

Agn

UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 19104

The College

September 30, 1974

DEPARTMENT OF PHYSICS

Professor Walter D. Wales, Chairman
Department of Physics
2E13 DRL/E1

Dear Professor Wales:

In the Radiocarbon Laboratory we have been using cosmic ray Geiger counters (in an anti-coincidence ring) which were manufactured in Gottingen, W. Germany by Zentralwerkstatt. Recently we sent 47 of these counters to Germany for refilling. We have just learned that the company is being liquidated and that the counters cannot be refilled by them. However, they do have new ones in stock, and we should like to purchase 60 of them so that we will have a complete stock of spare counters.

The cost per counter is 130 DM which with 7% duty, would be about \$3000 for 60 G-M's. Unfortunately, we have only \$500 for Equipment in our Radiocarbon budget and no surplus in the supply category. Also, we requested only \$1200 for a badly-needed amplifier in our new NSF grant proposal.

Before purchasing Geigers from Germany we made an exhaustive search in the U.S.A. with no success in finding reliable counters. There may be a manufacturer in France and one in England, but both charge more than Zentralwerkstatt.

The life-time of the counters is 2 to 3 years. With a complete set of spares this should give us time to learn to refill the counters, find another supplier, or an alternative system of anti-coincidence.

At the moment we need \$2500.

Sincerely yours,

EKR

Elizabeth K. Ralph

EKR/cat

xc: ✓ Prof. Froelich G. Rainey, Director
University Museum
Prof. Ian Harker, Chairman
Dept. of Geology

HARVARD UNIVERSITY
HARVARD FOREST
PETERSHAM, MASSACHUSETTS
01366



Miss Eliz. K. Ralph.

27 Dec. 66.

Dear Beth:

I guess the enclosed is self-explanatory.

This was written up primarily for the files but there are several of my soil scientist and surficial geology friends who would find our unsuccessful trials of interest. I'd like your permission to circulate a copy of this rough draft or perhaps a mimeographed or duplicated copy - plus of course corrections and additions you wish to make.

I hope you had success at Tucson

Little late for Xmas greeting but here's

New Years greeting.

Walt

P.S. Am sending along some copies of recent papers that may be of interest. Think I may have given some of these to you when you were here, but three have come in lately.



**Australian
Institute of
Aboriginal
Studies**

*Acton House
Kendall Street
Acton, A.C.T.
Telephone 46 1111*

*Postal address:
P.O. Box 553
Canberra City, A.C.T. 2601
Telegraphic address: ABINST*

Ref. no.

C/ AIAS
3 March 1981

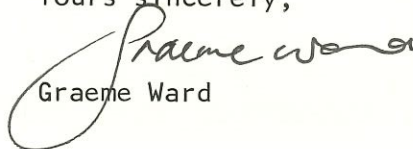
Dr E K Ralph
Associate Director
ASCA University of Pennsylvania

Dear Dr Ralph,

I'm enclosing a copy of the first issue of PANDA, a newsletter for archaeometrists and the like working in Oceania. I hope that is of some interest to you.

Is the MASCA Newsletter still being produced?

Yours sincerely,


Graeme Ward

ASSOCIAZIONE INTERNAZIONALE PER L'ARCHEOLOGIA CLASSICA

(INTERNATIONAL ASSOCIATION FOR CLASSICAL ARCHAEOLOGY)

Comitato per lo Studio del Marmo
e della Pietra nell' Antichità

Committee for the Study of Marbles
and Similar Stones in Antiquity

Secretary of the Committee:
Mr. J. B. Ward-Perkins
British School at Rome
Via Gramsci 61
Roma

*Raffaele
Bianchi
Dear Fro*

2nd May 1970

*Dear Perkins
to Roddy Young
re. last page
(over)*

Dear Fro,

I am very sorry to have missed you, not least because I had several items of information on queries for you.

Libya. This, we understand, is definitely off for 1970. The new Director General, Awad Sadawiya, is a very good appointment, but for that very reason is having to tread even more carefully than in fact every Libyan official is at this moment doing. They are all taking the only safe line - inaction. By 1971 things may well have changed.

Gizdulich. I have had no word and am keeping right out of this one, if I can!

Marble. Our work has reached the point where we have some very specific queries which cannot be resolved by any by scientific means. For example we have two marbles, Carrara and Djebel Filfila in Algeria, both used in Roman times and indistinguishable to the naked eye. Recently there has been criticism of the conventional thin-section microscopic analysis methods which are usually employed, and it is suggested that some sort of trace element analysis might be rewarding. Do you know any person or institution who might be interested in an experimental program? We would get the range of samples and set out the framework of enquiry. They would do a trial run of analysis, in the light of which we should hope to get an answer and to learn more of the scientific requirements for collecting samples. "We", by the way, is the International Committee on whose paper I am writing.

P.T.O.

*Trace elements
O¹⁸ analysis } or both
C¹³ analysis }*

ASSOCIAZIONE INTERNAZIONALE PER L'ARCHEOLOGIA CLASSICA

(INTERNATIONAL ASSOCIATION FOR CLASSICAL ARCHAEOLOGY)

Secretary of the Association
Mr. J. B. Ward-Perkins
University Museum
33rd and Spruce Streets
Philadelphia, Pa.
U.S.A.

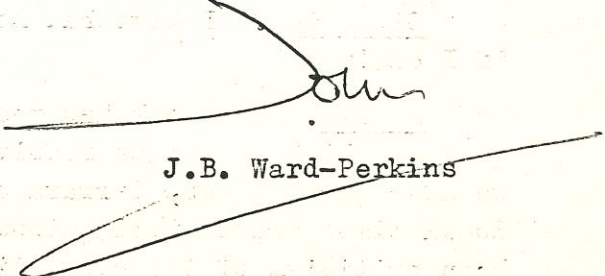
Comitato per lo Studio del Monumento
e della Storia dell'Architettura
Comitato per lo Studio di Monumenti
e Simili in Italia

STAMPED: MAY 1930

Finally, do you at this late stage of the year know of anybody who wants a first-class classical archaeologist for next year. Our man, Vickers, laboriously appointed last year to Benghasi University is (rightly) fed up and wants to leave. Both academically and personally he is a very good young man and I am very anxious to get him a decent job. If you know or hear of anything let me know. Anybody who gets him does very well for themselves. He has a nice wife and baby.

Better luck over meeting next time.

Yours ever,


J.B. Ward-Perkins

Mr. Froelich Rainey,
The University Museum,
Thirty-third and Spruce Streets,
Philadelphia, Pa. 19104.

May 12, 1970

Dr. J.B. Ward-Perkins
British School at Rome
Via Gramsci 61
Rome, Italy

Dear Dr. Ward-Perkins:

Fro Rainey has asked me to reply to your question about Marble. I think that trace element analyses might be useful. We are not equipped for them here, but possibly you could persuade Martin Aitken (Research Laboratory for Archaeology and the History of Art, 6 Keble Road, Oxford) to become interested in an experimental program.

