheme is not appropriate for the Conference please do not hesitate to let me know. I plan to be in Europe on field trips from April to July, and possibly to October, 1967. Therefore, if you want me to give the talk, I shall appreciate it if you will let me know how long it should be so that I can start the preparation before I leave.

Sincerely yours,

(Miss) Elizabeth K. Ralph

EKR:lm

UNIVERSITY OF CALIFORNIA, LOS ANGELES

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SANTA BARBARA • SANTA CRUZ

CENTER FOR MEDIEVAL AND RENAISSANCE STUDIES
LOS ANGELES, CALIFORNIA 90024

February 24, 1967

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

Dear Dr. Ralph:

Thank you for accepting our invitation to the UCLA conference. Your choice to discuss a combination of C-14 and thermoluminescence measurements in research problems for the time span considered is an excellent idea. In fact, a 30-60 minute talk with commensurate length in print would be perhaps all right? But please feel free to take the time and pages you think are necessary for a detailed discussion.

Both Bill Libby and I look very much forward to seeing you and receiving the title of your paper.

Yours very truly,

Rainer Berger

Rainer Berger
Conference Chairman

RB/bld

Title?

*TL
C-14 supplements C-14*

April 6, 1967

Dr. Rainer Berger
Center for Medieval and Renaissance Studies
University of California
Los Angeles, California 90024

Dear Dr. Berger:

For my paper at the UCLA conference my suggested title is:

"Potential of Thermoluminescence in
Supplementing Radiocarbon for Dating
in the Middle Ages."

If this seems a bit cumbersome, please don't hesitate to change it.

I think that 40 minutes will be adequate for my talk. I shall plan to review the results of dating long series of tree-ring-dated samples by C-14 in order to illustrate the uncertainties in C-14 dating. If, however, some one else is planning to talk on this subject, please let me know so that I may shorten this part.

It would be helpful to know also whether some one else is going to talk about thermoluminescence so that I shall know how much background and theory to include.

Please extend my best regards to Dr. Libby.

Sincerely yours,

Elizabeth K. Ralph

EKR:lm



RUTGERS • THE STATE UNIVERSITY

201-CH 7-1766 ext 2521

COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF PHYSICS

NEW BRUNSWICK, NEW JERSEY 08903

January 20, 1967

Miss Elizabeth Ralph
University Museum
University of Pennsylvania
Philadelphia,
Pennsylvania

Dear Miss Ralph:

Thank you very much for agreeing to give a colloquium here on Wednesday, February 15. The colloquium will begin at 5 o'clock, preceded by tea at 4:30. The enclosed map indicates how to reach our building from Route 1.

If you can spare the time we should like to have you stay for dinner with us after your talk. In any case we are looking forward to your visit on the 15th.

Sincerely yours,

David R. Harrington

David R. Harrington

DRH:cms
encl.

THE PENNSYLVANIA STATE UNIVERSITY

227 GRADUATE BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Sociology and Anthropology

Area Code 814
865-2527

July 10, 1967

Dr. Elizabeth Ralph
Associate Director - MASCA
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Dr. Ralph:

Dr. Rainey has suggested that I invite you to take his place as a discussant in the symposium on "Obsidian Studies in Archaeology" to be held at the 134th Annual Meeting of the AAAS in New York City next December. I welcome his suggestion and very much hope you will wish to participate.

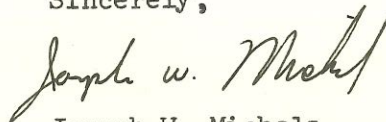
The symposium represents a solution to the need felt by a number of archaeologists and their physical science colleagues for an organized presentation of the various lines of "attack" currently being directed at culturally modified obsidian. A copy of the tentative program is attached.

If you do decide to accept this invitation, I would appreciate your cooperation in preparing a brief background statement about yourself in conformity with the format of the sample I have enclosed.

As Associate Director of MASCA, you have joined with Dr. Rainey in promoting the application of physical science to the problems of archaeological research, and we would welcome your observations and comments on the topics to be presented in the symposium.

I hope to hear from you soon.

Sincerely,



Joseph W. Michels
Assistant Professor of Anthropology

JWM/k

Enclosures (2)

THE PENNSYLVANIA STATE UNIVERSITY

227 GRADUATE BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Sociology and Anthropology

Area Code 814
865-2527

September 6, 1967

Dr. Anthony Leeds
Department of Anthropology
University of Texas
Austin, Texas 78712

Dear Dr. Leeds:

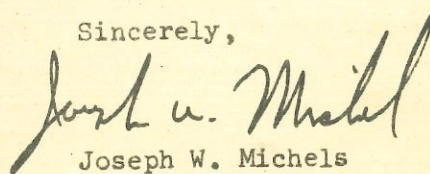
I have enclosed two complete sets of the documents you have requested for the symposium on Obsidian Studies in Archeology. I have forwarded two additional sets to Mr. D. W. Thornhill as a precaution due to the close proximity of the deadline.

I hope everything is in order. Please do not hesitate to call me (Area Code 814 - 865-2509) if I can be of any further assistance.

I will need a 35mm slide projector for several of the talks.

I believe the symposium should be cross-referenced with the following sections: Physics, Chemistry, Geology.

Sincerely,



Joseph W. Michels
Assistant Professor of Anthropology

JWM/k

Enclosures (2)

Copy to: D. W. Thornhill, Meeting Manager
1967 AAAS Annual Meeting
American Association for the Advancement of Science
1515 Massachusetts Avenue
N.W. Washington, D. C. 20005

ANTHROPOLOGY

AAAS SECTION ON ANTHROPOLOGICAL AND ARCHEOLOGICAL SCIENCES

THURSDAY, December 28
Gibson Suite, New York Hilton

OBSIDIAN STUDIES IN ARCHEOLOGY

Arranged by Joseph W. Michels
(Pennsylvania State University)

9:00 a.m. Chairman: CLIFFORD EVANS (Smithsonian Institution)

1. IRVING FRIEDMAN (U. S. Geological Survey)

Hydration Rim Dating: Its History and Present Status.

2. JAMES B. GRIFFIN and GARY A. WRIGHT (University of Michigan)

Quarry Source Identification Studies.

3. WILLIAM J. MAYER-OAKES (University of Manitoba)

Obsidian 'Telltale' Useful in Studies of Stone Flaking
Techniques.

4. JOSEPH W. MICHELS (Pennsylvania State University)

General Possibilities of Interpretation Based on Chronologizing
by Hydration Rim Dating.

Discussant: ELIZABETH K. RALPH (University of Pennsylvania)

July 18, 1967

Dr. Joseph W. Michels
The Pennsylvania State University
Department of Sociology and Anthropology
227 Graduate Building
University Park, Pennsylvania 16802

Dear Dr. Michels,

I am writing in answer to your letter of July 10 to Miss Elizabeth K. Ralph who is presently in Europe. She is expected to return to the University Museum in mid-August and can then answer you directly concerning her availability to be a discussant in the symposium on "Obsidian Studies in Archaeology" to be held at the 134th Annual Meeting of the AAAS in New York City next December.

Thank you very much.

Sincerely yours,

Angela Bargellini

2:00 p.m. Chairman: CAROL K. RACHLIN

- 1 Indian Art, Anthropology, and Anthropologists.
POPOVI DA (Former Governor of San Ildefonso Pueblo,
Sante Fe, New Mexico)
- 2 Writing Anthropology.
ALICE MARRIOTT
- 3 Questions.
- 4 Summary.
GENE WELTFISH (Fairleigh-Dickenson University, New-
ark, New Jersey)

The purpose of this symposium is to obtain some insight into the contributions of anthropology to applied fields (other than teaching) which can benefit from use of its data. The contemporary society of the United States offers many diverse opportunities to anthropologists. The acceptance of anthropologists in many of these fields has been less than the acceptance from scholars in other disciplines.

The fields of social work, religion, government, art, and literature will be represented on the program. All these fields can use anthropology and its students, yet few anthropologists are employed in them. Mr. Popovi Da, artist, San Ildefonso Pueblo, and Miss Alice Marriott, writer and anthropologist, offer an instance where anthropology, literature, and art have come together.

The participants of this symposium will discuss the positive and negative aspects of anthropology in relation to their respective areas of endeavors. Problems of communication between anthropologists and others will be considered and solutions sought.

Obsidian Studies in Archeology

Arranged by JOSEPH W. MICHELS
(The Pennsylvania State University)

THURSDAY, DECEMBER 28
Gibson Suite, New York Hilton

- 9:00 a.m. Chairman: CLIFFORD EVANS (Smithsonian Institution)
- 1 Hydration Rim-Dating: Its History and Present Status.
IRVING FRIEDMAN (U.S. Geological Survey)
 - 2 Quarry Source Identification Studies.
JAMES B. GRIFFIN and GARY A. WRIGHT (University of
Michigan)
 - 3 Obsidian "Telltale" Useful in Studies of Stone-Flaking
Techniques.
WILLIAM J. MAYER-OAKES (University of Manitoba)

- 4 General Possibilities of Interpretation Based on Chrono-
logizing by Hydration Rim Dating.

JOSEPH W. MICHELS

- 5 Discussion.

ELIZABETH K. RALPH (University of Pennsylvania)

Obsidian is a lithic material with very desirable fracturing qualities which were recognized and exploited by Prehistoric Man for the production of tools, weapons, and ornaments in all parts of the world where obsidian outcroppings are to be found. Considerable attention is currently being focused on the archeological recovery of obsidian artifacts, and on the reexamination of previously excavated collections of obsidian artifacts, in response to the development of several new analytic approaches to the cultural interpretation of worked obsidian. The discovery of a technique by which each obsidian artifact may be accurately dated, quickly and inexpensively, has resulted in obsidian becoming a valuable resource in solving problems of site chronology. In addition, obsidian dating has proved to be a highly versatile tool for general archeological analysis by permitting the investigator to regard time as a known variable in the study of various aspects of an archeological site, and in the reconstruction of community activity. Application of radioactive trace element analysis to the problem of identifying quarry sources for worked obsidian is contributing valuable information on inter-community contact in general, and on trade networks in particular. When trace element analysis and hydration rim-dating are applied jointly to the study of obsidian collections, the collections become a significant source of culture historical information. The current interest in stone-flaking technology among archeologists has also contributed to interest in worked obsidian. Because of its glass-like composition, obsidian provides possibilities for observation of the scar phenomena resulting from stone-working activities not usually observable in flint or other chipped-stone materials. This observational clarity is contributing to the development of formal procedures for investigating percussion-flaking technology. The symposium highlights the growing application of the physical sciences to the study of archeology.

Entrepreneurship in Cross-Societal Perspective

Arranged by RICHARD P. SCHAEDEL (University of Texas)

FRIDAY, DECEMBER 29
Morgan Suite, New York Hilton

9:00 a.m. Africa and Afro-American Parallels.

Chairman: JOHN MIDDLETON (New York University)

- 1 An Examination of the Role of Entrepreneurship in De-
veloping Societies with Regard to the Theories For or
Against It as a Necessary Prerequisite or Corollary of
Development.

RICHARD P. SCHAEDEL

Obsidian Studies in Archeology. Obsidian is a lithic material with very desirable fracturing qualities which were recognized and exploited by Prehistoric Man for the production of tools, weapons, and ornaments in all parts of the world where obsidian outcroppings are to be found. Considerable attention is currently being focused on the archeological recovery of obsidian artifacts, and on the reexamination of previously excavated collections of obsidian artifacts, in response to the development of several new analytic approaches to the cultural interpretation of worked obsidian. The discovery of a technique by which each obsidian artifact may be accurately dated, quickly and inexpensively, has resulted in obsidian becoming a valuable resource in solving problems of site chronology. In addition, obsidian dating has proved to be a highly versatile tool for general archeological analysis by permitting the investigator to regard time as a known variable in the study of various aspects of an archeological site, and in the reconstruction of community activity. Application of radioactive trace element analysis to the problem of identifying quarry sources for worked obsidian is contributing valuable information on inter-community contact in general, and on trade networks in particular. When trace element analysis and hydration rim dating are applied jointly to the study of obsidian collections, the collections become a significant source of culture historical information. The current interest in stone-flaking technology among archeologists has also contributed to interest in worked obsidian. Because of its glass-like composition, obsidian provides possibilities for observation of the phenomena resulting from stone-working activities not usually observable in flint or other chipped-stone materials. This observational clarity is contributing to the development of formal procedures for investigating percussion-flaking technology. The symposium highlights the growing application of the physical sciences to the study of archeology.

Chairman: Dr. Clifford Evans received his education at the University of Southern California (A.B. 1941), and at Columbia University, where he obtained his Ph.D. in anthropology, specialized in archeology, in 1950. His field work has been in Peru, Ecuador, Brazil, Guyana-South America, Venezuela, Dominica in the Lesser Antiles, Ponape in the Caroline Islands of the Trust Territory of the Pacific, as well as in the state of Virginia. Since 1951 he has been associated with the Smithsonian Institution, where he is now Curator, Division of Latin American Anthropology, Office of Anthropology. His major interests have been in tropical forest archeology of South America and the early Formative Periods of coastal Ecuador and Peru.

Speaker: Dr. Irving Friedman received his education at Montana State College (B.S. 1942), State College of Washington (M.S. 1944), and at the University of Chicago, where he obtained a Ph.D. in geochemistry in 1950. His graduate work was concerned with high temperature-pressure phase equilibria studies in aqueous silicate systems. His post-graduate work and research for the past 17 years has mainly been concerned with the application of stable isotopes to the earth sciences. Investigations of the properties of volcanic glass with Robert L. Smith and William D. Long have lead to the development of the obsidian dating technique. Since 1952 he has been a geochemist with the U. S. Geological Survey.

