

January 30, 1953

Mr. Daniel E. Lynch
Coordinator of Special Projects
Health and Safety Division
U.S. Atomic Energy Commission
P. O. Box 30, Ansonia Station
New York 23, New York

Dear Mr. Lynch:

Thank you for your letter of January 23, 1953.

The information contained in it is very much appreciated. As you suggested, I have written to the three other C 14 laboratories in the U.S. which are doing similar work - namely, Drs. Crane, Kulp, and Libby, telling them to write to you directly if they desire this information.

After-the-fact information on fall-out in Philadelphia would be very helpful, and I will appreciate it if you can send it to me.

Very truly yours,

Elizabeth Ralph

c/o
September 6, 1962.

Dr. John H. Pomeroy,
Division of Research
United States Atomic Energy Commission,
Washington 25, D. C.

Dear Dr. Pomeroy:

Thank you for your telephone call yesterday.
I have enclosed a copy of Expedition with the
article by Mr. Lerici, and a report of the
Lerici - University of Pennsylvania field work
in Italy in 1961.

I shall look forward to your coming to Phila-
delphia in the near future.

Sincerely yours,

Elizabeth K. Ralph

EKR:LF

Elizabeth K. Ralph



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D.C.

September 13, 1962

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

Dear Dr. Ralph:

Thank you very much for your kindness in having sent me the exceptionally interesting material on the Lerici - University of Pennsylvania work. I had expected to be in Philadelphia this week, but had to change my plans at the last minute. I look forward, however, to seeing you at another time, and will get in touch with you before hand.

You might be interested in seeing a copy of an address on a closely related subject, given in April, by Dr. Seaborg. I enclose it for your information.

Very sincerely yours,

A handwritten signature in cursive script that reads "John H. Pomeroy".

John H. Pomeroy
Chemistry Programs
Division of Research

Enclosure:
As stated above



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D.C.

October 23, 1962

Dr. Elizabeth K. Ralph, Associate Director
Applied Science Center for Archeology
University of Pennsylvania
33rd and Spruce Street
Philadelphia, Pennsylvania

Dear Dr. Ralph:

Thank you again for your help in furnishing information on the Lehigh University of Pennsylvania archeological investigations. These were of great use and interest here, and were used by Chairman Seaborg in his recent address on Science and The Humanities at Georgetown University. I take pleasure in sending you two copies of this address; you will find your work mentioned on pp. 8 - 9. I hope to have an opportunity of seeing your research center there sometime, since your people appear to be involved in many very interesting problems.

Very sincerely yours,

John H. Pomeroy
Chemistry Programs
Division of Research

October 25, 1962

Dr. John H. Pomeroy
Chemistry Programs, Div. of Research
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Dr. Pomeroy:

Thank you very much for the copies of Chairman Seaborg's recent address on Science and The Humanities. I have given one to Dr. Rainey, and we are glad to have the other in our files.

We are still waiting for reprints of our "in press" articles to arrive. I hope that you will be able to visit our laboratories.

Sincerely yours,

Elizabeth K. Ralph

EKR:pc

U. S. A. ATOMIC ENERGY COMMISSION

AEC

December 19, 1964

Dear Mr. Pomeroy:

It was a pleasure to meet you and Dr. McDaniel and the others in your shop and to find to much interest in what we are trying to do with new scientific techniques in the humanities. We here would be very pleased to join you in a symposium to discuss what is happening and where we are going.

After that ridiculous decision as to what was in the field of science and what was in the field of the humanities, we are as you know, momentarily stuck in our development work and I want to summarize here just what our situation now is.

We need about \$70,000 a year to move forward in all of our different enterprizes: thermoluminescence dating, the adaptation and development of the rubidium magnetometer, confirmation of the nature of cosmic ray fluctuation with our study of ancient Egyptian woods, development of the sonic device for underground exploration, adaptation of the magnetometer and TV for undersea exploration, the analysis of ancient materials for better interpretation of the history of technology, etc.

But the most urgent thing at the moment is the adaptation of the rubidium magnetometer for underground exploration (down to about 20 feet.) Our "bread-board" instrument tested at Sybaris this fall is certainly one hundred times more sensitive than the proton magnetometer and we had sensational success with it mapping buried structures lying as much as six meters deep. The Varian Corporation in Palo Alto, believes that they can perfect and adapt this instrument for our use, and of course

for many other uses, for about \$50,000. They will take over 50% of the cost and I agreed to take the other half if they could push it through this winter so that we could field-test the new model next summer in Italy.

It is that \$25,000 that we need so urgently now. With this instrument, for underground exploration so near completion I am naturally anxious to see it come out as a practical tool for the study of ancient remains just as quickly as possible. If there is any way you can help us with this now I am sure we can achieve impressive results this year.

And probably, in the long run, the most important thing is to expand this small but effective and successful working relation between people in the sciences and people in the humanities. It seems to me a whole lot more important than a lot of talk about what should be done to improve their mutual understanding.