It might also be worthwhile to look for slight variations in isotopic ratios such as O^{18} and C^{13} . These would have to be made with a very precise mass spectrograph. We do not have this here either.

If Martin Aitken is not interested, I suggest that you write to Dr. E.V. Sayre, Department of Chemistry, Brookhaven National Laboratory, Upton, New York.

Sincerely yours,

Elizabeth K. Ralph

EKR/mm

Professor S. Henry Wassén
Skånegatan 21
S - 412 51 GÖTEBORG

Skånegatan 21, S-412 51 Gothenburg, Sweden
November 25, 1981

Dr. Elizabeth K. Ralph,
University of Pennsylvania,
The College,
Department of Physics E1
Philadelphia, PA 19174
U.S.A.

Dear Dr. Ralph:

I am extremely thankful for your letter of November 13th
which arrived this morning.

Your most important information in regards to sample P-2662
came just in time when I was sitting typing my final manu-
script on the find of "semillas" in Dr. Llagostera's shell
midden Quebrada Las Conchas, Antofagasta, Chile. The bota-
nical work has in an excellent way been done by my co-author
Dr. W. Bondeson, Stockholm. We now know that it is a question
of endocarps, and also the family of the plants they came
from. Dr. Bondeson had from botanical points of view reasons
to believe that the material we worked on was not so old as
indicated by our colleague in Chile, and now your letter
tells me that he was on the right track.

Our report will be published in the Annual of the Gothenburg
Ethnographical Museum as soon as possible, and naturally I
will remember you and your Department with copies.

Sincerely yours,



S. Henry Wassén
Professor

Copy to Dr. W. Bondeson,
Surbrunnsgatan 28, 113 48 Stockholm.

Department of Anthropology
Faculty of Science
University of Tokyo
Motofuji-cho, Bunkyo-ku,
Tokyo, Japan

1st March, 1961

Miss Elizabeth K. Ralph
Department of Physics
University of Pennsylvania
Philadelphia 4, Penn.,
U.S.A.

Dear Miss Ralph,

Thank you very much for sending a copy of reprint of your valuable paper "Carbon-14 measurements of known age samples". The problem is so important to give a sound basis for the C-14 dating method. I look forward to hearing the results of your further studies on this sort of fundamental problems. I enclose here with my thanks to you a copy of reprint of my paper on the magnetic dating. I wonder if you might be interested in it.

I was most pleased to see you on my visit to your University last fall. I would like to tender my sincere gratitudes for your kindness.

With my best wishes to the successful development of your study.

Sincerely yours,

A handwritten signature in cursive script, reading "Naotune Watanabe". The signature is written in dark ink and has a fluid, connected style.

Naotune Watanabe

EE 537.97

[N. WATANABE]

13th October 1968

J925

Dear Dr. Ralph,

I apologize for so long delay of answering your letter of 17th September which I received in Tokyo just before my departure and a copy of which I found here at Department of Geology, the University of Arizona. I was so busy for a while before and after my trip over here that I could not have time to write you.

Now I should like to inform you that the data of the magnetic intensities which Nagata, Arai and Momose presented at the IUGG meeting in Berkeley are published in the quite recent issue of 15th September of Journal of Geophysical Research. I was informed of it from Dr. Nagata when I talked with him about your request. The issue of the journal did not reach Tokyo by that time, but I found it on my arrival here at the Univ. of Arizona. You will find a paper by Nagata, Arai and Momose in "Letters" of the journal at your university. And as I asked Mr. Arai to send you a copy of reprint of the paper when it becomes available, you will receive it in near future. If you want to communicate with the authors, the addresses are as follows:

Dr. T. Nagata and Mr. Y. Arai: Department of Geophysics,
Faculty of Science, University of Tokyo, Bunkyo-ku, Tokyo

Dr. K. Momose: Department of Geology, Shinshu University,
MATSUMOTO, NAGANO, SHINSHU, Japan

You wrote that you are interested in the magnetic intensities because of their bearing upon the atmospheric C^{14} inventory. I am also very much interested in the problem and we are going to carry out here a work on the intensity of remanent magnetism of archaeological materials from the Southwest. As you know, the tendency of changes in the intensity of geomagnetism for the past 2000 years in France, Russia and Japan is very similar, but the data with regard to this continent are lacking. You may be interested in the result of our work if it could successfully be achieved. Another main aim of my project here is to pursue the secular variation in the direction of geomagnetism for the last 1500 years or more in the Southwest which is also unknown yet. My interest is to compare the result with those obtained so far in Japan, France, England and Russia for checking the applicability of the so-called magnetic dating. At any rate, the Southwest is, I guess, the best field in the world to obtain the materials for these sorts of study because the materials can be well dated by

P. T. O.

means of the tree-ring. I am happy to come and stay here for a year engaging in a project on these subjects with Dr. R. L. Dubois who is geologist and has been engaged in palaeomagnetic works on rocks of more remote geological times.

I appreciate so much your kindness to have sent me the reprints of your papers. I heartily hope to have chance to see you again within my stay in this country.

8428

FIRST FOLD



Dept. of Geology, Univ. of Arizona, Tucson, Arizona

Dr. Elizabeth K. Ralph
Dept. of Physics
Univ. of Pennsylvania
Philadelphia 4, Pa.

AÉROGRAMME • PAR AVION



Tracing Paper 36 x 24

SECOND FOLD

With my best regards to you.

Sincerely yours,

Naotune Watawate
Research Associate
Department of Geology
The University of Arizona

Jeanette -
Please call me about these.
Beth

THE AMERICAN UNIVERSITY

MASSACHUSETTS AND NEBRASKA AVENUES, N.W.

WASHINGTON 16, D. C.

Department of Physics

5 February 1963

Ralph

Dr. Froelich G. Rainey
Director of the University Museum
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Dr. Rainey:

I was most interested to read in the New York Times, in an item dated November 11, 1962, of your work with scientific instruments in archaeological exploration.

The article mentioned that work was in progress at the Museum on a promising new sonic device which it expected to test this spring. I would be most interested to have further information on this device, if it is available. We in this Department have carried on various projects in the field of acoustics, and like to keep abreast of such developments. But also I have an interest in archaeology and had read about the proton magnetometer in the Oxford magazine.

We will be glad to have any information you may have available and hope that the tests on the instrument will be successful.

Yours truly,

Richard V. Waterhouse.

Richard V. Waterhouse
Research Professor in Physics

tlg

February 8, 1963

C
O
P
Y

Professor Richard V. Waterhouse
Department of Physics
The American University
Massachusetts and Nebraska Aves., N.W.
Washington 16, D. C.

Dear Professor Waterhouse:

Dr. Rainey has asked me to reply to your letter of February 5th in regard to our work with sonic devices.

The enclosed report of our field surveys illustrates our problems at Sybaris and the lack of success with the MacLaughlin prototype. I have included also a hodge podge which I wrote entitled "Problems in the Development of a Sonic Instrument." I decided after writing this that I should wait for publication until we have something operable, but have sent it to you since it describes more or less how we have been stumbling around.