Topic: Hydration Rim Dating: Its History and Present Status. The obsidian dating method was developed by Friedman and Smith in 1959, and is based on the fact that a freshly made surface of obsidian (volcanic glass) will adsorb water vapor from the air or soil to form a saturated surface layer. This surface film of water will slowly diffuse into the obsidian at a rate which is dependent mostly by temperature, and to a small extent on the composition of the glass. The obsidian containing this diffused water has a different refractive index than does the remainder of the obsidian, and the sharp demarcation in refractive index between the hydrated and non-hydrated glass allows us to measure the depth that the water has penetrated. The development of the method has been possible only because of the aid given us by many archeologists, who kindly supplied obsidian artifacts of known age. This

allowed us to determine rates of hydration for different climatic zones. Research by ourselves and others has centered on establishing more and better hydration rates, on better techniques of measuring the hydrated layer, on determining the effect of the variation in composition of the obsidian on the hydration rate, and on methods of predicting the hydration rate from climatological data. Obsidian dating, even though its use is largely confined to artifacts of volcanic glass, is useful in that it is simple and easy to carry dozens of measurements/day by the use of inexpensive equipment, with an accuracy comparable to the C^{14} technique.

Speaker: Professor J. B. Griffin is Director of the Museum of Anthropology and Professor of Anthropology at the University of Michigan. His major interests have been in North American archeology and adoption of new techniques for a better understanding of prehistoric cultural behavior.

Gary A. Wright is a graduate student at the University of Michigan. He received a B.A. in 1964 and an M.A. in 1966. He has done archeological field work in Turkey, Israel, France, and Michigan. His dissertation will deal with obsidian trade, with special emphasis on the Middle East.

Topic: Quarry Source Identification Studies. Current studies at the University of Michigan on obsidian source identification by neutron activation analysis of trace elements strongly suggests that the obsidian specimens in the northcentral United States were obtained from two sources in Yellowstone Park. Samples from three specific quarry sources in Mesoamerica, "the hill of the knives" in Hidalgo, a source near Teotihuacan, both in Mexico; and El Chayal, near Guatemala City can be clearly differentiated. The bulk of worked obsidian specimens from the site of Teotihuacan are identifiable as coming from the Hidalgo source, and an obsidian piece from the Panuco Period 5, Las Flores, of Ekholm's excavations, also came from "the hill of the knives". Other sites which have artifacts made from this source are Monte Alban, Cholula, Huexotla, Texcoco and Xaltocan. Monte Alban and other Oaxacan sites

have obsidian from a variety of sources which are distinct from either of the three Mesoamerican sources mentioned. Our artifact specimens from Kaminaljuyu are from the El Chayal source.

Speaker: Professor William J. Mayer-Oakes received his education at the University of Chicago (Ph.D. 1954) and has carried out research in archeology as a staff member of the Carnegie Museum in Pittsburgh and the J.W. Stovall Museum at the University of Oklahoma. He has taught at the Universities of Toronto, Oklahoma, and Manitoba where he currently heads the Department of Anthropology. His interests in archeology have included field work in North, Middle, and South America and studies concerned with archeological theory and method.

Topic: Obsidian 'Telltales' Useful in Studies of Stone Flaking Techniques. Since 1960 detailed studies of collections of obsidian artifacts and chipping debris from sites in the Ecuadorian Sierra have resulted in a number of insights regarding the nature of the conchoidal fracturing process. Obsidian is a particularly important medium used by prehistoric people because it provides possibilities for observation of the results of their past action not usually observable in flint or other chipped stone materials. This paper sets forth terminology used in these studies of obsidian and outlines significantly areas of routine study that can be made of obsidian specimens. Certain items of particular significance, namely, the grooved shatter lines, ripples, and bulbar scars, are singled out for special discussion.

Speaker: Professor Joseph W. Michels received his education at the University of California, Los Angeles, where he obtained a Ph.D. in anthropology in 1965. His dissertation was concerned with archeological applications of obsidian hydration dating. Since 1965, he has been an Assistant Professor of Anthropology at Pennsylvania State University. His major interest has been method and theory in archeology.

Topic: General Possibilities of Interpretation Based on Chronologizing by Hydration Rim Dating will be concerned with the role of this technique as a general analytic tool in archeological analysis. Examples to be covered will include the diachronic study of artifact style; evaluation of artifact typology; detection of artifact reuse; evaluation of site stratigraphy; the study of the relative intensity of site occupation through time; evaluating artifact association; and identifying commercial foci in artifact industries. All such applications of the technique involve the establishment of relative chronologies. However desirable the establishment of a chronometric scale may be, it is not necessary in any of the examples described. A special point will be made regarding the novelty of hydration rim dates, as a form of data, within the framework of general archeological experience.

Discussant: Elizabeth K. Ralph received her education at Wellesley College (A.B. 1942), and at the University of Pennsylvania, where she obtained her M.S. degree in physics. Since 1951 she has been on the staff of the University of Pennsylvania, and is now a Research Investigator in Physics and Associate Director of the Applied Science Center for Archeology, University Museum (ASCA). Present projects of ASCA include C-14 dating, tree-ring dating, experiments with the thermoluminescent technique of dating pottery, and the use and development of instruments for underground exploration.

STACKPOLE

STACKPOLE CARBON COMPANY
ELECTRONIC COMPONENTS DIVISION



ST. MARYS, PENNSYLVANIA
PHONE 814-834-1521
TWX 510-693-4511

August 9, 1967

Miss Beth Ralph
The University Museum
33rd and Spruce Sts.
Philadelphia, Pa. 19104

Dear Beth:

Have you been keeping things from me? Bob Womer referred to you on the telephone as Dr. Ralph. You sure are getting erudite.

The attached letter to Dr. Rainey provides all necessary details, and enclosing it saves repeating them. You will note that I asked Dr. Rainey to indicate what he considers to be an adequate honorarium and ask the same question of you. You will note also that we are suggesting you plan your own program, and I urge that you allow time for your demonstrations, since I know that our audience is hardware oriented. I do hope that you and Dr. Rainey can promote a discussion period such as everyone has enjoyed following many of the previous lectures.

Marjorie and I are certainly looking forward to welcoming you to St.Marys.

Very truly yours,

D. N. Kirkpatrick

August 9, 1967

Dr. Froelich Rainey
The University Museum
33rd and Spruce Sts.
Philadelphia, Pa. 19104

Dear Dr. Rainey:

We are looking forward to welcoming you and Beth Ralph to St. Marys. We hope Mrs. Rainey will accompany you.

I have made tentative arrangements at Stackpole Carbon Company's Lodge, which I am sure that you and Mrs. Rainey, as well as Beth, will enjoy. The lodge is located 13 miles outside of St. Marys on one of the largest privately held tracts of land (12,000 acres) in the state of Pennsylvania. The land is managed for optimum hunting and fishing conditions and other sports, as well as for timber and pulp wood production.

Joint meetings of our chemical, electrical, and professional Engineering Societies were organized about six years ago by Speer, Pure, and Stackpole Carbon Company managements to provide a stimulating climate in St. Marys for our technical people. We have had wonderful responses both from our speakers and from the audience, which generally runs around 100 engineers, physicists, and chemists. Many of our audience drive 100 miles to hear our speakers. Our most famous speaker to date is probably Dr. Harlow Shapley, formerly of Harvard and more recently of Southern Illinois University. Many other excellent speakers have come from eastern universities, the Bell Labs, and the consulting profession.

Our audience enjoys listening to our speakers and is also very responsive to a question-and-answer period following the lectures. In fact, a number of times we had to rescue the speaker from too many questions. We leave the planning of your presentation to you and to Beth, but would suggest that you allow time for questions and answers.

Prior to your lecture and demonstration, there will be a dinner meeting which we will attend, including Mrs. Rainey if she desires to hear you speak. If not, Mrs. Kirkpatrick will be happy to make other arrangements, although I suspect Mrs. Kirkpatrick will be quite eager to hear your talk.

Page 2
August 9, 1967
Dr. Froelich Rainey

The three carbon companies will cover all of your expenses and, in addition, will offer you an honorarium. Please advise us on this latter matter.

Our lectures are normally held the second Tuesday of the month, which in the case of November would be the 14th. Because we would like you to enjoy a stay at the Stackpole Carbon Company's Lodge and because flying in and out of our Bradford Airport is subject to weather interruptions, we would suggest that you come the night preceding your talk. Beth has indicated that Monday is a better day for you to be away than Tuesday. If you prefer, we will move our meeting to Monday night, November 13, and would suggest that you leave Philadelphia on the Sunday afternoon flight. You could leave Philadelphia, according to the current time table, at either 1:28 p.m. arriving Bradford at 2:26 on Allegheny Flight 375, or 7:43 p.m. arriving Bradford at 8:41 on Allegheny Flight 379. Either schedule will be equally convenient to us. If you desire, you can depart Bradford Tuesday morning at 9:27 a.m. and arrive Philadelphia 10:44 on Allegheny 10. The same schedules apply to Monday or Tuesday and Wednesday.

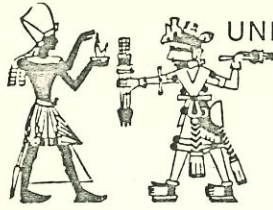
Very truly yours,

D. N. Kirkpatrick
Manager of Engineering
Electronics Division

DK:ep
cc: Miss Beth Ralph

Mrs. Elizabeth Balysk

THE UNIVERSITY MUSEUM



UNIVERSITY OF PENNSYLVANIA

THIRTY-THIRD AND SPRUCE STREETS
PHILADELPHIA, PA. 19104

CABLE ADDRESS "ANTIQUE"
TELEPHONE: EVERGREEN 6-7400
(AREA CODE 215)

August 12, 1967

Dear Mr. Kirkpatrick,

Doctor Rainey is away, and I am taking the liberty of reserving from his calendar the nights of November 13 and 14.

Doctor Rainey will be getting in touch with you making firm arrangements very shortly upon his return after Labor Day.

Thank you very much for your kind invitation to lecture.

Sincerely yours,

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

David Crownover
Executive Secretary

Mr. D. N. Kirkpatrick
Manager of Engineering
Electronics Division
Stackpole Carbon Company
St. Marys, Pennsylvania

DC/ek

[see last page]

APPLICATIONS OF SCIENCE TO MEDIEVAL
ARCHAEOLOGY

INTERNATIONAL CONFERENCE AT THE
UNIVERSITY OF CALIFORNIA, LOS ANGELES
Chemistry Building, Room 3083

Thursday, 26 October - Saturday, 28 October 1967



UCLA Center for Medieval and Renaissance Studies
and
Isotope Laboratory, UCLA, Institute of Geophysics and
Planetary Physics, University of California

THURSDAY, 26 OCTOBER

9:30 - 12:00

GREETINGS BY VICE-CHANCELLOR F. H. SHERWOOD

C. C. PATTERSON, CALIFORNIA INSTITUTE OF TECHNOLOGY
"The Possibility of Measuring Variations in the Intensity of Worldwide Ice
Smelting During Medieval and Ancient Times Using Lead Aerosol Deposits
in Polar Snow Strata."

R. H. BRILL, CORNING MUSEUM OF GLASS
"Chemical Studies of Islamic Luster Ware"

J. D. FRIERMAN, UNIVERSITY OF CALIFORNIA, LOS ANGELES
"Physical and Chemical Properties of Some Medieval Near Eastern
Glazed Ceramics"

I. CORNET, UNIVERSITY OF CALIFORNIA, BERKELEY
"Some Topics in Corrosion"

12:15

LUNCH AT THE FACULTY CENTER FOR SPEAKERS

1:30 - 4:45

I. PERLMAN AND F. ASARO, UNIVERSITY OF CALIFORNIA,
BERKELEY
"Deduction of Pottery Provenience by Trace Element Analysis"

H. BOWMAN, UNIVERSITY OF CALIFORNIA, BERKELEY
"Rapid X-Ray Fluorescence Analysis of Artifacts"

M. J. AITKEN, OXFORD UNIVERSITY
"Thermoluminescence Dating of Pottery"

S. THORARINSSON, MUSEUM OF NATURAL HISTORY,
REYKJAVIK
"Tephrochronology and Medieval Iceland"

7:00 Dinner at the Beverly Wilshire Hotel, 9500 Wilshire Blvd., Beverly Hills,
(featuring fruit cup, mixed salad, prime rib of beef, haricots verts and
pommes de terre, parfait, coffee - \$10.20 complete)

Dinner Speaker: LYNN WHITE, JR, UNIVERSITY OF CALIFORNIA
LOS ANGELES
"The Reticences of the Middle Ages"

SATURDAY, 28 OCTOBER

M. Han

9:30 - 12:00

~~E. RALPH~~, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA
"Potential of Thermoluminescence in Supplementing Radiocarbon
for Dating in the Middle Ages"

F. W. B. CHARLES, F. W. B. CHARLES, INC., WORCESTER
"Dating of Medieval Roof Trusses by the Comparative Method"

J. T. SMITH, ROYAL COMMISSION ON HISTORICAL MONUMENTS,
LONDON
"Reliability of Dating in the Middle Ages in England"

12:15

LUNCH FOR SPEAKERS

1:30 - 4:30

J. M. FLETCHER, U. K. ATOMIC RESEARCH ESTABLISHMENT,
HARWELL
"Radiocarbon Dating of Timber-Framed Cruck Cottages"

W. HORN, UNIVERSITY OF CALIFORNIA, BERKELEY
"The Potential and Limitations of Radiocarbon Dating in the Middle Ages:
The Art Historian's View"

R. BERGER, UNIVERSITY OF CALIFORNIA, LOS ANGELES
"The Potential and Limitations of Radiocarbon Dating in the Middle Ages:
The Dating Specialist's View"

HONORARY COCHAIRMEN: W. F. Libby and Lynn White, jr

CONFERENCE COMMITTEE:

Rainer Berger, Chairman
Jay D. Frierman

Philip Levine
Lynn White, jr

CONFERENCE ADVISOR: Walter Horn

No registration fee.