~~My~~ very best,

Froelich Rainey
Director

Dr. John H. Pomeroy
Division of Research
U. S. Atomic Energy Commission
Washington 25, D. C.

cc: Dr. Glenn Seaborg - CHAIRMAN, AEC
1717 H St.

FGR/vg

Wash, Dc

CJAR.

February 10, 1965

Dr. John H. Pomeroy
Division Research
United States Atomic Energy Commission
Washington 25, D. C.

Dear Dr. Pomeroy:

As a sequel to our telephone conversation today, I have included a copy of our September progress report of our efforts with thermoluminescent dating.

Since then progress has been made only in making minor changes to improve the reliability of our determinations. We are now measuring glow curve areas more precisely, and have installed a shutter so that the high voltage can be left on the photomultiplier while changing samples.

This work is presently supported by the NSF with a grant (GP 566) of \$20,000 which expires in September 1965.

We expect to receive a specific estimate from Varian Associates of development costs for the rubidium magnetometer today or tomorrow, and we shall forward it to you immediately.

Sincerely yours,

Elizabeth K. Ralph

EKR:pc

Techniques

Dr. John H. Pomeroy
Division Research
United States Atomic Energy Commission
Washington 25, D.C.

February 18, 1965

Dear Dr. Pomeroy,

A copy of our initial commitment to Varian Associates
is enclosed.

In addition to the \$15,000 needed now, we anticipate
that the leasing and field testing will cost approximately
\$10,000 during this second stage of development.

Sincerely yours,

Elizabeth K. Ralph



VARIAN associates
411 HANSEN WAY • PALO ALTO, CALIF.

ACKNOWLEDGMENT

REPRESENTATIVE

REFER TO INSTRUMENT DIV. AND THIS NUMBER ON ALL CORRESPONDENCE

SHIP AND/OR CHARGE TO

Applied Science Center for Archaeology
The University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia 4, Pennsylvania - Attn: E. R. Ralph

CHARGE TO (IF DIFFERENT THAN SHIP TO)

ORDER NO.

50093F

ORDER DATE

2-15-65

TERMS

NET 30 DAYS

CUSTOMER PURCHASE ORDER NO. 16-2940	GOVERNMENT CONTRACT NO. 0000-0	PRIORITY 1	CLASS 99-394	SHIP BY 6-1-1965	TO PALO ALTO	SHIP V TBD	INVOICE NO.
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ITEM	PRODUCT CODE	Quantity Ordered	CATALOG NO. AND DESCRIPTION	SERIAL OR PART NUMBERS	UNIT PRICE	Balance on Order	Quantity Shipped	AMOUNT
1	501-99500	1 lot	Development support on two precision portable rubidium field magnetometers with digital readouts.		\$15,000.00			
2	506 99500	2	Lease of prototype instruments		to be ordered at a later date.			

*per accepted telegram
Langan/Rainey, Feb. 12, 1965

BOX OR PACKAGE QTY	SIZE	GROSS LBS	WEIGHT LEGAL LBS	NET LBS	ITEM NOS	CUBE FT.	SALES TAX
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TRANS. _____
INVOICE TOTAL \$ _____

SPECIAL INTERNAL INSTRUCTIONS ONLY

Special Products	<input type="checkbox"/> CHANGED
	<input type="checkbox"/> CANCELLED

Ted Hughes

April 15, 1965

Dear Dr. Pomeroy:

Thank you very much for yours of April 12th, with the information about the nuclear magnetometer developed by the French CEA. This is certainly the first I have heard of it and we will investigate.

Anything you can do to speed up our request for funds for the rubidium magnetometer development, would certainly be much appreciated. The President of our Board is going back to McCloy, Chairman of the Board of the Ford Foundation, to try to get that fiasco straightened out, but I know there will be no solution for many months, and we are exceedingly anxious to try out the rubidium magnetometer at Sybaris this summer.

Incidentally, I expect we will soon announce success with the thermoluminescence method of dating pottery. Our Chinese boy, Mark Han, has devised an ingenious method for now has six or seven samples of pottery of known age falling bang on the curve where they should be and if he gets a half dozen more to work out, we will be sure he has it.

Very best wishes,

Froelich Rainey
Director

Mr. John H. Pomeroy
Division of Research - Chemistry Programs
✓ Atomic Energy Commission
Washington, D. C. 20545

FGR/vg

Technique

April 15, 1965

Dear Lee:

Here is a copy of a letter I just received from Pomeroy at the AEC which I am sure will interest you. Do you know anything about the French outfit to whom this refers? I am also writing Pomeroy urging that they come to some decision soon about that grant.

By the way, I hear from Beth Ralph that she expects to be back in Italy early in May and is very anxious to know when your man will arrive there with the magnetometer. Is it possible for you to give me any date?

Very best wishes,

Froelich Rainey
Director

Mr. Lee Langan
Varian Associates
Palo Alto, California

FGR/vg

*enclosure of
attached*



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

April 12, 1965

ASCA

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

Dear Dr. Rainey:

I have not yet heard what decisions are being made on the Rubidium Magnetometer Proposal, but will keep you informed.