The measurements which the Petty Co. are making are beginning to give us some concrete information and after they have completed experiments this month with more powerful transducers, we shall know whether or not it will be possible to put together some workable components (not miniaturized) for use at Sybaris this spring.

We should be glad to receive your suggestions for overcoming the problems of introducing higher frequency waves into the ground,

Sincerely yours,

encl.
EKR:DML

Elizabeth K. Ralph

THE AMERICAN UNIVERSITY

MASSACHUSETTS AND NEBRASKA AVENUES, N.W.

WASHINGTON 16, D. C.

Department of Physics

18 February 1963

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

WATERHOUSES

Dear Madam:

Thank you for your letter of February 8 and the enclosures. I was most interested to learn more of your developments of sonic instruments and of your archaeological work in Italy. As regards suggestions for getting more acoustic power into the ground at higher frequencies, I have the following comments:

1. The chief difficulty in using a sonic detector of this type appears to be the high attenuation of the ground, as this follows an exponential law, as you state. Thus an increase of power input by a factor N does not in general increase the range by the same factor. Doubling the power input will increase the range only a few percent for high values of attenuation. However, of course one wants to get as much power into the ground as possible.

2. In going (a) from the surface of the vibrator (solid) into the (liquid) medium and thence (b) into the earth (solid), the signal is subject to loss by mismatching of impedance at each transition (a) and (b). Thus, consideration might be given to the idea of designing a transducer to couple directly into the ground, possibly with liquid poured around if the surrounding soil is porous. Some data on the impedance of soils for some types of excitation is available.

3. The coupling of such a vibrator to the earth should be such as to maximize energy-transfer into body waves, rather than surface waves of the ground. This might be done by using a vibrator of suitable size and shape, and will also depend on the depth underground at which it operates.

4. In considering how to improve the power transfer into the ground from a vibrator working into a liquid, the following idea occurred to me. The liquid could be a wax or resin of low melting point heated by an electric coil next to the transducer so that the wax is liquid near the transducer, and solid at the outer surface in contact with the earth. For certain mixtures of wax, there will be a liquid/solid transition region that is not sharply defined in space or temperature, where the wax is soft, and may act as a good coupling medium for the acoustic energy from liquid to solid. The plastic zone in question might attenuate strongly the sound waves passing through it, yet still give an overall gain.

WAX

Miss Elizabeth K. Ralph
Page 2
18 February 1963

I would be delighted to discuss these matters further with you whenever an opportunity presents itself, and would be very glad to have you visit us here at the University if this happens to be convenient to you. It is possible that we might pursue a little work on one of the above topics here with the aid of a student in our Physics Department.

Yours sincerely,

Richard V. Waterhouse

Richard V. Waterhouse
Research Professor of Physics

tlg

P.S. If you would like me to return the documents you sent, please let me know.

3 May, 1960

Signals
Dr. G.S. Waters
Research and Development Establish ment
Christchurch, Hants
England

Dear Dr. Waters:

I should like very much to receive a reprint of your article entitled "A Nuclear Magnetometer" which appeared in the Journal of Scientific Instruments, vol. 35 in March 1958.

I shall also be grateful to you to receive a copy of the article about the transistorized counter chronometer which was mentioned on page 92 (Feb. 5, to be published by C.G. Bradshaw) if one is available in your laboratory.

Sincerely yours,

Elizabeth K. Ralph

Elizabeth K. Ralph
Radiocarbon Laboratory



DEPARTMENT OF PHYSICS

Telephone: Royal 6022

Norman
Watkins

THE CHADWICK LABORATORY
THE UNIVERSITY OF LIVERPOOL
LIVERPOOL 3

11/1/65.

Dr B. Rolf, University Museum,
University of Pennsylvania, Phil.

Dear Dr Rolf,

I recently visited Dr Attkin at Oxford.

He told me of your interest in setting up a laboratory in Egypt.

It may interest you to know that there is an Egyptian physicist very interested in such a project. His name and address:

Dr Mohamed Fahim,

Helwan Observatory, Cairo, Egypt, U.A.R.

He has actually made a start on archaeomagnetic work, but is short of funds and personnel. He is a London University Ph.D. and is on several international bodies.

In addition

Dr Herbert W. Dick,

Alamosa State College, Alamosa, Colorado.

who has worked on Pueblo pottery & excavations at his research center in New Mexico for several years, has persuaded several groups to collect

orientated samples in Egypt, for archaeomagnetic work. He also
samples in New Mexico. You could write to him about this.

My own interests are in paleomagnetism, and I am a
visiting fellow here, from Stanford, California. I'll return next
summer to USA and carry on with Dr Dick's work. Archaeomagnetic
work in North America is at present carried on by

1. Dr R. L. Dubois

Dept of Geology, University of Arizona (Tucson)

2. Dr K. Kobayashi

Dept of Earth and Planetary Sciences,

University of Pittsburgh.

I hope that this might be of some help to you. If
you need help with setting up any apparatus, I might be of further
help to you.

Yours sincerely,

Norman Watkins

January 25, 1965

Dr. Norman Watkins
Department of Physics
The Chadwick Laboratory
The University of Liverpool
Liverpool 3, England

Dear Dr. Watkins:

Thank you very much for your letter of January 11th and for your helpful information.

I have become interested in archaeomagnetism because of the possible effect of past changes in magnetic intensity upon the atmospheric C^{14} inventory. However, since most of my practical experience has been with nuclear detectors and related apparatus, I am not eager to plunge into the field of archaeomagnetic measurements. My thought is that since our Museum supports so many field expeditions annually, that we could assist with the collection of samples, especially ones representative of earlier periods (pre 600 B.C.). If need be, we can also date associated organic carbon samples in our C^{14} lab.

My hope is that the facilities of laboratories will be available for the remanent magnetic measurements. As a small start in this direction, we are collaborating with Hugh Bergh (Dept. of Geology) at Princeton University. They are just now building a magnetometer that may be suitable so that no results have been obtained.

The Museum hopes to start an extensive program of excavation in Egypt this year or next. When this materializes, we shall certainly get in touch with Dr. Mohamed Fahim. In the meantime I'll write to Dr. Zaky Iskander, (Director of the Laboratory, Dept. of Antiquities, Cairo) who is familiar with our interests in case any work can be started sooner.

We shall be glad if you have time to visit us on your way home or at any other time.

Sincerely yours,

Elizabeth K. Ralph

EKR/deh

UNIVERSITY OF FLORIDA
UNIVERSITY COLLEGE
GAINESVILLE, 32611

February 18, 1975

DEPARTMENT OF SOCIAL SCIENCES

Dr. Mark Han
MASCA
University of Pennsylvania Museum
33rd & Spruce Streets
Philadelphia, Pennsylvania 19174

Dear Mark:

When I was in Philadelphia a couple of weeks ago, I talked to you about the possibility of a student, Jim Watson, spending some time with you, Dr. Ralph, and others at MASCA in order to learn some of your procedures.