Proceedings to appear in a volume of CONTRIBUTIONS of the UCLA Center
for Medieval and Renaissance Studies, University of California Press.

SATURDAY, 28 OCTOBER

M. Han

9:30 - 12:00

~~E. RALPH~~, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA
"Potential of Thermoluminescence in Supplementing Radiocarbon
for Dating in the Middle Ages"

F. W. B. CHARLES, F. W. B. CHARLES, INC., WORCESTER
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for Medieval and Renaissance Studies, University of California Press.

November 14, 1967

Dr. Rainer Berger
Institute of Geophysics and Planetary Physics
University of California
Los Angeles, California 90024

Dear Dr. Berger,

In regard to the honorarium, I shall appreciate it if you will send it to Mark C. Han instead of to me. His social security number is: 063-32-2167.

Mark has told me about the success of your conference, and I regret only that I was unable to be there. I am now able to come to work, but still no travelling.

Sincerely yours,

Elizabeth K. Ralph

EKR/abn

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS
LOS ANGELES, CALIFORNIA 90024

8 November 1967

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

Dear Dr. Ralph:

We all very much hope that your recovery is almost complete and that you are feeling a lot better. May we send you an honorarium for the paper Dr. Han presented, for your disposition. However, we need your social security number. As soon as we know the check will be mailed to you.

With the best wishes of Bill Libby and myself.

Very sincerely,

Rainer Berger

Rainer Berger
Conference Chairman

RB:ws

Beth's file

October 17, 1967

Dr. Rainer Berger
Institute of Geophysics and Planetary Physics
University of California
Los Angeles, California

Dear Dr. Berger,

Thank you very much for sending me airline tickets to attend your conference in Los Angeles. Unfortunately, when the surgeon decided to operate on my back, his one stipulation was that I do not travel for two months.

I regret that I shall miss the conference, but I am sure that you will find that Mark Han knows more about thermoluminescence dating than I do, and he will be a good listener so that I shall, at least, learn something "second-hand" when he returns.

With best regards to you and to Dr. Libby,

Beth Ralph

EKR/abn

EVERETT J. SOOP, Director
ALFRED W. STOREY, Associate Director

CENTRAL OFFICE, Ann Arbor
AREA OFFICES
Ann Arbor
Dearborn
Detroit
Escanaba
Flint
Grand Rapids
Port Huron
Saginaw
Traverse City

Prof Activity *Fro*

The University of Michigan

Extension Service

CONFERENCE DEPARTMENT
412 MAYNARD STREET, ANN ARBOR, MICHIGAN

TELEPHONE | AREA CODE 313
764-5304, 764-5305

November 10, 1967

Dear Sir:

Thank you for your interest in our next Symposium on Remote Sensing of Environment. It is scheduled for April 16-19, 1968.

Enclosed is a copy of the first announcement. Your name has been added to a special mailing list. The Symposium program, containing abstracts, and registration materials will be mailed to you in early March.

Sincerely,

J. Downs Herold

J. Downs Herold
Assistant Supervisor of Conferences

JDH:ck

Enc.

Handwritten signature and notes:
The
Arch
Richardson

FIFTH SYMPOSIUM ON REMOTE SENSING OF ENVIRONMENT

April 16, 17, 18, 19, 1968

The University of Michigan
Ann Arbor, Michigan

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

The Fifth Symposium on Remote Sensing of Environment will be held on Tuesday, Wednesday, Thursday, and Friday, April 16 through 19, 1968, on the campus of The University of Michigan. The symposium will be conducted as part of a continuing program investigating the field of remote sensing, its potential in scientific research and engineering practices, and some of the factors that are important to growth of the field. This work is being conducted by the Infrared Physics Laboratory, a part of the Willow Run Laboratories of The University of Michigan's Institute of Science and Technology. It is sponsored by the Office of Naval Research with funds made available by them and the Air Force Cambridge Research Laboratories; the Army Research Office; the U. S. Army Engineer Geodesy, Intelligence, and Mapping Research and Development Agency; the U. S. Department of Agriculture; the U. S. Geological Survey; the Environmental Science Services Administration; and the National Aeronautics and Space Administration.

"Remote sensing" means acquiring information about objects or phenomena without placing the information-gathering device, the sensor, in direct contact with the subject under investigation. The sensor may be a camera, an infrared or microwave scanner or radiometer, or some other device that samples electromagnetic radiation, magnetic fields, gravity, acoustical energy, etc. The field embraces all matters concerned with acquiring and using remotely sensed data, with interest centered on data obtainable from aircraft and satellites.

The purpose of the fifth symposium is to stimulate an exchange of information concerning the numerous aspects of remote sensing, with emphasis on accomplishments during the last five years. The symposium will interest people working in the earth sciences, natural resources, various engineering fields, and sensor technology. Topical matter will include reviews citing notable advances made in remote sensing during the last five years—advances in technologies and applications for these technologies—and will also treat such topics as economics and practicality, and political, legal, and international implications. Attendance at the symposium is open to all who have an interest in remote sensing.

Present plans indicate that the formal program will consist of invited papers. However, the symposium committee will welcome contributions relating to the above topics and if time limitations prohibit their presentation the ones selected will be read by title, will be available for distribution at the symposium, and will be included in the proceedings. Anyone interested in contributing a paper should submit a comprehensive abstract no later than September 15, 1967, for consideration by a paper-selection committee. Subject matter must be unclassified. Abstracts should be submitted to:

The University of Michigan
Ann Arbor, Michigan



FIFTH SYMPOSIUM ON REMOTE SENSING OF ENVIRONMENT

April 16, 17, 18, 19, 1968

The University of Michigan
Ann Arbor, Michigan

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

Extension Service
The Conference Department
The University of Michigan
Ann Arbor, Michigan 48104

Further information regarding the symposium may be obtained by contacting:

Mr. Dana C. Parker
The University of Michigan
Willow Run Laboratories
P. O. Box 618
Ann Arbor, Michigan 48107

THE UNIVERSITY OF MICHIGAN
MUSEUM OF ANTHROPOLOGY
UNIVERSITY MUSEUMS BUILDING
ANN ARBOR, MICHIGAN U. S. A. 48104

COPY

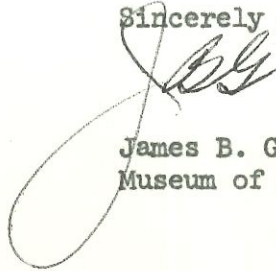
December 12, 1967

Dr. Joseph W. Michels
Assistant Professor of Anthropology
Pennsylvania State University
227 Graduate Building
University Park, Pennsylvania 16802

Dear Joe:

It was nice of you to suggest that we should get a copy of our paper into the hands of Elizabeth Ralph before the meeting. If we can do this, we certainly will. So far we have not prepared the paper. We are working on it, and if we get a draft we will ship it off post-haste to Dr. Ralph by airmail. At the latest we should have it in time for the cocktail party at 5:00 p.m. on the 27th.

Sincerely yours,



James B. Griffin, Director
Museum of Anthropology

JBG:jah

cc: Elizabeth Ralph

THE UNIVERSITY OF CHICAGO
CHICAGO · ILLINOIS 60637
THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

November 20, 1968

Dr. Elizabeth K. Ralph
Museum Applied Science Center for Archaeology
University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Ralph:

Thank you for the revised title of your forthcoming lecture, "Archaeological Prospecting with Geophysical Instruments." The lecture announcements will be sent out on November 29th.

May I trouble you with one more form, enclosed herewith. In order to process the Oriental Institute's request for honoraria and travel expenses we shall have to submit your social security number and home address. A stamped envelope is also enclosed.

Thank you.

Sincerely yours,

Janice Caplan

(Mrs.) Janice Caplan

enclosures

*Must let her know re
hotel room -
Quadrangle Club,
1155 E. 54th St.*

lecture 8:30

THE ORIENTAL INSTITUTE *cordially invites you*

to attend an illustrated lecture

CONTINUING :

EXHIBIT OF NUBIAN OBJECTS from 1968 Excavations at Semna South in the Sudan, directed by Dr. Louis Zabkar.

COMING LECTURES:

Michael Gough, Institute for Advanced Study, Princeton:
"Alahan: A 5th Century Monastery in Isauria."

Wednesday, January 15, 1969.

*

Subsequent lectures
to be announced.

"ARCHAEOLOGICAL PROSPECTING WITH GEOPHYSICAL INSTRUMENTS"

by ELIZABETH K. RALPH

*Assoc. Director, Museum Applied Science Center for Archaeology,
University Museum, University of Pennsylvania*

8:30 P.M. — WEDNESDAY — December 11, 1968

**The James Henry Breasted Lecture Hall
1155 East 58th Street**

Admission is free. Museum Halls and The Suq will remain open after the lecture for a half hour, so that Members and their guests will have an opportunity to meet the lecturer as well as visit The Suq.

(The Quadrangle Club, 1155 East 57th Street, will be open to Oriental Institute Members who wish to make dinner reservations. Please call Miss Mason, HY 3-8601.)

THE UNIVERSITY OF CHICAGO

CHICAGO · ILLINOIS 60637

THE ORIENTAL INSTITUTE

July 3, 1967

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

Dr. Elizabeth Ralph
The University Museum
University of Pennsylvania
33rd and Spruce Street
Philadelphia, Pennsylvania

Dear Dr. Ralph:

I write to inquire about the possibilities of your doing a lecture for the Oriental Institute next year on some aspect of the laboratory activities for which the University Museum has become such a center. The Oriental Institute maintains a program of six or eight such lectures annually for its Members, and we would be delighted if you would agree to do one for us. We are prepared to offer an honorarium of one hundred and fifty dollars for the occasion, and of course to reimburse you also for the costs of your travel.

I can visualize either a wide-ranging discussion of the pitfalls and potentialities of new dating methods, or a more selective "who-dun-it" approach to studies you have undertaken of a particular site or problem. The audience, I might add, tends to be a diverse but not uninformed one, including colleagues and students in the Oriental Institute and the Department of Anthropology as well as considerable numbers of our interested lay supporters. We seek to adopt a tone which is popular without being condescendingly popularizing, which in turn generally places the emphasis on personal experience and the use of slide illustrations.

Although the timing can be varied in exceptional circumstances, our traditional lecture night is Wednesday. Aside from an opening lecture in early October which I must do (on reconnaissance in southern Iraq from which I have just returned), our schedule for the remainder of the year is still entirely open. Can we count on you to help fill it?

Sincerely,



Robert McC. Adams
Director

July 13, 1967

Dr. Robert McC. Adams
The Oriental Institute
1155 East Fifty-Eighth Street
Chicago, Illinois 60637

Dear Dr. McC. Adams:

I am writing in answer to your letter of July 3 to Miss Elizabeth K. Ralph, who is presently in Europe. She is expected to return in the University Museum in mid-August and can then answer you directly concerning her availability to give a lecture for the Oriental Institute.

Sincerely,

Angela Bargellini

August 15, 1967

Dr. Robert McC. Adams, Director
The Oriental Institute
1155 E. 58th Street
Chicago, Illinois 60637

Dear Dr. Adams:

Thank you for your invitation to give a lecture at The Oriental Institute. One possible subject would be the new thermoluminescence method of dating pottery with, perhaps, some discussion of the uncertainties in this and in C-14 dating and their interrelationships. It is difficult for me to talk very long about these subjects unless I include a good deal of physics and chemistry.

Another subject, which could be illustrated more easily with slides, is archaeological prospecting. The central theme of this would be our intensive search for Sybaris and the development and use of new portable alkali vapor magnetometers for this purpose. I have enclosed a reprint from Science which may be of some use in deciding upon the subject.

I am planning to give a talk in Los Angeles on October 27th-28th and another in central Pennsylvania on November 13th or 14th. I think that some time after November 15th would be safer because I may have to return to Italy for September and part of October. If not, however, October 25th, en route to California, would be a possibility. I hope to know about this within the next few weeks.

Sincerely yours,

Elizabeth K. Ralph

EKR/ab

THE UNIVERSITY OF CHICAGO

CHICAGO • ILLINOIS 60637

THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

August 21, 1967

1155 EAST FIFTY-EIGHTH STREET

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

Dear Miss Ralph:

Your schedule for the coming fall sounds very hectic, and we are extremely grateful to you for being willing to fit in a lecture at the Oriental Institute. With some dates having been committed during the interval since I first wrote you, the most appropriate time for your talk from our viewpoint would appear to be Wednesday, December 13th. In the event that this turns out to be inconvenient for you I might add that a date in January probably could also be arranged.