Meanwhile, I knew that you would be interested in a quotation from a recent report out of our AEC London office, as follows:

"The UK firm of Hunting Surveys has obtained rights to sell in sterling areas a new highly sensitive nuclear precession magnetometer developed by the French CEA. The instrument is claimed to be useful for detection of immersed or buried bodies such as ores, wreckage and archaeological remains. It is reported that a fully transistorized airborne version weighing only 54 lbs. including sensor, holder assembly, generator, electronics and storage battery is now being manufactured by Sud Aviation."

Sincerely,

A handwritten signature in blue ink that reads "John H. Pomeroy".

John H. Pomeroy
Chemistry Programs
Division of Research

January 30, 1967

Dr. John H. Kane
Chief, International Conference Branch,
Atomic Energy Commission,
Georgetown, Maryland 20767

Dear Dr. Kane:

Dr. Hans Suess has just told me about the carbon-14 conference to be sponsored by IAEA in Monaco from March 2nd to 10th, 1967. He mentioned that invitations to attend from the U.S.A. were under the auspices of the A.E.C.

Since we are in touch with a number of C-14 dating laboratories, it seems strange that so many people working in this field had not been invited nor had heard of this conference. Our laboratory is one of the original five established in 1951. Our emphasis has been on the dating of archaeological sites and the establishment of prehistoric chronologies. Concurrently, we have been pursuing methodological studies and the dating of samples of known age to determine the magnitude and duration of past changes in the atmospheric C-14 inventory and the possible causes of these changes.

Since it is too late to make arrangements to attend this conference even if invited, I shall appreciate it if you will let me know if it is possible to obtain a copy of the Proceedings if any are to be published.

Sincerely yours,

EKR:LF

Elizabeth K. Ralph

May 9, 1967

Dr. J. E. Westcott
Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Westcott:

Enclosed I am sending you a handful of slides contributed by Miss Elizabeth Ralph, who is in charge of the University's Carbon 14 Laboratory. They show mostly inside views of the Carbon 14 Laboratory, some taken a long time ago. Two of the slides illustrate the process of cutting samples for calibration of Carbon 14 measurements from an old Sequoia stump in California. The stump was more than 3,000 years old.

Please return the slides directly to:

Miss Elizabeth K. Ralph
David Rittenhouse Laboratory
University of Pennsylvania
Philadelphia, Pa. 19104

Sincerely yours,

mf
enclosures

Henry Faul

Did you get
them back?
H.F.



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

June 27, 1967

University of Pennsylvania
David Rittenhouse Laboratory
Philadelphia, Pennsylvania 19104

ATTENTION: Miss Elizabeth K. Ralph

Dear Miss Ralph:

Thank you for the use of the enclosed seven 35mm color slides on Carbon 14 work which you were so kind to provide us through Dr. Henry Faul.

I found the slide of the cutting of samples from the 3,000 year old tree for calibration of Carbon 14 measurements very interesting and have duplicated it for our slide library. I would have liked to include the laboratory photographs but since Dr. Faul indicated they were made long ago, I felt they might not reflect present facilities engaged in this work.

Your cooperation was most sincerely appreciated, as was the promptness with which you answered our request.

Sincerely yours,

A handwritten signature in cursive script that reads "J. E. Westcott".

J. E. Westcott, Photographer-Editor
Audio-Visual Branch
Division of Public Information

Enclosure:



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

June 27, 1967

University of Pennsylvania
David Rittenhouse Laboratory
Philadelphia, Pennsylvania 19104

ATTENTION: Miss Elizabeth K. Ralph

Dear Miss Ralph:

Thank you for the use of the enclosed seven 35mm color slides on Carbon 14 work which you were so kind to provide us through Dr. Henry Faul.

I found the slide of the cutting of samples from the 3,000 year old tree for calibration of Carbon 14 measurements very interesting and have duplicated it for our slide library. I would have liked to include the laboratory photographs but since Dr. Faul indicated they were made long ago, I felt they might not reflect present facilities engaged in this work.

Your cooperation was most sincerely appreciated, as was the promptness with which you answered our request.

Sincerely yours,

J. E. Westcott, Photographer-Editor
Audio-Visual Branch
Division of Public Information

Enclosure:

April 4th, 1974

Dr. B. Rose
Nuclear Physics Division, H.8
Atomic Energy Research Establishment
Harwell, Didcot, Berks.
England

Dear Dr. Rose,

In our MASCA Newsletter, vol. 9, no. 1, we did 9-cell regression averaging. First of all we made a list of over 600 dates in chronological order (see worksheet). Then we entered this information for each date on a computer card. Then, the program averaged 9 samples at a time, dropping one and adding one for the next as shown in red. Your last suggestion of moving averages over the years 1 - 9, 2 - 10, etc. is what we did.

The "weighting" means only that we picked the median dendro-age of each group of nine samples. I think that our use of the word "floating" was a misnomer.

Sincerely yours,

Elizabeth K. Ralph