If it is agreeable with you, Jim would like to come in May and spend as much of the month as you feel is necessary. We have no funds for him; therefore, he will be footing the bill himself. Do you know of an inexpensive place he might stay for such a short time.

I will follow this letter with a phone call in about a week.

Our proposal is shaping up and we hope to submit it within two or three weeks. I want to thank you again for giving so generously of your time while I was there. Say hello to Elizabeth Ralph and Claudia Medoff for me.

Best regards,

Barbara

Barbara A. Purdy
Assistant Professor
Anthropology & Social Sciences

February 20, 1975

Dr. Barbara A. Purdy
Assistant Professor
University of Florida
University College
Department of Social Sciences
Gainesville, Florida 32611

Dear Professor Purdy:

Sinceryour visit to Philadelphia, we have had some bad news - namely, that our next NSF grant is being reduced severely and it has also been delayed. Therefore, we have been forced to terminate three people. As a result, we are terribly short-handed.

As much as we should like to instruct Jim Watson, it does take time from our regular duties. Therefore, we think it would be best to delay his visit until you are sure of your grant. Perhaps, by then, we shall also be in a better position.

Mark and I both send our best regards,

Sincerely yours,

Elizabeth K. Ralph

Department of Anthropology
Arts and Sciences Building
University of Florida
Gainesville, Florida 32601
February 27, 1975

Dr. Elizabeth K. Ralph
University of Pennsylvania Museum
33rd & Spruce Streets
Philadelphia, Pennsylvania 19174

Dear Dr. Ralph,

Dr. Barbara Purdy has informed me of your rejection of our proposal regarding my interest in you TL laboratory. The intention was not to be a drain on your time and efforts. To the contrary, I was hoping that with minimal time investment on your part I could function to serve in whatever capacity you deemed necessary at the museum. I am quite willing to compensate you for the time and effort expended in my training in TL by working at the museum full time during the month of May while receiving such training.

I am familiar with the available literature on TL and have been experimenting with its application to the dating of heat altered Florida chert.

I am hoping that you will reconsider and respond favorably to my request to work and study with you, Dr. Mark C. Han, and your staff during the month of May, 1975.

My sincere regards,

James Robert Watson

James Robert Watson

Marhh 1st, 1975

Mr. James Robert Watson
Department of Anthropology
Arts and Sciences Building
University of Florida
Gainesville, Florida 32601

Dear Mr. Watson,

In reply to your letter of February 27th, I am writing to say that the month of June, 1975 would be much better for your training in TL than May.

In June, we shall all be here, classes will have ended, our students work full-time rather than half-time, there will be space in the dormitories, etc.

Also, at least, two of us will be in Europe for parts of May.

I hope that you can come in June.

Sincerely yours,

Elizabeth K. Ralph

January 23, 1970

Dear Dr. Weigand:

After our brief conversation in Bethlehem about experiments with Organic Chemistry in Archaeology, I lost your card with name and address (I think I left it in my shirt when it went to the laundry), and so, did not know how to get hold of you until I ran into John Cotter yesterday.

In any case, John Winter, the Chemist who proposed this experiment in our Applied Science Center, would like to get in touch with you and use some of your materials from that site as an experiment. He thinks he can find equipment here at the University and can do some experiments without, at present, purchasing a lot of equipment. Can you give me a brief account of the kind of samples you have and then I will talk it over with John to see what we will try first. It may be very interesting.

All the best,

Froelich Rainey
Director

Dr. Phil Weigand
Department of Anthropology
Southern Illinois University
Carbondale, Illinois

DR. RAINEY



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"

December 10, 1974.

Dr. H. Weigel,
Beselerstrasse 14a,
1 Berlin 46,
West Germany

Dear Dr. Weigel:

Dr. Rainey has forwarded your inquiry of 23 November 1974 to me for an answer, and I find that I can do so only in part since I do not have all the pertinent information from you.

First, our correction factors as presented at the Uppsala Symposium represent one of our initial efforts and are superseded by our recent publication which is enclosed.

Second, without knowing the radiocarbon dates which you wish to convert, I cannot go further with the problem except to say that if the archaeological date of ca. 1185 B.C. is acceptable for the mid-point of the Trojan war, then the radiocarbon dates should cluster around 1050 B.C. \pm the standard error. Of course, it is unwise to speculate in this way not knowing the provenience of the samples.

Both Dr. Rainey and I are very much interested in learning more about the nature (materials) and provenience of the radiocarbon dates you are dealing with and will appreciate this type of information.

Hoping to hear from you soon, I am,

Sincerely yours,

Enclosures
cc. Dr. Rainey

Henry N. Michael

B. WEISS

February 27, 1975

Dear ye ol' gang at the C-14 lab,

Greetings from Boulder, Colorado. I am fine and in good spirits. As yet I am not settled out here, since I have not yet found a permanent position — the job market is a total disaster! However, I have found temporary employment with my former employer, the National Center for Atmospheric Research. My assignment is to recruit some one hundred farmers in NE Colorado for a hail damage reporting network. There is also some programming involved.

A week or so ago we had a visiting speaker from one of the Arizona schools (whose name inconvinently has slipped my mind) who spoke on the subject of Radiocarbon and Climate. He has noticed a correlation between sunspot numbers, global temperatures, and radiocarbon production.

It's a shame you didn't open the letter you forwarded to me in January. It was from our good friend Ernest C. Conrad whose anthropology student had more to say about radiocarbon, most of it hilarious. She has even lowered the estimate of the age of the atmosphere to 12000 years. But I am enclosing a copy of this document.

If you see John Mayes give him my regards. If you have his address, would you forward it to me. I seem to have misplaced it (or perhaps worse, left it in Ohio.).

My temporary address is 2565 DARTMOUTH
BOULDER, COLO. 80303

I hope all is well in Philadelphia.

Very truly yours,
Barry Weiss

It was at our age we had a meeting speaker from one of the
European schools (whose name I can't remember) who spoke on the subject of Reducation and Climate. He
has noticed a correlation between summer number, global temperature,
and Reducation production.
It's a shame you didn't open the letter you forwarded to me
in January. It was from our good friend Ernest C. Conrad
whose anthropologist student had more to say about Reducation
most of it however. He has even looked the estimate of these
of the atmosphere to 12000 years. But I am enclosing a
copy of this document.
If you see from May you have my regards if you have
his address, would you forward it to me. I seem to have
misplaced it (or perhaps was, left it in Ohio).

replied 3/75

FEBRUARY 27, 1975

Dear Beth,

I have an urgent request to make of you. I received yesterday my W-2 form from the University which reports the sum of money paid to me last year along with the deductions made in June.

IRS informs me that unless I get written confirmation from the University of the tax exempt nature of my fellowship, I will have to record the money as income and pay the appropriate tax on it.