I am as sceptical as you appear to be that a discussion which involved considerable physics and chemistry would be understood by the majority of our audience. On the other hand the theme about archaeological prospecting ought to excite great interest. I already had seen your very interesting article in Science, and have no doubt that a talk developing in this direction would be well received. Tentatively I will put you down simply for the title "Archaeological Prospecting" on December 13th. Please let us know within the next few weeks if you wish to modify this.

With many thanks again for agreeing to lecture for us,

Sincerely yours,



Robert McC. Adams
Director

RMCA/es

THE UNIVERSITY OF CHICAGO

CHICAGO · ILLINOIS 60637

THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

2 November 1967

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

Dear Miss Ralph:

Several complications have arisen with respect to the date upon which we have agreed for your forthcoming lecture, December 13th. In the first place, it now turns out that the timing is a very poor one in the sense that our alumni association has scheduled another lecture in a related field for Monday, December 11th, and I am afraid that our attendance may suffer considerably with so short an interval. Secondly, and on a more personal note, I was expecting to be present to hear you and introduce you myself, but now find that a large meeting has been called in Washington for that week which I feel obligated to attend. And finally, Bob Braidwood, who was also much interested in hearing you on the occasion of your visit, has had to go out to Turkey and will not be able to return until just before Christmas.

All this leads me to ask whether you might be willing to postpone your visit until a better time. For us, with other lecture commitments already made for the intervening months, the "better time" would be in the following April, when no date would present any difficulty other than the week of the 22nd through the 26th. May is also entirely open at this writing.

At any rate, I would be grateful if you would consider a possible change along these lines. Of course, if this is impossible for you we still would be most grateful to have you come at the time previously arranged. And please accept my apologies for presenting you with such an inconvenient problem only six weeks or so before your scheduled arrival.

Sincerely yours,



Robert McC. Adams
Director

RMCCA:mb

November 14, 1967

Dr. Robert McC. Adams, Director
The Oriental Institute
The University of Chicago
1155 East Fifty-eight Street
Chicago, Illinois 60637

Dear Dr. Adams,

Your suggested postponement of my lecture is a welcome one. Instead of doing all of the things that I had planned, I ruptured a disc in my back and came flying back from Italy in late September for an operation. I have just now returned to work, and the less travelling I do this winter, the better it will be for the weak back.

There may be a conflict in April, 1968 because I hope to attend the NATO-sponsored Geophysical Conference in England (April 1-6), and then the season of field work may begin immediately after that. What would you think of postponing the lecture until next fall or winter?

Sincerely yours,

Elizabeth K. Ralph

EKR/abn

THE UNIVERSITY OF CHICAGO
CHICAGO • ILLINOIS 60637
THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

21 November 1967

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

Dear Miss Ralph:

I am sorry to hear of your difficulties with your back, but in any case pleased that the suggestion of a postponement is welcome from your viewpoint also. While we would prefer to have you come in the spring as I suggested, I quite understand your doubts about fitting us into an already crowded April schedule. Let me leave it this way: if your tentative plans change and leave you free during that month, please advise me at once and I will reschedule your lecture. If they do not change you will be hearing from us next summer or early in the fall about a date during the course of that academic year.

With many thanks again for your patience,

Sincerely yours,



Robert McC. Adams
Director

RMCCA:mb

THE UNIVERSITY OF CHICAGO
CHICAGO • ILLINOIS 60637
THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

12 July 1968

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

Dear Miss Ralph:

Last year Mr. Adams, who has just resigned the directorship to be able to spend more time in Iraq, attempted to get you here to give one in the Institute's series of lectures for its members. Things went awry on both sides and he did not succeed, but his last word to you on the subject last November 21st was, "You will be hearing from us next summer or early in the fall."

I should like to renew that invitation and hope we succeed this winter. At this point we are trying to schedule a lecture for the month of December. It would suit us to have it on Wednesday night, say December 11th, but the mid-week night is not absolutely essential. However, week-ends would not be good. In December also we do not want to get too close to the end of the winter quarter and the Christmas holiday, which begins on Saturday the 14th. The 11th would be one month almost exactly after the November lecture as now scheduled.

If December proves to be impossible for you, there are the months January to May inclusive, on some day about the middle of each.

We shall be pleased and so will our members if you find it possible to come.

Yours sincerely,



George R. Hughes
Director

GRH:mb

July 17, 1968

Dr. George R. Hughes, Director
The Oriental Institute
University of Chicago
1155 East 58th Street
Chicago, Illinois 60637

Dear Dr. Hughes:

In regard to the long-delayed speech, I shall be glad to come on December 11, 1968. As I remember, I had planned to talk about geophysical prospecting for ancient cities and sites. I hope that this subject still appeals to you.

Sincerely yours,

Elizabeth K. Ralph

EKR:kw

THE UNIVERSITY OF CHICAGO
CHICAGO • ILLINOIS 60637
THE ORIENTAL INSTITUTE

Cables: ORINST CHICAGO

1155 EAST FIFTY-EIGHTH STREET

November 12, 1968

Dr. Elizabeth K. Ralph
Museum Applied Science Center for Archaeology
University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Ralph:

It appears that the last communication between you and the Oriental Institute was a letter of July 17th in which you kindly accepted the invitation of Dr. Hughes to speak here on the evening of December 11th. At this point we are about to print lecture invitations and notices and are wondering whether the title of your lecture will be "Archaeological Prospecting," the tentative title suggested August 21, 1967. Therefore, would you be good enough to return the enclosed reply sheet so that we may proceed with the lecture notices.

*with Geophysical
Instruments*

Thank you.

Sincerely yours,

Janice Caplan

(Mrs.) Janice Caplan

8:30 P.M.

ENCLOSURE

THE PENNSYLVANIA STATE UNIVERSITY

227 GRADUATE BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Sociology and Anthropology

Area Code 814
865-2527

December 7, 1967

Miss Elizabeth Ralph
Associate Director of MASCA
University of Pennsylvania
Philadelphia, Pennsylvania 19104

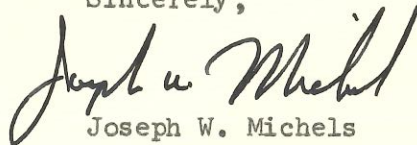
Dear Miss Ralph:

I have enclosed a copy of the program and a specific timetable for the papers. I have reserved 25 minutes for your discussion of the papers. I have also asked all of the participants to forward you copies of their papers so that you might have a chance to examine them before the day of the session. Unfortunately my paper is not entirely written yet, but the main topics I will be discussing are discussed in my recent Science article, a copy of which is enclosed.

Section H is holding a cocktail party at 5:00 P.M. on the 27th in the Le Petit Trainon Room of the New York Hilton, and I am encouraging all participants to attend in order that we can meet and talk in advance of the session. I am also asking the participants to consider having lunch together right after our program on the 28th.

I look forward to meeting you in New York.

Sincerely,



Joseph W. Michels
Assistant Professor of
Anthropology

JWM/k

Enclosures

Physics Colloquium
2/12/69

~~Application of~~ Geophysical Surveying Techniques in Archaeology

by

Elizabeth K. Ralph

at Speech given
2/15 Rutgers Physics Colloq
& Dela. Arch. Soc. 2/18/67

Introduction

well-known & respected

The main technique of archaeology ^{has always been} is excavation. But, as labor costs become higher all over the world and as modern civilization encroaches upon ancient sites, there is a need to accelerate and to facilitate the finding of structures at known sites and to locate unsuspected or lost cities and sites. In this respect, the physical scientist ^{can come to the aid of the dirt-archaeologist} may help with a variety of instruments for the detection of buried archaeological features. ^{by finding features & sites more rapidly.}

Types of Instruments

There are now a number of geophysical prospecting instruments that have been adapted specifically for archaeological surveying. Those which have been used most extensively detect changes in either ground conductivity ^{are based on two different principles. The first} (or, conversely, resistivity) or local variations ^{of, conversely, resistance to an electric current, the second} in magnetic intensity. ^{detects changes} Descriptions of the designs, principles,

~~Lines and Grids~~

All methods depend upon the detection of "anomalies" ^{i.e.,} --deviations of values or instrument readings from the normal "background," or from those obtained where no buried archaeological features exist. Therefore, it is necessary to operate the instruments along ~~traverses or~~ ^{or} lines and often in complete grids in order to interpret the results.

SLIDE 1

Chapter for Guidebook
correct & copy.

3/66

~~Application~~ of Geophysical Surveying Techniques in Archaeology

by

Elizabeth K. Ralph

Speech given
at Rutgers Physics Collog
2/15 &
Dela. Arch. Soc. 2/18/67

Introduction

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7

~~Lines and Grids~~

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SLIDE 1

ny 011115

FOR FULL PAPER SEE: RALPH, PROFESSIONAL
ACTIVITY, CHAPTER FOR PROPOSED "GUIDE BOOK,"
1966

FOR FULL PAPER SEE : PROFESSIONAL
ACTIVITY ; PROPOSED⁰¹ CHAPTER FOR "GUIDE BOOK"

Columbia University in the City of New York | New York, N.Y. 10027

DEPARTMENT OF ART HISTORY AND ARCHAEOLOGY

May 15, 1969

Dr. Elisabeth K. Ralph
The University Museum
33rd and Spruce Street
Philadelphia, Pa.

Dear Beth Ralph:

I believe that Bob Dyson has spoken to you and asked you whether you would be willing to speak to our Archaeological Seminar on Carbon 14. We would be most grateful indeed if you could bring us up to the present state of the achievements of Carbon 14. Of course, you are completely free to choose your material, if you would also want to speak about thermo-luminescence we would be very happy.

I just remembered that I wanted to send you a small piece of pottery which was broken off one of numerous animal figures in Mr. Annavian's shop which I consider to be forgeries. Could you, would you be able to examine it? It would "date" a whole class of ugly objects."

Hoping to hear from you also if you would have a preference concerning possible dates for next year. We meet on the third Thursday of each month beginning in November.

Yours sincerely,



Edith Porada
Professor of Art History
and Archaeology

EP:ju

May 23, 1969

Edith Porada
Professor of Art History
and Archaeology
Columbia University
New York, New York 10027

Dear Professor Porada:

Thank you for your letter of 15 May 1969.

Miss Ralph is now surveying in Europe but is expected to return in July, at which time I will bring your kind invitation to her immediate attention. I hope that the delay will not be too much of an inconvenience for you.

Sincerely yours,

Mrs. Lanny Bell

July 9, 1969

Professor Edith Porada
Department of Art History and Archaeology
Columbia University
New York, New York 10027

Dear Professor Porada:

I shall be glad to talk to your Archaeological Seminar on Carbon 14. I am planning to take an AIA tour to Iowa, etc. from November 17 to 20th talking on the same subject, so I will be in better practice after November 20th.

Since tests for authentication are not part of our regular research program in thermoluminescence and are not supported by the NSF, we are now asking for a donation of \$500 for each test. We need, at least, 3 grams of pottery and the items of information as specified on the enclosed sheet.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek
Enclosure

July 16

H agengut, Post Mitterbach
bei Maria Zell
Austria

Dr. Elisabeth K. Ralph
Museum Applied Science
Center for Archaeology
The University Museum
33d and Spruce Streets
Philadelphia, Pa 19104

not answered

Dear Dr. Ralph:

I was delighted to receive your letter with your affirmative reply that you are willing to talk about Carbon 14 to our Seminar after November 20.

Would December 11th, the second Thursday in December suit you? As far as I remember we have switched back to Thursdays from Wednesdays at the request of some of our members but have written the Seminar Secretary to confirm. I will return to the US on September 6th and will confirm thereafter if not sooner.

Right now I am awaiting a sign of life from Bob Dyson. there are two letters for him here from the University Museum so, to my great joy, he seems to plan to be coming but I have not heard from him directly and I don't know where to telegraph him because he may have already left Iran where I would (and have taken) pot luck with a letter to the British Institute. Our telephone number is difficult to find because we are listed under the Forstverwaltung in case he tries to call me from outside Austria, ~~it will be difficult to find~~ although everyone assures me here that as good an archaeologist as he is should be able to dig it out. In case you know of any direct communication with him, it is O-27-27-24-05. You might wish to remember it yourself, in case you ever get to Austria in July!

Best wishes from

Edith Prada

July 18, 1969
Archaeological Institute of America
260 West Broadway
New York, New York 10013

Dear Secretary:

For my AIA lecture tour, November 17 - 20,
1969, Group 12, I have enclosed four photographs.
I hope that these will be suitable.

Sincerely yours,

Elizabeth K. Ralph

Enc. (4)
EKR/mrb

Columbia University in the City of New York | New York, N.Y. 10027

DEPARTMENT OF ART HISTORY AND ARCHAEOLOGY

October 8, 1969

Dr. Elizabeth K. Ralph
Associate Director
Applied Center for Archaeology
The University Museum
c/o The University Museum
33nd and Spruce Streets
Philadelphia, Pa.

Dec. 11

Dear Elizabeth Ralph:

You may remember that we had some correspondence last summer about your talk to our Archaeological Seminar this academic year.

You kindly agreed to speak to our group after November when you had some AIA lectures. I wrote back to ask whether December 11th would be convenient for you, but I have never received an answer to this letter, either you did not get mine, or I failed to receive yours.

May I now ask you again whether Dec. 11th would be convenient for you? You know from Bob Dyson's accounts, I am sure, how we proceed: Cocktails about 5 p.m., dinner at 6:30, a talk of about 50 minutes and then questions. By 10 p.m. we have to clear out of the Mens Faculty Club where the meetings are held (the cocktails are at the Womens Faculty Club next door, 410 West 117.

One has to go around and come in from Morningside now, that is 116th Street, Morningside, 117th Street. Though by the time that your talk will come along, the road through the upper street may have been opened again. We will inform you of this when the time comes.

I enclose a self-addressed postcard so that you can merely indicate the title; I hope something like: the present state of Carbon 14 researches and other scientific methods for dating archaeological materials.

Please reword, shorten and shift at your desire. I am most grateful to you for being willing to speak to us, particularly, since I am trying to build up the "scientific" group among the members.

Hoping to hear from you soon,
Yours sincerely,

Edith Porada
Edith Porada

Professor of Art History
and Archaeology

T. 4th
"The present state of
Carbon 14 dating and
thermoluminescence dating
of pottery."

EP/ub

send 10/10/69
EKR

October 29, 1969

Dr. Edith Porada
Department of Art History
and Archaeology
Schermehorn Hall
Columbia University
New York, New York 10027

Dear Dr. Porada:

Thank you for your letter of October 12th. I shall plan to give the seminar on C-14 problems on December 11, 1969.

At the moment, I don't think that I shall need a reservation for the night, but I may change my mind.

Sincerely yours,

Elizabeth K. Ralph

EKR/mrb

Columbia University in the City of New York | New York, N.Y. 10027

UNIVERSITY SEMINARS

~~XXXXXXXXXXXX~~

SEMINAR ON THE ARCHAEOLOGY OF THE EASTERN MEDITERRANEAN, EASTERN EUROPE AND THE NEAR EAST.

Apt. 15H,
500 East 85th Street,
New York, N.Y. 10028

Tel. (212) 535.0983
25th November 1969

Dear Dr. Ralph,

I enclose a couple of invitations to our next meeting in case you wish to bring any guests.

Will you be needing a projector and screen? If so, what size slides will you be showing? Is there any other equipment you might need? I shall arrange for a black-board, chalk, and a pointer.

I understand from Dr. Porada that you plan to return to Philadelphia on the evening of the meeting. If you wish me to book you a room in an hotel near the University, however, please let me know as soon as possible.

I am very much looking forward to hearing your talk. If you have a typescript of it, I should be delighted to have a copy as it will make the Minutes much easier for me! If not, may I send you a ~~copy~~ rough draft of the Minutes so that you may go through it and make any corrections and alterations you wish?

Yours sincerely,

 Dominique Collon

Dominique COLLON (Miss)
Secretary of the Seminar

December 3, 1969

Miss Dominique Collon
Apartment 15 H
500 East 85th Street
New York, New York 10028

Dear Miss Collon:

Thank you for the invitations, but I do not plan to bring any guests on December 11th. I do plan to arrive for dinner, however.

I shall need a projector and screen for 35 mm slides (mounted in cardboard).

I am afraid that there will not be time to prepare a typescript of my talk. I shall be glad to check your rough draft.

Sincerely yours,

Elizabeth K. Ralph

EKR/mrb

P.S. Would you like to spend the night in the city?
I would make a reservation at the Hugo Boss
if you would. (Columbian Post Hotel, Fordia. Dec. also)

not more

Columbia University in the City of New York

DEPARTMENT OF ART HISTORY
AND ARCHAEOLOGY

Schermerhorn Hall
New York, N.Y. 10027

dinner 6:30

Oct 12/
/69

Dear Dr. Ralph,

Many thanks for your message. In view of the difficulties of getting a reservation at the 'News' Faculty Club, I will just have to let Dec. 14 stand if you are so kind as to forego members' night

In general, the Philadelphia group is privileged to be in contact with you all the time - it is probably mostly the New York and other Eastern contingents which will be coming to hear your talks.

Of course, I prefer a meeting at which Bob Dyson is present to one at which he is not. But as I said, if you are willing I would beg to keep the date of Dec. 11. He will therefore plan for that date.

Yours sincerely
Dath Prada

EKR replied

1/6/70

For John W &
Bob Stack - in case
they did not receive
thank you's.

Columbia University in the City of New York

DEPARTMENT OF ART HISTORY
AND ARCHAEOLOGY

Schermerhorn Hall
New York, N. Y. 10027

Received one. Doreen Stack
did too J.W.

Dec. 17, 1969

Dear Dr. Ralph

This is to express my
gratitude to you for having
arranged for the excellent
substitutes to whom we owe
a highly interesting evening.
Of course, we all regretted your
absence and hope that
you will join us as a guest
whenever the program of our

of our seminars interest you.
we will have Sakellorakis on
Ivories from Arkhous, Greece
on January 29th ^{Thurs} and Dr.
Hopke, a pleasant and very
competent German scholar on
his finds from Samos on ^{Wed} Feb 25th.

In the meantime I hope
that your health will be soon
completely restored and that
you will have a nice Christmas
and a very good New Year

Yours sincerely
Edith Brada

COLUMBIA UNIVERSITY

SEMINAR ON THE ARCHAEOLOGY OF THE EASTERN MEDITERRANEAN,
EASTERN EUROPE, AND THE NEAR EAST

INVITATION

NEXT MEETING : Thursday 11th December 1969

TIME : 7.30 p.m.

PLACE : Men's Faculty Club, Entertainment Room

SPEAKER : Dr. Elizabeth K. Ralph
Associate Director at the Museum Applied
Center for Archaeology, the University Museum,
Philadelphia

TOPIC : 'The Present State of Carbon-14 Dating and
Thermoluminescence Dating of Pottery.'

REMARKS : Edith Porada and Evelyn Harrison expect you
for drinks at the Women's Faculty Club,
410 West 117th Street, from 5.00 p.m. onwards.

Your attention is drawn to an exhibition of
pottery from the Madali region in Iraq, which
has been acquired as part of the Sackler
Collections. The exhibition is on display on
the 8th floor of Schermerhorn Hall (Columbia
University). You are invited to look at it
either before or after the meeting, or whenever
it is most convenient for you.

Dinner at 6.30 p.m. sharp.

If you are not a member of the Men's Faculty
Club, would you please pay for your dinner
when you first enter the Club, before going
upstairs.

FOLLOWING

MEETINGS : The schedule for the forthcoming meetings is
still uncertain. There will definitely be a
meeting on Thursday 29th January 1970. The
other meetings will be announced later.

To retain this announcement, cut along the line below and
return to :

Dominique Collon
Apt. 15H, 500 East 85th Street,
New York, N.Y. 10028

Telephone : (212) 535.0983 (messages can be left)

NAVAL RESERVE ENGINEERING CO. 4-3
PHILADELPHIA NAVAL SHIPYARD
U.S. NAVAL TRAINING CENTER BLDG. 662
PHILADELPHIA, PA. 19112

June 2, 1969

Miss Elizabeth V. Ralph
Associate Director
Applied Science Center for Archaeology
The University Museum
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Miss Ralph:

Thank you very much for your archaeological presentation on May 15.

As you might have observed, our Naval Reserve unit, with the exception of Mary Virginia of course, had little background in your subject. We, therefore, appreciated your very interesting presentation on archaeological finds and the application of electronic equipment in locating individual walls, houses, and the like.

It was a pleasure to have met someone so interested and dedicated to such work.

Very truly yours,



R. J. Moreland
Commanding Officer
Naval Reserve Engineering Co. 4-3

RJM: lp

ANTHROPOLOGY-GEOLOGY 777

Seminar in Pleistocene Environments

Schedule - Fall term 1969

Sept.	15	Giegengack	Climatology
	22	Wailes	Principles of Prehistoric Archeology
	29	Giegengack	Pleistocene History of the Nile Valley
Oct.	6		Open
	13	Hugh Raup Dep't. of Geography Johns Hopkins Univ.	Problems in Arctic Plant Geography
	20	Horace Richards Dep't. of Geology Univ. of Pennsylvania and Academy of Natural Science	To be announced
	27	Elizabeth Ralph Applied Science Center for Archeology, Univ. Museum	C ¹⁴ Problems
Nov.	3	Hans Borei Dep't. of Biology	Community Reconstruction
	10	student	
	17	"	
	24	"	
Dec.	1	"	
	8	"	

All classes meet at 2 P.M. Monday in room 104 Hayden Hall (Dep't. of Geology).

Prof. Dev.

December 12, 1969

Dear Dr. Gordon:

I have yours of December 3 and am somewhat surprised by your letter speaking of a lecture at Brandeis in connection with Harold Edgerton's seminar. I had just commented to Harold in Athens that of course I would be pleased to sit in with him ~~as a rudsky on a~~ *and Zarudski on a* discussion about archaeological techniques. However, I will be pleased to do such a lecture on March 4 and will get together with Harold as to what he thinks I should talk about in the line of techniques. Perhaps our present involvement in dating the Bronze Age in the Mediterranean might fit. Or some comments on our many experiments with the cesium magnetometer. In any case, I will look forward to seeing you, and many thanks for the invitation.

All the best.

Sincerely,

Froelich Rainey
Director

Dr. Cyrus H. Gordon
Department of Mediterranean Studies
Graduate School of Arts and Sciences
✓ Brandeis University
Waltham, Mass. 02154

FR/j

WASHINGTON STATE UNIVERSITY

PULLMAN, WASHINGTON 99163

Professional Activity

COLLEGE OF ENGINEERING
RESEARCH DIVISION

June 2, 1970

Miss Elizabeth K. Ralph
Department of Physics
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Miss Ralph:

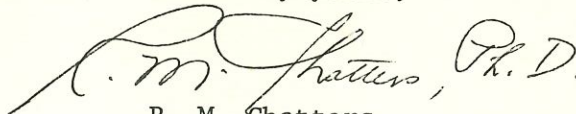
It is now five years since the Sixth International Carbon-14 and Tritium Dating Conference was held at Pullman, Washington. No similar open conference, where archeologists and isotope dating researchers could meet to discuss problems of mutual interest, has been held during this long period.

The purpose of this letter is, therefore, to offer my services again to organize and to develop the Seventh International Carbon-14 and Tritium Dating Conference. Or, I will gladly assist anyone else who wishes to bring isotope dating research people together again.

I am sure that there must be much new data and techniques to report and many new colleagues to meet.

Your thoughts on this subject will be most welcome. If there is sufficient interest in my initiating a program for early in the summer of 1971, I will proceed immediately to organize a new carbon-14 and tritium dating conference.

Sincerely yours,



R. M. Chatters

Nuclear Engineer and Head
Radioisotopes and Radiations Laboratory

pkb

June 15, 1970

Dr. R. M. Chatters
Research Division
College of Engineering
Washington State University
Pullman, Washington 99163

Dear Dr. Chatters:

Since I was fortunate in being able to attend the C-14 Symposium at Uppsala in August 1969, I do not feel a great need to attend another in the near future. Also, there is a possibility that one may be organized in New Zealand in 1972.

However, I am sure that many others feel differently, and we should try to send some one from our laboratory if you do organize a conference in the summer of 1971.

Sincerely yours,

R/rs

E. K. Ralph

Box 332, R R 1
Pennington, New Jersey 08534
August 24, 1970

KLIO
CLUB

Miss Elizabeth K. Ralph
Woosamonsa Road
Pennington, New Jersey 08534

Dear Miss Ralph,

This letter will confirm our past telephone conversation and your agreement to present "Search for Syburis, and other cities, with Electronic Instruments" to the Kleio Club on Tuesday, September 8th. A 6:30 P.M. supper will precede the 8:00 P.M. meeting at the home of Mrs. Edward Strube, 39 Dublin Road, Pennington. We do hope that you will be able to join us for supper. I will have available a slide projector (for 2X2 slides) and screen. May I suggest that you plan on a 30 - 45 minute presentation. It is my understanding that there will be no fee for this program.

I would greatly appreciate receiving a copy of your photograph, if available, and any background information that could be used for newspaper publicity, as well as for your introduction at the meeting.

In order that I may know we are in agreement on the terms stated in paragraph one above, would you please sign the duplicate copy of this letter and return it to me in the enclosed envelope.

We are looking forward to a very interesting and informative program.

Sincerely yours,

Caroline E. Woodward

Caroline E. Woodward
(Mrs. Donald)
Program Chairman
Kleio Club of Pennington

GEOTECHNICAL SCIENCES

Loyola
OF MONTREAL

Jan. 11, 1971

Miss Elizebeth Ralph
Assistant Director
The Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia
Pennsylvania,
U.S.A.

Dear Miss Ralph:

Sometime ago, it was suggested that you might possibly be interested in giving a lecture at Loyola on the application of Physics to Archeological investigations.

I have put off contacting you, because I was waiting for another kind of information from a professor here at Loyola, who teaches courses which are concerned with Archeology and Ancient History. Should you be interested, the arrangements would include an honorarium of \$100, plus normal transportation, and accomodation.

I would be very pleased to hear from you on this subject.

Yours very truly,


D.J. McDougall

LOYOLA COLLEGE
7141 SHERBROOKE ST. W.
MONTREAL 262,
QUEBEC

January 20, 1971

Dr. D. J. McDougall
Dept. of Geology
Loyola College
7141 Sherbrooke Street, W.
Montreal 262, Quebec, Canada

Dear Dr. McDougall:

The expenses for my lecture entitled "Archaeological Prospecting" given at Loyola on January 17th are attached. I shall appreciate it if you will expedite the payment so that I shall have the funds in hand when the bill from American Express arrives. (The actual amount of this for the two of us was \$109.80).

Our trip home was uneventful but very beautiful through the Adirondacks and with bright sunshine. I enjoyed seeing you again.