In conclusion, I need a letter from some authority there stating that ~~the~~ ^{the} \$ 2422.20 paid me from July through December was tax exempt. Taxes were withheld from the \$500 paid me in June. I would be most appreciative if you could arrange for such a letter to be mailed to me at

2565 DARTMOUTH
BOULDER, COLO 80303

Very truly yours,
Barry Weiss

January 21, 1976

Mr. Harvey Weiss
Yale Babylonian Collection
Sterling Memorial Library
Yale University
New Haven, Connecticut 06520

Dear Mr. Weiss:

Two packages from you addressed ~~C/O~~^{led} Dr. Robert Dyson and labeled
0100 stone, M-2102, etc. arrived today.

We seem to know nothing about these samples and our policy is not
to accept samples without the items of information as specified
on the enclosed sheet.

Even worse, to extract the collagen from bones to obtain reliable
C-14 dates, we need at least 1 kilogram of bones per sample.

Therefore, I think that it would be best if I return these samples,
but I shall wait to hear from you.

Sincerely yours,

Elizabeth K. Ralph

Bone samples to be submitted for Radiocarbon age determinations

Tappeh Qabr Shaykhain

J12 4

K13 all lots

N12 4

N13 3 , 4

O13 4 , 5

O12 9

Jan 6, 1975

BABYLONIAN COLLECTION
STERLING MEMORIAL LIBRARY
YALE UNIVERSITY
NEW HAVEN, CONNECTICUT 06520

Curator

WILLIAM W. HALLO
Professor of Assyriology

Advisor

BRIGGS W. BUCHANAN
Ancient Near Eastern Art

January 26, 1976

Dr. Elizabeth K. Ralph
Associate Director
Museum Applied Science Center for Archaeology
33rd and Spruce Streets
Philadelphia, Pa. 19104

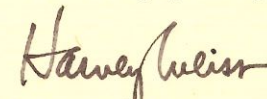
Dear Dr. Ralph:

Thanks for your note of January 21 advising me that two packages of samples have arrived for me. There seems to be some kind of mix-up. I had asked Dr. Dyson to inform me as soon as these samples arrived so that I could come down to Philadelphia and examine them.

I gather you've taken a look at them and find there to be less than a kilo of bone. Regardless, I'll come down and take a look.

Sorry to be troubling you with these kinds of concerns.

Sincerely yours,


Harvey Weiss

HW/jac

WENNER-GREN FOUNDATION FOR ANTHROPOLOGICAL RESEARCH
INCORPORATED

Weg

14 EAST 71ST STREET
NEW YORK, N. Y. 10021

CABLE ADDRESS: WEGEFOUND
TELEPHONE: REGENT 7-2900

April 9, 1965

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

Dear Fro:

Many thanks for your letter of March 26th enclosing
a copy of the ASCA Newsletter and copies of letters from
enthusiastic supporters of the techniques program. We will be
glad to add this material to our files, and I am very much looking
forward to reading the Newsletter.

*Hope to have news by the
end of May if not sooner on your request.*

With best wishes,

Sincerely,

Lita

(Lita Binns Fejos)
Director of Research

WENNER-GREN FOUNDATION FOR ANTHROPOLOGICAL RESEARCH
INCORPORATED

Techniques

14 EAST 71ST STREET
NEW YORK, N. Y. 10021

CABLE ADDRESS: WEGEFOUND
TELEPHONE: REGENT 7-2900

October 19, 1965

Dr. Froelich Rainey
University Museum
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Dear Fro:

Many thanks for your letter of October 14th. I was glad to learn of your success in the field tests of the magnetometer, and look forward to seeing you soon.

With all best wishes,

Sincerely yours,

Lita.

Lita Osmundsen,
Director of Research

October 25, 1972

Dear Mr. Wertime:

I have a copy of your note to Dillon regarding the ancient technology project and, of course, I am much interested. As you may know, the National Science Foundation has been financing our Applied Science Center for Archaeology here for the past twelve years and now, with a very handsome grant making this essentially the national center for the development of such techniques, we have quite a staff working many different phases of technology. So do let me know what you have in mind.

All best wishes,

Froelich Rainey
Director

Mr. Theodore A. Wertime
Cultural Affairs Officer
U. S. Embassy
Athens, Greece

Athens, Greece

October 10, 1972

Dr. S. Dillon Ripley
Director
The Smithsonian Institution
Washington, D.C.

Dear Dr. Ripley:

On September 7 - 8 a small preparatory committee under the leadership of Dr. Spyridon Marinatos proposed that Greece host a world conference in ancient technology in September 1974.

Unfortunately Gus Van Beek was detained at his digs and could not be present.. But I hope the Smithsonian could help the Greek Antiquities Service in major ways in making the conference a success; and perhaps considering surrounding activities.

Though I am being transferred to a new job in Washington, I shall hope to be back in Greece to assist with the conference.

Colin Renfrew and I were discussing the ancient technology project. We both believe that for the time being archeology almost everywhere (with such notable exceptions as Santorini) is less important than your great project to "salvage" the ethnology and technologies of the contemporary world. They are our "real" clue to the past.

I am encouraged in this both by the success of our ancient technology project and by the signs that the traditional past is being obliterated everywhere.

Could I be of help in reviving this project? We shall find allies among the British and the Greeks; and I should hope that an announcement could be made in September 1974 of a major collaborative project.

Sincerely yours,

Theodore A. Wertime
Cultural Affairs Officer

CC: Dr. Froehlich Rainey

Athens, Greece

October 10, 1972

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Director
The Smithsonian Institution
Washington, D.C.

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our ancient technology project and by the signs
that the traditional past is being discovered
everywhere. I'd like to be of help in reviving this project?
I shall find allies among the British and the Greeks,
and I should hope that an announcement could be made
in September 1974 of a major collaborative project.

Am much impressed with
Colin Renfrew, and wonder
if Renfrew should try to seize him.

Dr. Friedrich Rahn

February 2, 1970

Mr. Charles C. Thomas, Jr.
Research Manager
Western New York Nuclear Research Center, Inc.
Power Drive
Buffalo, New York 14214

Dear Mr. Thomas:

The following are the answers to the questions you set forth in your letter of January 20 concerning the funding of our Radio-carbon Laboratory:

1. We find that about 10% of the researchers have funds to pay for the cost of C-14 dates.
2. For those who have funds we charge \$150 per sample - the fee which the commercial laboratories charge. Also when we add overhead to our operating expenses, this is close to the actual cost.
3. We do dating for researchers outside of our university when the request has been approved or solicited from one of the curators of our University Museum, and when the samples are pertinent to their research.
4. The laboratory, for the dating of archaeological samples, is supported by the University of Pennsylvania.
5. Approximately 200 samples are received per year, and we date between 100 and 200 per year, depending upon how well the equipment has functioned. Two and one-half people are assigned to the laboratory for routine dating purposes, but one (the Director) does not devote full time to the work.

Mr. Charles C. Thomas, Jr.

Page 2
February 2, 1970

6. Annual operating budget is \$31,850.

We hope that you find this information helpful.