With best regards,

Elizabeth K. Ralph

EKR/ek

GEOLOGY

Loyola
OF MONTREAL

Sept. 10, 1971

Miss Elizabeth Ralph
University Museum
33rd and Spruce Streets
Philadelphia, Penn.

Dear Miss Ralph:

As a follow up on my letter of last year, I would again like to ask you if you would be prepared to come to Loyola to give a talk on some of the applications of physics to archeology. As I think I mentioned before this provides a small honorarium, and normal travel and hotel expenses while here.

I can pretty much leave the date on which you might be prepared to do this to you, with the following exceptions. Between the 5th and 15th of October, when I shall be attending a conference in Europe, and most of the month of November, when a large number of other lectures have already been scheduled. This leaves us with either the latter part of October, about the first half of December, or sometime in early 1972. Preferably prior to early March.

I would be very pleased to hear from you on this matter.

Yours very truly,


D.J. McDougall

DJM:kn

LOYOLA COLLEGE
7141 SHERBROOKE ST. W.
MONTREAL 262,
QUEBEC

1-514

-482-0320

ext 419 Secretary
or 492 - his

home 486-2157

September 15, 1971

return Jan. 3
Given Jan. 17th

Dr. D. J. McDougall
Dept. of Geology
Loyola College
7141 Sherbrooke Street, W.
Montreal 262, Quebec, Canada

Dear Dr. McDougall:

This is to acknowledge the receipt of your letter of 10th of September, 1971, addressed to Miss Ralph. She is presently in Europe and is scheduled to return by the beginning of October. At that time she will no doubt answer your inquiry.

Sincerely yours,

Henry N. Michael
Research Associate

HNM/ek

WA 3-0500

1/5 Night letter
ER lecture still ?
Scheduled Jan 10
Sent 12/23/71

UNIVERSITY of PENNSYLVANIA

WOMEN'S FACULTY CLUB

PHILADELPHIA, PENNSYLVANIA 19104

November 12, 1971

Dear Miss Ralph:

This letter is to confirm the arrangements I made with you yesterday morning regarding your talk to the Women's Faculty Club on Wednesday, December 15, 1971 at 12 Noon, in the Penniman Room, Houston Hall.

We would appreciate it if you could talk about thirty minutes on the subject of archaeological prospecting and then be available to answer questions from the audience. A buffet luncheon will be served prior to your talk in the same room beginning at 11:30 A.M., at which time those attending are asked to arrive.

Could you please send a copy of your c.v. to Dr. Adelaide M. Delluva, 140 School of Veterinary Medicine, the President of the Women's Faculty Club, who will introduce you.

All of us are looking forward very much to hearing your talk on this fascinating subject.

Sincerely,

Madelyn Ferrigan

(Mrs.) Madelyn Ferrigan

Secretary

Miss Elizabeth K. Ralph
Associate Director of M.A.S.C.A.
University Museum

cc: Dr. Adelaide M. Delluva



International Business Machines Corporation

Thomas J. Watson Research Center
P.O. Box 218
Yorktown Heights, New York 10598
914/945-3000

December 13, 1971

Dr. Elizabeth Ralph
Applied Science Center for
Archeology
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

1/77
Leo Rideout
914-945-1744

Dear Dr. Ralph:

I'm very pleased that you will be able to present a seminar to the members of the General Sciences Department at the Research Center. I have put your name on the schedule for 11:00 A.M., Tuesday, February 15, 1971. We will provide an honorarium of \$150., and in addition we will want to assume your expenses associated with the visit. I hope that you will be able to spend part of the day with us so that members of the staff will have a chance to meet and talk with you.

We would like to hear a general talk on the use of scientific tools in archeology, with special emphasis on their role in your search for Sybaris. I will need the title of your talk and a descriptive abstract of a few lines before February 1, so that I can include it in our calendar.

Our department is a small group of about 20 professionals with a wide range of specialties. We have a life science group specializing in enzymes, proteins and photosynthesis; an environmental group specializing in hydrology; and a social sciences group with projects in traffic theory, economics and operations research. I recognize that the diversity of the group raises difficult questions as to the presentation, but I hope that if you assume the audience to be scientifically sophisticated but uninitiated in your field of research, you will be able to devise a suitable format.

Dr. Ralph
December 13, 1971
Page 2

The Research Center is located at the corner of N.Y. 134 and the Taconic State Parkway near Yorktown Heights, N. Y. The enclosed map may help you chart out a route. To be on the safe side perhaps you could plan to arrive about 10:00 A.M. If you wish to stay locally on Monday night please let me know and I will be glad to make a reservation for you. If I can be of any further help in making travel arrangements, please call me at 914-945-1708.

Sincerely yours,

R. Allan Freeze

R. Allan Freeze
Seminar Chairman
RAF:bbs

~~Call Personnel~~

Enclosures

January 26, 1972

Dr. R. Allan Freeze
Thomas J. Watson Research Center, IBM
P.O. Box 218
Yorktown Heights
New York, 10598

Dear Dr. Freeze:

Thank you for your letter of December 13, 1971. I have enclosed a short abstract and a copy of my curriculum vitae.

I think that I should like to stay locally on Monday night, February 14th, and shall appreciate it if you will make a reservation for me. If there is time to send me the name and address of the motel (or hotel), that would be helpful. Please do not worry about entertaining me before the speech because I shall be busy preparing it.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek



International Business Machines Corporation

Thomas J. Watson Research Center
P.O. Box 218
Yorktown Heights, New York 10598
914/945-3000

February 1, 1972

Prof. Elizabeth K. Ralph
Museum Applied Science Center for Archeology
The University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Prof. Ralph:

Thank you for your letter of January 26, 1972. We are looking forward to your visit and your talk.

I have reserved a room for you at the Yorktown Motor Lodge for the night of Monday, February 14th. This motel is located at the intersection of U.S. 202 and the Taconic State Parkway about 8 miles north of the Research Center. I believe I sent you some maps of the area that should allow you to find it and the laboratory easily. If you can arrive around 10:00 a.m., it will allow us ample time to arrange any audio-visual equipment you may need prior to the 11:00 scheduling of the talk.

If I can be of any further help, please call me at 915-945-1708 or at home at 914-628-7024.

Yours sincerely,

R. Allan Freeze

RAF:bbs

Archaeological Prospecting with Geophysical
Instruments

by

Elizabeth K. Ralph
Associate Director of MASCA

ABSTRACT

The reason for and the types of instruments which have been adapted for archaeological prospecting are explained. The main emphasis is upon the development and use of proton and alkali vapor magnetometers and their applications at sites such as the plain of Sybaris in southern Italy, Elis in Greece, and San Lorenzo in Mexico. Recent experiments with aerial and balloon photography for the detection of archaeological sites and structures are presented.

Two Dating Techniques for Archaeologists - C-14 and
Thermoluminescence

ABSTRACT

The first and main part of the talk will be devoted to C-14 dating. This will include an explanation of the method, samples which are appropriate, chemical pretreatments, sample processing in the laboratory, the methods of counting C-14, and the interpretation of C-14 dates. A discussion of the fluctuations of the atmosphere inventory in past times and the method of correcting for these by means of tree-ring dated bristleconespines will be presented.

The technique of dating pottery by thermoluminescence and some of its problems and results will be explained.



Society for Applied Spectroscopy

rec'd 2/15/72

Lehigh Valley Section

Send reply to: Gary A. Feldman
Homer Research Laboratories
Bethlehem Steel Corporation
Bethlehem, Pa 18016
Telephone: 694-6906

Miss Elizabeth Ralph
University Museum
33rd and Spruce Streets
Philadelphia, Pa.

Dear Miss Ralph:

This is to follow up on our telephone conversation of February 11, concerning your being our guest speaker at our March 10 meeting in Allentown, Pa. This particular meeting is our College Night and we will be presenting awards to outstanding students from colleges in the Lehigh Valley. The attendees will be spectroscopists from various industrial laboratories, faculty and students from area colleges.


Your suggested topic of "C14 Dating of Archaeological Artifacts" will be fine. Normally the speaker requested to limit their talks to no more than one hour, following the talk there is usually a short question period.

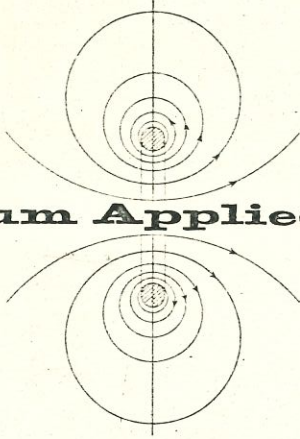
It is our chapters policy to pay the speakers expenses and grant them an honorarium. I will be contacting you next week to give you details as to time and place. In addition, at that time you can tell me what type of accomodation you want, you mentioned that you might want to stay overnight.

In the meantime, if you could prepare a short abstract of your talk and some biographical data I would be most appreciative.

Thankyou for your cooperation, and I am looking foward to our meeting.

Sincerely yours,


Gary A. Feldman



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"

February 26, 1972

Dr. Gary A. Feldman
Homer Research Laboratories
Bethlehem Steel Corp.
Bethlehem, Pa. 18016

Dear Dr. Feldman:

Thank you for your recent letter. I have enclosed an abstract of my talk and a copy of my Curriculum Vitae. I have changed the title, and I hope that this is all right with you. Since we date bits of charcoal, etc. that are associated with artifacts but not the objects themselves, I thought that the other title might be misleading.

Unless there is a big snowstorm or other complications, I shall plan to return to Philadelphia after my talk because I have to be here unexpectedly early on Saturday morning.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Cable: "GEOMETRICS" Palo Alto
Telex No. 345525

March 2, 1972

Miss Beth Ralph
Applied Science Center for Archaeology
University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Beth:

I hope your work in Egypt went well.

The Society of Exploration Geophysicists are holding their next meeting in Mexico City on October 21 through 25 of this year. At this meeting there will be, for the first time ever, a session on "Geophysics and Archaeology". As Chairman of the session, I would like to invite you to present a paper on the subject.

There will be a total of six papers presented in the session, which I hope will be representative of all of the principal geophysical techniques as applied to archaeology. Therefore, would you be willing to present a paper on dating techniques? I am also going to ask George Bass, Marty Aitken, and Luis del Castillo (from Mexico), (& myself). Do you have any other suggestions for others I should ask?

There are usually 5000 geophysicists in attendance at this meeting primarily involved in oil and mineral exploration, many of whom should find this a very lively and interesting subject. I look forward to hearing from you soon.

Best regards,

Shelly
Sheldon Breiner
Chairman, Session on
Geophysics and Archaeology

SB:sk

*P.S. Daws found a periodicity of
450 and 2300 years in your C¹⁴ dates.*

*Frank
(Ralph - Prof.
A.T.)*

*Circuit dia.
EMR proposed
changes*



Remote Sensing and
Interpretation



Society for Applied Spectroscopy

Lehigh Valley Section

Send reply to: ~~G. J. McMANEMIN - DEPT. 5150~~
~~WESTERN ELECTRIC CO.~~
~~555 UNION BOULEVARD~~
~~ALLENTOWN, PA. 18103~~

March 21, 1972

Dr. Elizabeth Ralph
Applied Science Center for Archeology
University of Pennsylvania Museum
Philadelphia, Pa.

Dear Miss Ralph:

On behalf of Gary Feldman and the officers and members of the Lehigh Valley Section, SAS, I would like once again formally to thank you for having helped make our March 10 "College Night" meeting the success that it was. Your most excellent presentation held the interest of spectroscopists, students, and wives alike.

If you are ever in the Lehigh Valley area on the second Friday of any month, please know that you are most welcome to drop in to our monthly meeting.

Once more, please accept our sincere gratitude.


Gregory J. McManemin, Secretary

cc: G.A. Feldman

April 22, 1972

Dr. T. A. Rafter
Institute of Nuclear Sciences
Lower Hutt, New Zealand, D.S.I.R.

Dear Dr. Rafter:

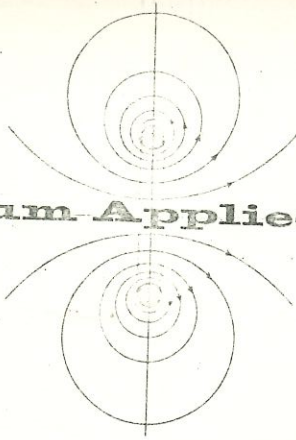
In regard to the International Radiocarbon Dating Conference on 18-25 October, 1972, I am writing to say that in December 1971, we were more optimistic about obtaining funds to travel to New Zealand than we are now. At that time we submitted titles for four papers (by Michael, Han, Lawn and Ralph).

It now appears likely that only two of us, at the most, will be able to attend and possibly only myself. In the case of the latter, I shall plan to give my talk entitled "Relationship between Changes in the Magnetic Intensity and the Atmospheric Carbon-14 Inventory," and will report also on our latest results of dating bristlecone pine samples. If Henry Michael is able to come, he will report on the bristlecone pines. If you receive from Henry Michael a copy of his intended paper by July 1st, 1972, then it will be likely that he will attend.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek



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
594-7400 (Area Code 215) Cable Address "Antique"

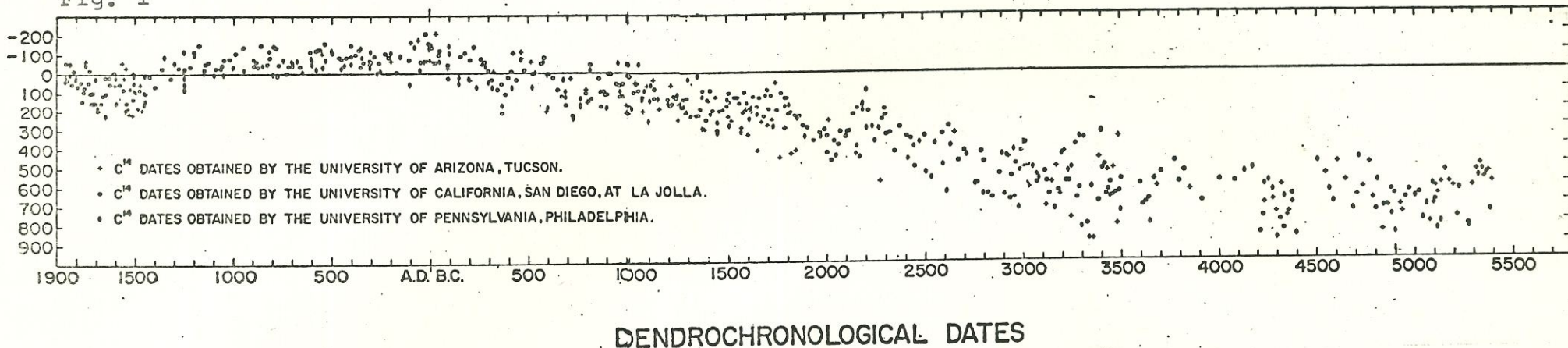
October 6, 1972

In August you were sent a preprint of Michael and Ralph paper to be presented at the International Radiocarbon Conference in New Zealand, October 18-25, 1972. Since then it was realized that the correction tables were in error. Please destroy the original preprint and replace it with the one enclosed.

DEVIATION OF C¹⁴ DATES

YEARS

Fig. 1

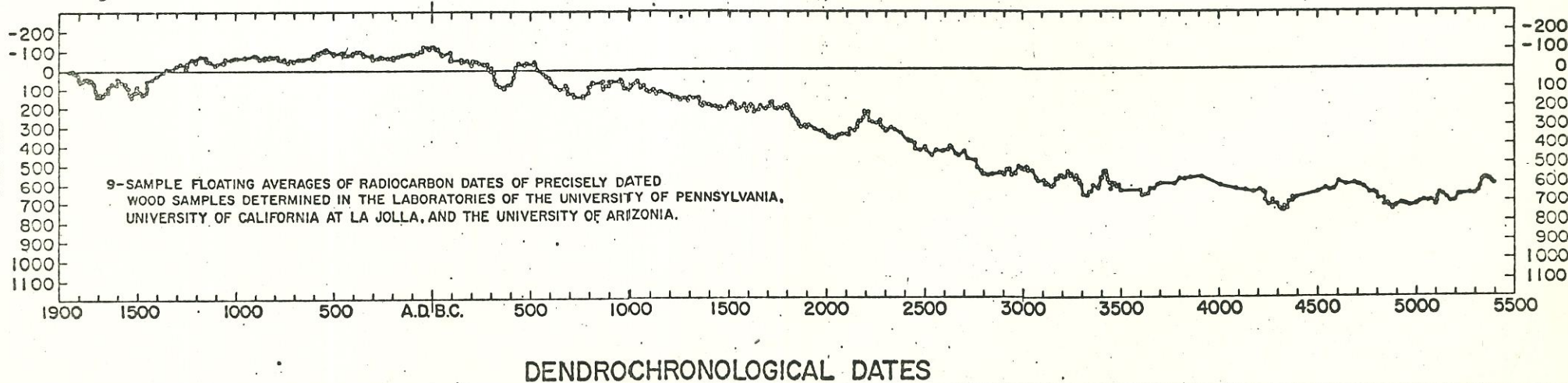


DENDROCHRONOLOGICAL DATES

DEVIATION OF C¹⁴ DATES

YEARS

Fig. 2



DENDROCHRONOLOGICAL DATES

3111 24.
Preprint of Michael and Ralph paper to be presented at the
International Radiocarbon Conference in New Zealand, October
18-25, 1972.

DISCUSSION OF RADIOCARBON DATES
OBTAINED FROM PRECISELY DATED
SEQUOIA AND BRISTLECONE PINE SAMPLES.

BY HENRY N. MICHAEL AND ELIZABETH K. RALPH
MUSEUM APPLIED SCIENCE CENTER FOR ARCHAEOLOGY,
UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PENNSYLVANIA 19104

ABSTRACT

The purpose of this paper is to present to the archaeologist in
tabular form a set of correction factors for radiocarbon dates of
archaeological samples. The method by which the correction factors
have been derived is presented.

DISCUSSION OF RADIOCARBON DATES OBTAINED FROM PRECISELY DATED
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In previous publications (1,2,3,4) we have discussed the relationship of radiocarbon dates of precisely dated rings of sequoias and bristlecone pines, and have suggested correction factors for the discrepancies between the two. Of necessity the correction factors had to be regarded as preliminary since the number of samples dated in our laboratory was relatively small for the chronological distance covered, and more important, there were large gaps in the sequence, particularly in the fourth and fifth millennia B.C.

Today this situation has been corrected, to a degree, by the dating of additional samples, both at Pennsylvania and at Arizona. Samples from the Arizona laboratory include those published (5) and subsequently revised by Damon (6) as well as additional unpublished samples which Dr. Damon kindly let us use for our calculations. Also, it has been possible to derive from a published graph of Suess (7) some 290 additional radiocarbon dates of precisely dated woods. Since Suess' dates have not been published in list form, they were read from an enlarged graph and some of them probably contain a small error, which we believe does not exceed plus or minus ten years. Suess' radiocarbon dates were converted to the 5730 half-life so that they could be compared with ours and the ones dated at Arizona.

In Fig. 1 we have plotted all of the accepted C^{14} dates for tree-ring-dated samples processed in the laboratories at Arizona, La Jolla, and Pennsylvania, the three laboratories in the world which have concentrated their efforts in dating extremely long series, especially, in the B.C. millennia. In this plot there are 132 dates from Arizona, 286 from La Jolla, and 186 from Pennsylvania. A few dates from each laboratory, that were obviously divergent, have been rejected by means of various criteria (11 for Arizona, 3 for La Jolla, and 11 for Pennsylvania). The dates as shown in Fig. 1 exhibit some scatter, but the important observation is that on the average, there is excellent agreement among the three laboratories. Except for isolated deviations, the trends among all three are the same.

Since the raw data as plotted in Fig. 1 are representative of C^{14}

dates calculated within a one sigma tolerance of about 1/2 per cent accuracy, one would expect one in three to deviate at least, by more than 1/2 percent. Therefore, to reduce this statistical scatter, we have calculated 9-sample floating averages of the deviations from true ages, 604 in all, obtained in the three laboratories. The resultant "regression" curve is shown in Fig. 2. We selected a 9-sample interval as being appropriate in that this form of averaging tends to reduce the statistical uncertainty by a realistic amount - namely, $1/9$, or by $1/3$.

If we now compare the calibration curve of Fig. 2 with that of Suess (7), we find that the general trend of both curves is remarkably close. In this connection it should be noted that the new composite curve supports many of the pronounced "kinks" or "wiggles" plotted by the La Jolla laboratory. For example, the two large oscillations between A.D. 1300 and 1800, and again those at 750 B.C. and 350 B.C. are nicely confirmed. Some of the smaller "wiggles", and especially those of shorter duration, which of necessity, were based upon fewer samples in Suess' curve are negated.

The long period of 1600 years from A.D. 1300 to 300 B.C. is remarkable for its lack of pronounced oscillations. This period is represented by 137 samples. (The number of individual samples processed in each laboratory may be obtained from Fig. 1).

Between 300 and 400 B.C. the curve becomes positive, that is, the C-14 results are younger than expected. From 540 B.C. on, the averaged results become progressively younger, although several oscillations do occur.

Continuing back in time, the long period from 800 B.C. to 1800 B.C. shows no large oscillations. Other undulations which are confirmed by a sufficient number of samples occur at 2200 B.C. (negative), between 3100 and 3500 B.C. (possibly both negative and positive), between 4200 and 4400 B.C. (positive), and there appears to be one between 5300 and 5400 B.C. The relative smoothness of the curve in the ranges 3500-4200 B.C. and 4400-4700 B.C. may be due to the lack of a sufficient number of samples. If we observe the gently sloping and essentially non-oscillating trend of the last two millennia, we may project that the small number of entries in this period is not as negatively significant as in those portions of the curve where pronounced oscillations do occur. Even though they are suggestive, we regard the correction factors for the final 1900 years as preliminary until more samples can be analyzed and we may

add that this is being done at the present time.

Having satisfied ourselves that the results of the three laboratories are close enough to form a good base, we proceeded with the compilation of a table of correction factors. By averaging the appropriate 9-sample floating averages for the periods stated below, correction factors were derived for each 50-year period, starting with A.D. 1849 and extending to 4849 B.C. The correction factors are listed in the attached Table 1. In it, the user should place the radiocarbon date (converted to the 5730 half-life* and in the presently used A.D./B.C. calendrical system) in the appropriate 50-year period and then add or subtract the number of years stated in the second column opposite the period of placement of the uncorrected radiocarbon date.

We have used the correction factors as presented in Table 1 in several cases of disputed uncorrected radiocarbon dates from several archaeologically and historically well-dated Egyptian dynasties and have found the results to be close to the archaeological or historical dating.

Information available in June 1972, indicates the dendrochronology of bristlecone pines has been extended by several hundred years and that samples will be available for additional radiocarbon analyses (8). The correction factors arising from these analyses should prove particularly important to those archaeologists dealing with the middle and early Neolithic periods of Europe and the Middle East.

In sum, the addition to the 186 Pennsylvania dates of more than 400 from the La Jolla and Arizona laboratories has formed a more solid base than before in the derivation of correction factors and, in our minds, is a considerable improvement over our previous efforts based on relatively few samples. We urge that the conference adopt these correction factors for the adjustment of radiocarbon dates at this time.

*Radiocarbon dates reported with the 5568 half-life may be readily converted by multiplication of the B.P. date with the factor of 1.03.

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8. Personal communication, C. W. Ferguson.

ACKNOWLEDGEMENTS

The support of the National Science Foundation through GA-12572 for the known-age program is gratefully acknowledged.

We thank Dr. Paul Damon of the University of Arizona for sending us 66 unpublished dates, 65 of which we have included in this paper.

We thank Mark Han of MASCA for his generous help in checking the calculations. We thank Joseph Guerrero, Jr., Department of Physics, for the drafting of the figures, and Barbara Lawn, John Hedrick, and Raymond Costa for processing the previously unpublished samples of bristlecone pines in our radiocarbon laboratory.

TABLE 1: MASCA CORRECTION FACTORS. SUGGESTED METHOD OF ADJUSTMENT OF RADIOCARBON DATES TO CALENDRIC DATES BASED ON THE DETERMINATION OF AVERAGE DEVIATIONS FOR 50-YEAR PERIODS STARTING WITH A.D. 1849 AND EXTENDING TO 4849 B.C. RADIOCARBON DATES ARE CALCULATED WITH THE 5730 HALF-LIFE.

Time period into which uncorrected radiocarbon date calculated with the 5730 half-life falls	Amount of correction in years to be added to or subtracted from the A.D./B.C. radiocarbon date calculated with the 5730 half-life	Number of samples on which the correction factor is based
A.D. 1849-1800	Subtract 54	10
A.D. 1799-1750	Subtract 64	6
A.D. 1749-1700	Subtract 111	8
A.D. 1699-1650	Subtract 84	10
A.D. 1649-1600	Subtract 84	7
A.D. 1599-1550	Subtract 70	8
A.D. 1549-1500	Subtract 25	5
A.D. 1499-1450	Subtract 4	2
A.D. 1449-1400	Subtract 19	1
A.D. 1399-1350	Subtract 17	0*
A.D. 1349-1300	Subtract 14	4
A.D. 1299-1250	Add 4	3
A.D. 1249-1200	Add 31	3
A.D. 1199-1150	Add 42	1
A.D. 1149-1100	Add 51	7
A.D. 1099-1050	Add 50	4
A.D. 1049-1000	Add 45	2
A.D. 999- 950	Add 46	2
A.D. 949- 900	Add 50	2
A.D. 899- 850	Add 61	3
A.D. 849- 800	Add 50	7
A.D. 799- 750	Add 34	3
A.D. 749- 700	Add 61	5
A.D. 699- 650	Add 74	6
A.D. 649- 600	Add 59	5
A.D. 599- 550	Add 55	2
A.D. 549- 500	Add 67	3
A.D. 499- 450	Add 88	3

*Correction factor derived from averages of previous and following 50-year periods.