Sincerely yours,

Elizabeth K. Ralph

Barbara Lawn

EKR:zb

WESTERN STRUCTURAL COMPANY
INCORPORATED

3210 FOURTH AVENUE

TELEPHONE MOLINE 764-3523

WAREHOUSE STEEL-CUSTOM FABRICATION

MOLINE, ILLINOIS

December 14, 1964

BEAMS
CHANNELS
ANGLES
BARS
PLATES
SHEETS

FLAME CUTTING
SHEARING
ROLLING
FORMING
THREADING
WELDING

Dear Beth,

I am not sure of my use of logs after a half century of Rip Van Winkle sleep. Would you tell me if I have slipped?

I want confirmation of how many years difference it makes by changing half-life of carbon-14 from 5,568 to 5,730 (per Goodwin). I enclose six steps and get the Age B.P. in years directly proportional to the "mean life" and hence directly proportional to the half life (mean life equals $1.443 \times$ half-life). Is my handling of Libby's equation correct?

If so the matter is simple, and the 5730 would increase the published ages by about 2.9% at 1200 yrs. B.P. or about 34 years. Would you drop me the enclosed card? Better yet, I send my sheet in duplicate and you could mark it up.

Best Christmas Wishes,



March 4, 1966

✓ Dr. George Ralston
Westinghouse Elec. Corp.
Box 746, Balto., Md.

Dear Dr. Ralston:

It was a pleasure to work with you yesterday,
especially, in such good weather.

I have enclosed some data taken by Texas Instruments
in regard to short-term diurnal fluctuations. I am sorry to
say that we do not have any literature about Prof. E.
Edgerton's Boomers and Pingers. His address is M.I.T., Dept.
of Electrical Engineering, 77 Massachusetts Ave., Cambridge,
Mass. I remember now that what I found out about his gadgets
was as a result of a visit in his labs.

Thank you very much for the record of Italian songs.
I shall enjoy listening to them many times.

With best regards,

E. K. Ralph

EKR/deh

Encl.

THE UNIVERSITY OF NEBRASKA-LINCOLN
LINCOLN, NEBRASKA 68508

BEHLEN LABORATORY OF PHYSICS
DEPARTMENT OF PHYSICS

TELEPHONE (402) 472-2770
472-2771

February 27, 1974

Dr. Elizabeth Ralph
MASCA
The University Museum
Univ. of Pennsylvania
Philadelphia, PA 19104

Dear Dr. Ralph:

Very good. I don't know yet when my paper is scheduled (on a rather obscure topic) but I would like to meet Dr. Carriveau. I plan to get in Sunday afternoon and will call you so we can plan to get together.

Sincerely,



John Weymouth

JW:pp

February 19th, 1974

Dr. John Weymouth
Behlen Laboratory of Physics
The University of Nebraska
Lincoln, Nebraska 68508

Dear Dr. Weymouth,

The last week of ~~Mar~~ch would be fine for a visit here. I have no travel plans at the moment.

One of our physicists, Gary Carriveau, plans to give a paper at the APS meetings on Monday, we think. It is no. AD6. Perhaps you would like to get together or hear each other's papers in the course of the meetings.

My telephone numbers are usually as follows:

Mornings	215-594-8168
Afternoons	215-EV6-7400
Home	609-737-0003 or 215-BA2-1263

I am looking forward to your visit.

Sincerely yours,

Elizabeth K. Ralph

THE UNIVERSITY OF NEBRASKA-LINCOLN
LINCOLN, NEBRASKA 68508

BEHLEN LABORATORY OF PHYSICS
DEPARTMENT OF PHYSICS

TELEPHONE (402) 472-2770
472-2771

February 14, 1974

Dr. Elizabeth Ralph
The University Museum
University of Pennsylvania
Philadelphia, PA 19104

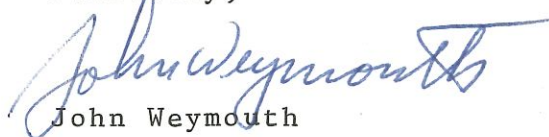
Dear Dr. Ralph:

In September 1972 I visited the MASCA facilities and spent a day with Bruce Beven, Mark Han, and Barbara Lawn, who were most generous of their time. I was, however, particularly interested in talking with you about your magnetometer work, but you were in Iran.

I am a physicist and recently have become involved in various aspects of applying physical methods to archaeological research. I have applied X-ray diffraction techniques to pottery (Am. Antiquity, 38, 339 (1973)) and to chert (unpublished). I have also done some proton magnetometer surveys on sites in Nebraska.

I will be in Philadelphia for the APS meeting the last week in March and would like to know if you will be in Philadelphia and would have some free time. I would like to talk with you about your experiences and methods with magnetometers and resistivity units.

Sincerely,



John Weymouth

JW;pp

March 26, 1974

Dr. Tamara S. Wheeler
Department of Classics
Swarthmore College
Swarthmore, Pa. 19081

Dear Dr. Wheeler:

We should be glad to have your class come to the MASCA labs. Please telephone me to arrange the time - I have had no luck in trying to call you.

My telephone nos. are as follows:

A.M.- 594-3168
P.M.- EV6- 7400

Sincerely yours,

Eliz. K. Ralph

EKR/klh

Sat. May 4th ~ 10:00 A.M.

DEPARTMENT OF CLASSICS
SWARTHMORE COLLEGE
SWARTHMORE, PENNSYLVANIA 19081
(215) KI 4-7900

21 March 1974

Dear Miss Ralph,

I am a former student of Miss Mellick, now teaching a course in Classical Archaeology at Swarthmore. A number of my students have expressed an interest in various scientific aspects of archaeology, so I wish to ask you if there is any possibility of bringing the class to the ASCA lab for a brief tour. The size of the class (45) might preclude such a visit; in any case, I realize that this would be an enormous imposition on you and your staff. If such a mass visit is impossible, would there be any chance of sending a few students individually (people who have some degree of scientific sophistication) and perhaps have Michael Rosenberg, whom I know, or some other student give them a brief explanation of the workings of your lab?

Thank you very much for considering this request.

Sincerely yours,
Tamara S. Wheeler

DEPARTMENT OF CLASSICS
SWARTHMORE COLLEGE
SWARTHMORE, PENNSYLVANIA 19081
(215) KI 4-7900

May 7, 1974

Dear Dr. Ralph,

I wish to express the gratitude of my class and myself for your kindness in showing us through the lab and explaining the processes. I should have visited MASEA years ago to correct my extremely simplistic view of the C14 dating process! The students learned a great deal and were greatly impressed by your projects.

Thank you so much for giving us the opportunity to depart from the purely theoretical realm of technological aids to archaeological understanding.

Sincerely yours,
Tamara S. Wheeler

P.S. You made the right decision when you passed up the box lunch with us - quite tasteless!

October 31, 1974

Dear Katherine:

I have been looking into the Key Marco stuff. We have about 60 pieces here in addition to those on exhibition but it is a type collection which we can't very well chew up for radio carbon. However, I have just learned that we returned the bulk of the collection with all the fragments and so forth to the Florida State Museum. If you write to:

Barbara A. Purdy
Assistant Professor & Assistant Curator
Anthropology and Social Sciences
The Florida State Museum
Museum Road
University of Florida
Gainesville, Florida 32601

she can probably find you fragments for carbon analysis and also tell you about the state of the site at the present moment. I learned that she was at the site of Key Marco in August although she was not digging at that time.