A.D. 449- 400	Add	92	4
A.D. 399- 350	Add	88	7
A.D. 349- 300	Add	67	3
A.D. 299- 250	Add	65	7
A.D. 249- 200	Add	72	6
A.D. 199- 150	Add	60	4
A.D. 149- 100	Add	60	3
A.D. 99- 50	Add	66	2
A.D. 49- 1	Add	77	2
1- 49 B.C.	Subtract	76*	3
50- 99 B.C.	Subtract	59*	7
100- 149 B.C.	Subtract	48	8
150- 199 B.C.	Subtract	20	10
200- 249 B.C.	Subtract	53	5
250- 299 B.C.	Subtract	6	6
300- 349 B.C.	Subtract	14	8
350- 399 B.C.	Add	33	3
400- 449 B.C.	Add	92	4
450- 499 B.C.	Add	95	4
500- 549 B.C.	Add	42	6
550- 599 B.C.	Add	40	8
600- 649 B.C.	Add	59	5
650- 699 B.C.	Add	95	6
700- 749 B.C.	Add	117	2
750- 799 B.C.	Add	131	6
800- 849 B.C.	Add	123	5
850- 899 B.C.	Add	84	7
900- 949 B.C.	Add	75	7
950- 999 B.C.	Add	117	7
1000-1049 B.C.	Add	130	8
1050-1099 B.C.	Add	158	10
1100-1149 B.C.	Add	189	11
1150-1199 B.C.	Add	209	4
1200-1249 B.C.	Add	246	3
1250-1299 B.C.	Add	214	11
1300-1349 B.C.	Add	182	5

* A negative result of the subtraction places the corrected date in the A.D. era.

1350-1399 B.C.	Add 206	8
1400-1449 B.C.	Add 227	12
1450-1499 B.C.	Add 203	4
1500-1549 B.C.	Add 236	4
1550-1599 B.C.	Add 270	8
1600-1649 B.C.	Add 248	11
1650-1699 B.C.	Add 282	9
1700-1749 B.C.	Add 349	2
1750-1799 B.C.	Add 345	6
1800-1849 B.C.	Add 337	0*
1850-1899 B.C.	Add 328	1
1900-1949 B.C.	Add 349	5
1950-1999 B.C.	Add 385	8
2000-2049 B.C.	Add 291	5
2050-2099 B.C.	Add 319	6
2100-2149 B.C.	Add 418	3
2150-2199 B.C.	Add 533	7
2200-2249 B.C.	Add 573	1
2250-2299 B.C.	Add 509	8
2300-2349 B.C.	Add 480	4
2350-2399 B.C.	Add 545	3
2400-2449 B.C.	Add 615	3
2450-2499 B.C.	Add 627	12
2500-2549 B.C.	Add 579	9
2550-2599 B.C.	Add 545	4
2600-2649 B.C.	Add 580	3
2650-2699 B.C.	Add 599	5
2700-2749 B.C.	Add 624	2
2750-2799 B.C.	Add 639	7
2800-2849 B.C.	Add 619	4
2850-2899 B.C.	Add 592	3
2900-2949 B.C.	Add 526	7
2950-2999 B.C.	Add 494	2

*Correction factor derived from averages of previous and following 50-year periods.

3000-3049 B.C.	Add 505	0*
3050-3099 B.C.	Add 525	3
3100-3149 B.C.	Add 550	1
3150-3199 B.C.	Add 537	1
3200-3249 B.C.	Add 590	3
3250-3299 B.C.	Add 660	2
3300-3349 B.C.	Add 701	1
3350-3399 B.C.	Add 710	0*
3400-3449 B.C.	Add 718	3
3450-3499 B.C.	Add 764	2
3500-3549 B.C.	Add 740	4
3550-3599 B.C.	Add 697	4
3600-3649 B.C.	Add 648	2
3650-3699 B.C.	Add 626	4
3700-3749 B.C.	Add 650	2
3750-3799 B.C.	Add 649	0
3800-3849 B.C.	Add 648	0
3850-3899 B.C.	Add 647	0
3900-3949 B.C.	Add 645	2
3950-3999 B.C.	Add 688	3
4000-4049 B.C.	Add 691	3
4050-4099 B.C.	Add 672	3
4100-4149 B.C.	Add 699	6
4150-4199 B.C.	Add 690	1
4200-4249 B.C.	Add 676	6
4250-4299 B.C.	Add 708	4
4300-4349 B.C.	Add 714	4
4350-4399 B.C.	Add 724	2
4400-4449 B.C.	Add 701	3
4450-4499 B.C.	Add 676	2
4500-4549 B.C.	Add 672	1
4550-4599 B.C.	Add 638	2
4600-4649 B.C.	Add 607	2
4650-4699 B.C.	Add 599	2
4700-4749 B.C.	Add 592	0*
4750-4799 B.C.	Add 585	4
4800-4849 B.C.	Add 561	3

* Correction Factor derived from averages of previous and following 50-year periods.

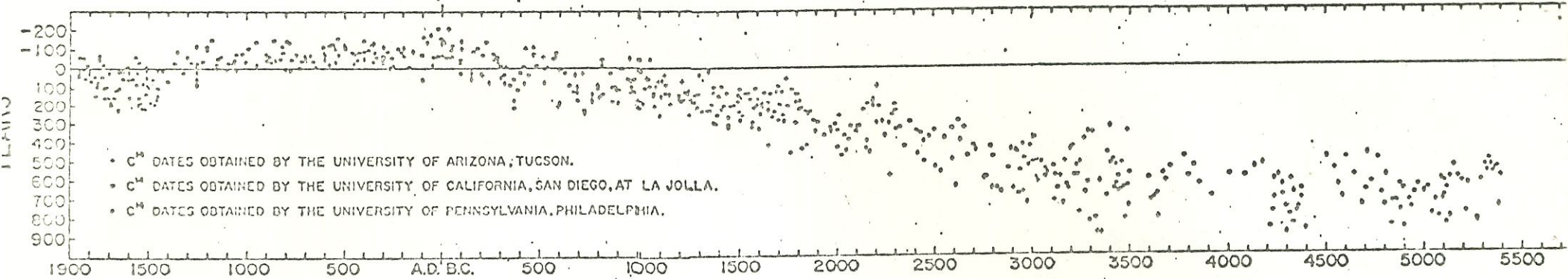


Fig. 1

DENDROCHRONOLOGICAL DATES

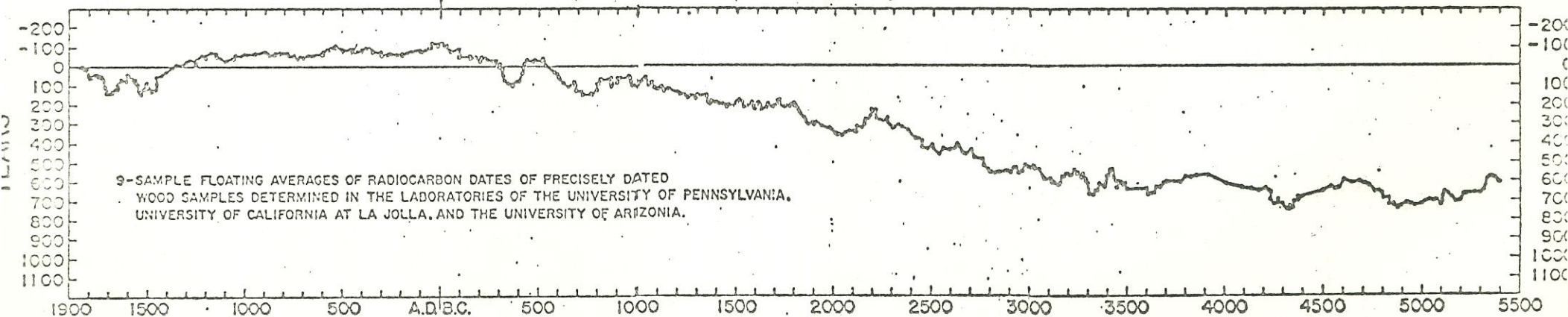


Fig. 2

DENDROCHRONOLOGICAL DATES

APPLICATION OF NUCLEAR METHODS IN THE FIELD OF WORKS OF ART

INTERNATIONAL CONFERENCE - Venice, 1973

Organizing Committee

Chairman : Prof. S. Sciuti

Secretary : Dr. F. V. Frazzoli

Secretariat

Viale Regina Margherita, 125

c/o C. N. E. N.

00198 ROMA (Italia)

Rome, July 21st, 1972

Miss Elizabeth K. RALPH
Museum Applied Science
Center of Archeology
The University Museum
University of Pennsylvania
33rd and Spruce Streets
PHILADELPHIA, PA 19104 (U.S.A.)

Dear Miss Ralph,

with reference to the informal meeting held in Rome on 8th June, concerning the organization of the International Conference on the "Application of Nuclear Methods in the Field of Works of Art", I wish to inform you that, as announced during the above-mentioned meeting, proposals are in progress for having Venice - and namely the G. Cini Foundation on the Isola di San Giorgio - as seat of the Conference.

In the meantime, and in order to facilitate a prompt preparation of the greatest possible number of scientific reports to be presented at the Conference, I should be very grateful if you would give the utmost diffusion to our initiative.

With this object in mind, I am mailing you enclosed herewith copies of Bulletin N. 1 and I would ask you to be so kind as to forward them to all Laboratories which, in your opinion, are specialized (or interested) in the field and would therefore be willing to attend the Conference.

Looking forward to receiving an early reply, if possible containing your suggestions or communications in this connection, I wish to thank you in advance for your valuable cooperation and remain,

Yours sincerely,

Prof. 
(Sebastiano Sciuti)

Encl. 1

APPLICATION OF NUCLEAR METHODS IN THE FIELD OF WORKS OF ART

INTERNATIONAL CONFERENCE - Venice, 1973

Organizing Committee

Chairman : Prof. S. Sciuti

Secretary : Dr. F. V. Frazzoli

Secretariat

Viale Regina Margherita, 125

c/o C. N. E. N.

00198 ROMA (Italia)

BULLETIN N. 1

An accurate knowledge of the materials used in producing works of art (pigments, binding agents, alloy compounds, degradation products, etc.), is becoming increasingly important, both as regards their historical-critical evaluation as well as preservation.

It is this knowledge which can provide the certainty as to whether the work of art is an original or a fake, an ancient or modern creation, whether it is well preserved or structurally damaged, etc.

The need for subjecting works of art to chemical analyses has therefore become more and more apparent over the past few years. However, most of these analyses are destructive, as they involve the removal of fragments which, although small in size, are ultimately destroyed.

Consequently, in order to avoid the damage caused by the removal of such samples, it has often been necessary to exclude scientific examinations or, at least, to drastically limit their use. The application of new methods of investigation, based on the use of nuclear radiations, has therefore become a matter of great importance because it involves non-destructive analyses.

It must also be stressed that, insofar as the preservation of artistic property is concerned, nowadays nuclear radiations are used to a great extent to protect works of art against the harmful effects of chemical and biological environmental contamination.

INTERNATIONAL CONFERENCE - Venice, 1973

The application of nuclear radiations in the artistic field has become so important that we considered it worth-while to organize a Conference in Italy - a country which is particularly conscious of these problems in view of its cultural tradition and immense artistic wealth.


The Conference is due to the initiative of Istituto Centrale del Restauro, Programma Speciale Scienze Sussidiarie dell'Archeologia (CNR) and Laboratorio di Fisica Nuclare (Istituto di Fisica della Facoltà d'Ingegneria - Rome) and is being sponsored by Consiglio Nazionale delle Ricerche (CNR) and Comitato Nazionale per l'Energia Nucleare (CNEN).

A provisional scientific programme was drawn up during the preliminary meeting held in Rome on 8th June 1972, which was attended by many representatives of Italian and foreign Organizations.

To ensure the complete success of the Conference, the Laboratories likely to be interested should notify their acceptance at their earliest convenience and state the subjects of any papers they may wish to present.

The Conference will take place at the G. Cini Foundation, Isola di San Giorgio - Venice - towards the end of April or beginning of May 1973. The precise date and duration of the meeting, together with further particulars concerning the technical and organizational details, will be made known in Bulletin N. 2, which will reach you next November.

The Conference Secretariat will be pleased to provide any additional information that may be requested.


(Franco V. Frazzoli)

Roma, July 1972

APPLICATION OF NUCLEAR METHODS
IN THE FIELD OF WORKS OF ART

INTERNATIONAL CONFERENCE - Venice, 1973

Provisional Scientific Programme

A. Study of Works of Art

1. Neutron activation and radioisotope X-ray fluorescence for elemental analysis of paintings, illuminated manuscripts, potteries, bronzes, brasses and other alloys and materials.
2. Neutron activation autoradiography of paintings; neutron radiography as a complementary technique of X-ray radiography.
3. Other new techniques.

B. Conservation of Works of Art

1. Nuclear radiation sources for humidity measurements in frescoes and walls.
2. High intensity nuclear radiation sources for the sterilization of materials and for the treatment of porous materials impregnated by hardening resins.
3. Labelled compounds for the study of chemical, physical and microbiological degradation processes.
4. Various techniques.

August 3, 1972

Professor Sebastiano Sciuti
Viale Regina Margherita 125
c/o C.N.E.N.
00198 Roma
Italy

Egzeigio Professor Sciuti:

Thank you for the notice of the International Conference on the Application of Nuclear Methods in the Field of Works of Art to be held in Venice in 1973.

In our Applied Science Center for Archaeology (MASCA), we are naturally interested in all of the new techniques, but our application of them is directed more toward archaeology than to works of art. However, I realize that several of the new methods are applicable to both.

Our main efforts are devoted to carbon-14 dating, thermoluminescent dating of pottery, and archaeology ^{cal} prospecting, mostly with cesium magnetometers.

If you would like one of us to give a lecture on one of these subjects, and if travel expenses can be arranged, we should be glad to send some one to your conference. (There is a slight possibility that I may be travelling to Italy next spring for other reasons).

Our department of conservation is under the direction of Miss Virginia Greene and is not part of MASCA. I have given her a copy of your notice, but she would need funds for travel in order to attend.

With best wishes for the success of your conference and with the hope that you will keep us informed, I am,

Sincerely yours,

Elizabeth K. Ralph

EKR/ek