Good luck on this and let me know if there is anything else we can do.

Regards,

Froelich Rainey
Director

✓ Mrs. Katherine White
10772 Chalon Road
Los Angeles, California 90024

For Key Marco

Barbara A. Purdy
Assistant Professor +
Assistant Curator
Anthropology + Social Sciences
The Florida State Museum
Museum Road
University of Florida
Gainesville, Fla.
32601

Dr. Rainey —

As far as I know,
she would be the best
person to contact at this
time. I know she was
at the site in August
(although she wasn't digging
at the time). I think →

Key Marco
Barbara A. Purdy
Assistant Professor &
Assistant Curator
Anthropology & Social Sciences
The Florida State Museum
Museum Road
University of Florida
Gainesville, Fla.

she is in charge of
the Florida State Museum's
collection of Key Marco
at this time.

Claudia

X 256

HDM ✓

NORTHWESTERN UNIVERSITY

EVANSTON, ILLINOIS 60201

THE COLLEGE OF ARTS & SCIENCES
DEPARTMENT OF ART HISTORY

April 22nd, 1975.

FW/MS

Dr. E.K. Ralph,
Applied Science Center for Archaeology,
University Museum,
University of Pennsylvania,
33rd and Spruce St.
Philadelphia,
Pennsylvania 19174.

Dear Dr. Ralph,

I enjoyed meeting you in Minneapolis. The paper that I mentioned to you was by Hugh McKerrell, "On the origins of British faience beads and some aspects of the Wessex-Mycenae relationship" in Proceedings of the Prehistoric Society, Vol. 38, December 1972, pp.286-301. On pages 293-297, he discusses radiocarbon dates of Egyptian material in relationship to what he calls a historical curve based on accurately known Egyptian dates and contrasts them with Suess's calibration curve for the period between 1,000 and 2,500 B.C. His figure 4. suggests that there is no justification for Suess's kinks over this time range. In the same volume, pages 389 to 407, Burleigh and others also suggest that, for the late neolithic period, Suess's curve is not necessarily valid in detail. However, the reference I had in mind must, I think, have been to Suess and Strahm, "The neolithic of Auvernier, Switzerland", in Antiquity, Vol.44, 1970, p. 91 and following. There they demonstrate that there is a systematic difference of 50 years between the radiocarbon dates on floating chronologies from the Auvernier material and on the bristle-cone pine corrections. The authors regard this discrepancy as negligible and certainly in terms of statistics, it no doubt is. It is certainly less than the standard deviation on the dates, but nevertheless, since it is a systematic difference, it seems to me that it is likely to have some significance. Perhaps I am simply over-cautious, but I am certainly not happy at the way in which Colin Renfrew has re-written the whole pre-history of Europe on the strength of the dendrochronological corrections!

With kindest regards,

Yours sincerely,

Frank Willett

Frank Willett



PEABODY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY

HARVARD UNIVERSITY, CAMBRIDGE, MASSACHUSETTS 02138 U.S.A.

Telephone (617) UN8-7600 Cable Address PEAMUSE

1 April 1970

*Beth Ralph
Please reply
Jrd*

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

Dear Fred:

In preparing a book on "A History of American Archaeology," I would like to run in a picture or two of some of the things that you have been concerned with. Do you have a shot of the laboratory, or any pertinent part of it, at Philadelphia? Also, do you have a picture of someone in action with the magnetometer? Finally, can you think of any suitable sort of thin-section picture that would be representative of thermoluminescence?

If you could send me something I would be much obliged and would, of course, pay for the print charges and give the appropriate courtesy citation.

I trust all goes well with you. It has been some time since we have seen each other.

Cordially,


Gordon R. Willey

ROBERT A. WILLIER & ASSOCIATES

Public Relations Counsel

TWO-THIRTY SOUTH BEMISTON AVENUE

SAINT LOUIS, MISSOURI 63105

721-7077

3/29

March 21, 1972

Mr. Donald T. Sheehan
Director of Public Relations
University of Pennsylvania
3451 Walnut St - Franklin Bldg.
Philadelphia, Pennsylvania 19104

Dear Mr. Sheehan:

The Saturday Review article on MASCA prompts this request for information, and, if possible, photographs.

In preparing a book on water, for distribution to St. Louis County schools, our research shows references to recent discoveries of very ancient waterworks systems, notably one in the Indus valley which was dated around 2500 B. C. and said to have had a city system capable of taking water to the second story of homes. Does the MSCA group have information on any early water distribution systems? Would there be b/w photos available of such a site?

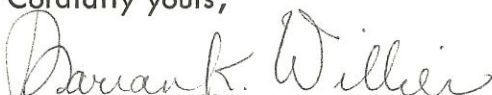
We are also interested, for the same publication, in mentioning the cesium magnetometer which Barbara Ford described in detail, as one of the new tools which help to push back in time our knowledge of human accomplishments. A photo of this device in use would be appreciated. And is the SR article factually correct?

If a book about water appears incongruous to the MSCA work, let me explain that this is a fourth revised edition of a book used by most of St. Louis County's students--250,000 -- over a period of years. It covers the water cycle, history of water distribution and purification, specifics for this area, as well as ecology and environmental factors. Illustrations will range from covered wagon barrels to photos from NASA.

Any material which you have relating to pre-Roman waterworks discoveries will be welcome. Photos will be returned to you, and credit given as you specify.

Incidentally, congratulations to you or whomever handled that article.

Cordially yours,


Marian K. Willier
Partner

March 28, 1972

Mrs. Marian K. Willier
Robert A. Willier and Associates
Two-Thirty S. Bemiston Avenue
Saint Louis, Missouri 63105

Dear Mrs. Willier:

Mr. Sheehan has referred your letter of March 21st to me. In MASCA, we do not have any specific information about ancient waterworks. In the book entitled "New Roads to Yesterday" by Joseph R. Caldwell (Basic Books, Inc., N.Y., 1966, \$12.50), there are descriptions of some in Iran, Mesopotamia, etc. Perhaps, you know about these.

The ancient Sybarit~~s~~s supposedly piped their wine from the hills to the city and had elaborate baths. These are described in "The Search for Sybaris" by Orville H. Bullitt (J.B. Lippincott Co., Philadelphia and New York, 1969, \$6.95).

The SR article is factually correct. I have enclosed a photograph of our cesium magnetometer and a reprint on the subject.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

October 27, 1961

Dr. E.H. Willis
5, Salisbury Villas
Station Road
Cambridge, England

Dear Eric:

That is good news -- that you and Prof. Godwin are planning to organize a C-14 conference. From my point of view, both the place and the time are excellent. Also, there is certainly a need for another get-together. On the subject of measurements of samples of known age, there should be enough data by then to clarify the C-14 fluctuation and half-life problems.

Reprints of our most recent publication (in AJA) are on their slow way to you by sea. In this article we have calculated dates both with the Libby and our "effective" 5800 half-life. I suspect that this will create fireworks in some quarters.

With best regards,

E.K. Ralph

EKR/ic

UNIVERSITY OF CAMBRIDGE : DEPARTMENT OF BOTANY

H. GODWIN, F.R.S.
PROFESSOR OF BOTANY

BOTANY SCHOOL
DOWNING STREET
CAMBRIDGE
TELEPHONE 58304

27 January 1964

Dr. E.K. Ralph,
Department of Physics,
Physical Sciences Building,
University of Pennsylvania,
Philadelphia 4, Penn, U.S.A.

Dear *Dr. Ralph, Beth.*

You will no doubt have learned with regret of the recent death of Frederick Zeuner, whose work and personality were almost a byword in the field of Quaternary studies. His passing will leave a large gap in this field, and one aspect of this is the future of the INQUA Commission on the Absolute Age of Quaternary Deposits. The Secretary General, Dr. Gerald Richmond, has asked me if I would be willing to carry on Professor Zeuner's work and since it seemed important to pursue these studies before the VIIth Congress, I have agreed to do so until that time.

I rather gather that owing to illness latterly, Professor Zeuner may not have been able to advance the work as much as he would undoubtedly have wished. I am thus faced with the prospect of making a fresh start in a relatively short time. I cannot have any hope of success without the help and advice of a number of friends whose views I very much respect. I would not wish to intrude too much upon your valuable time, but I would be very grateful if you could give me a brief outline, on any aspects which, (in the fields in which you are particularly familiar), you consider important for the Commission to consider.

I would particularly like your views on the emphasis you think ought to be placed on the term "Absolute". Whilst the term might be held strictly to apply to the physico-chemical methods, there may be many whose problems can only be resolved by use of circumstantial chronologies, such as river terrace, strandline and loessic sequences, and who may feel strongly about their inclusion in the Commissions business. In seeking informed opinion in this way we might be able to evolve a programme which is both meaningful and constructive.

Yours very sincerely,

*Sorry about the stuff letter,
but I feel it needs a salvage operation.*

Eric.
(Dr. E.H. Willis).

BY AIR MAIL
PAR AVION
AIR LETTER
AÉROGRAMME



Dr. E.K. Ralph,
.....
Department of Physics,
.....
Physical Sciences Building,
.....
University of Pennsylvania,
.....
Philadelphia, 4, Penn.,
.....
U.S.A.

← First fold here →

← Second fold here →

Sender's name and address: Dr. E.H. Willis,
.....
Botany School,
.....
Downing Street,
.....
CAMBRIDGE, England.

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

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/11

*Discrepancy
CID
Antvors -
won't accept
beyond SK B.C.*

To

February 12, 1964

Dr. E. H. Willis
Botany School
Downing Street
Cambridge, ENGLAND

Dear Eric:

It was with deep regret that I learned from you of the death of Prof. Zeuner, and I appreciate how much he will be missed. I am glad, however, that some one as capable as you has been selected to carry on his work, and wish to send my hearty congratulations.

Our work with dating here is almost exclusively archaeological so that I cannot be of much help in geological fields. Prof. A. Kidder II (Associate Director of the University Museum) has suggested that a full discussion of the discrepancy between radio-carbon dates and the chronology of Antevs and his few followers might be helpful, especially, if the matter could be more or less settled. However, perhaps this has been taken care of in the recent article by A. L. Bryan and R. Gruhn in American Antiquity, vol. 29, p. 307 (January 1964).

In addition to our regular project here of dating samples of known age, both by dendrochronology and by C-14, (mostly sequoia and bristlecone pine sections), I am becoming more concerned with archaeomagnetism, especially with past changes in the magnetic intensity that may have affected the C-14 atmospheric inventory. I have been struggling with some new equations with the hope of relating the two more precisely, but as yet, have no solutions. It is evident, though, that measurements of remanent magnetism and of C-14 for known-age samples in the period of 4000 B.P. and earlier are needed before the problem can be resolved with any certainty. I hope to attend the conference on "Procedures in Paleomagnetism" at Newcastle on 1st - 10th April.

As part of our program of the Applied Science Center for Archaeology, we are continuing to experiment with the thermoluminescent technique of dating pottery. We are getting indications

February 12, 1964

of age correspondence but must measure more samples before we can assess the possible accuracy of the method. As a dating method, it may not be considered "absolute" in the sense that C-14 might be because the parameters for the relationship between bombardment (mostly alphas) and the resultant metastable electron accumulation must be determined first from samples of known age, and possibly other correction factors as well. However, if the technique does work out, it will be more precise for the oldest, rather than the youngest, times of firing of the pottery.

I suspect that none of this is pertinent to your problems, but wish you the greatest success in your new endeavors.

With best regards,

E. K. Ralph

EKR:ek

May 6, 1964

Dr. E. H. Willis
Botany School
Downing Street
Cambridge, England

Dear Eric:

The time in Newcastle disappeared very rapidly, and worst of all, I had put your letter of March 2nd in the wrong file. I would have enjoyed talking to you on the telephone if I hadn't been so stupid.

In regard to your question about the next Congress in 1965, I shall be glad to talk about C-14 dates for samples of known age or about thermoluminescence if Dr. Rainey doesn't send me on a field trip in the opposite direction at that time. I should know what plans are ahead by the end of the year.

With best regards,

Elizabeth K. Ralph

EKR:pc

Scottish Universities Research and Reactor Centre

Director: Professor H W Wilson, BSc, PhD, FInstP, FRSE

East Kilbride,
Glasgow, G75 0QU

Tel: East Kilbride 20222
Telex: 77588

Our Ref: HWW/37.1

Your Ref:

5th June, 1973

Dr. Elizabeth K. Ralph,
Museum Applied Science Center for Archaeology,
University of Pennsylvania,
Philadelphia, Pennsylvania 19104, U.S.A.

Dear Beth,

I was very pleased to have the opportunity of visiting your laboratory last week and I was much impressed by your new accommodation - this will make quite a difference. Douglas Harkness is on holiday this week but when he returns he will be interested to hear about the visit. Incidentally it was Vogel in South Africa whose counter (gold coated quartz) he planned to copy. However we shall probably in fact make a Cu counter because the background should be almost as good if we can get pure copper like yours and it will be easier to make.

I much enjoyed the most pleasant lunch and would thank you for this further kindness. Also the visit to Dr. Bob Stuckenrath proved a very interesting one and I was glad both to make his acquaintance and to see his laboratory. Unfortunately my plane to Washington developed a puncture right on the runway with the result the poor chap had to hang around waiting for me for two hours.

I do hope your plumbing problems are at an end by the time you receive this!

Yours sincerely,



H. W. Wilson.

August 6, 1971

Mr. Joseph M. McCue
Radiation Safety Office
191 TB

Dear Mr. McCue:

✓
Please cancel Dr. John Winter's license for the use
of the C¹⁴ BaCo₃ source. The source is not needed at
the present time.

Sincerely yours,

R/rs

Elizabeth K. Ralph