

[LIVINGTON]

Research Technic

18 Chestnut Drive,  
Bexleyheath,  
Kent.  
5/7/60.

Dear Dr. Rainey,

Thankyou for your offer of the research post. I am sorry that such a delay has occurred in my replying, however I have only just returned from directing an excavation. I will be very pleased to accept the offer under the conditions stated by you. As I understand them, these are that I will receive a salary of £ 5,500 for the year from mid September 1960 to mid September 1961, in addition to which you will pay all travel expenses to and from America.

Several questions arise in connection with my acceptance. Firstly there is the matter of a visa, for which I expect that your authorities will require a reference from you. Next as to travel arrangements; as you have so kindly offered to pay for the journey, do I thus leave the arrangements to you? I shall be returning from France on about the 29th August, and could leave for America almost immediately. Thirdly there is the problem as where exactly you wish me to come to, and related to this the problem of accomodation, at least for the period immediately on my arrival. I would be very grateful for any suggestions, and information you can offer. Finally, if possible, I would be very interested to hear more details of the work envisaged, in particular so that I can do some preliminary reading about the problems involved.

Once again may I thank you for the offer, and I am greatly looking forward to working with you all,

Yours sincerely,

R. F. Livingston

P.S. I am at present unmarried.

Statement of the experience in Physics and in Archaeology of R.E.Linington.

After various primary schools I attended Eltham College, a minor Public School of fairly high status, up to 1955 specialising in Physics, Mathematics and Chemistry. In March 1955, after an open examination, I was awarded an Open Exhibition in Physics at Pembroke College, Oxford. For various reasons it was not convenient for me to come up to Oxford directly, so I performed my National Service from Sept. 1955 to Sept. 1957. During these two years I received training in the Royal Air Force, as an Air Radar Fitter, and after qualifying as such became an instructor in Radar to Aircraft Apprentices.

Since Oct. 1957 I have been at Pembroke College, Oxford, studying for a Honours degree in Physics, taking my final examinations this month. I have been offered two possible research posts to study for a D.Phil. degree here at Oxford, one of these posts is in the Laboratory for Archaeology and the History of Art. They would of course be dependent on my obtaining a grant from the state. At the moment I am not committed in any way to accept either of these posts.

Next as to my Archaeological experience. From 1950 to 1955 I assisted on the excavation of the Romano-British villa site at Lullingstone, Kent, attending mainly at weekends. For a considerable period of time I was in charge of the pottery, and also acted as site supervisor on several occasions. During this period I also attended several other excavations. During my R.A.F. service, over a period of about 13 months, I directed the excavation of a Romano-British villa site at Locking, near Weston-super-Mare, Somerset.

Since I have been at Oxford I have directed excavations for the Oxford University Archaeological Society on a Bronze Age site at Stanton Harcourt, at Godstow Nunnery, on a stretch of Roman road east of Oxford, and at several sites in the city of Oxford. All these sites were threatened with destruction in some form. Also I have directed a research excavation on a supposed Roman fort near Oxford, and I have been appointed as Director of the Summer Excavation of the Oxford University Archaeological Society; this is to be on a

Romano-British ditched enclosure.

In addition to directing these excavations I have held several offices in the Society including that of President for Hilary Term, 1960.

On the scientific side of archaeology I have undertaken surveys with a Proton Magnetometer on behalf of, and in conjunction with, the Laboratory for Archaeology and the History of Art. These were at two of the sites mentioned above, and also last summer I directed an extensive survey on the site of a Romano-British settlement in north Oxfordshire; this was in conjunction with a research excavation sponsored by the Society. Finally I have agreed to conduct a Resistivity survey for Mr. H.J. Case at his Cognac excavation this August.

Telephone  
BEXLEY HEATH 2439

8/7/60-Called and

18, CHESTNUT DRIVE,  
BEXLEY HEATH,  
KENT.

gave message  
to Mr. Eckert's Secretary 5/9/60

✓  
Tech,  
Arch.

Dear Dr. Rainey,

I have now completed my arrangements here and I will fly across on 8th. I expect to arrive in Philadelphia sometime on Friday ~~8~~ 9th Sept and I will report to the museum ~~possibly~~ <sup>in the</sup> morning. Your cheque arrived safely sometime ago; and the visa authorities were not too difficult.

I have managed to obtain some information on recent work in electronics in archaeology although as little is being done in this field I am afraid I will not have very much to mention. The work in France with Mr. Case was quite successful and I hope to bring some of the results with me.

I look forward to seeing you and I hope that this letter will not arrive too belatedly.

Yours sincerely,

R. E. Livingston

Pembroke College,

Oxford.

23/5/60.

Dear Sir,

I have just heard from Mr. H. J. Case of the Ashmolean Museum of your offer of a years research for the development of an electronic device for use in archaeology. Mr. Case has suggested that I write to you to enquire about this offer, as I have had some experience, in both electronics, and in archaeological surveys using electronic instruments.

At the moment I am finishing my honours degree course in Physics here at Oxford, taking Finals at the end of June. I have been made a tentative offer of a research post here in the Laboratory for Archaeology and the History of Art, however this is by no means definite. I am thus very interested in your proposed position, and I would be very glad to hear about the full details.

Possibly I should add that my previous experience of electronics includes two years work in the Royal Air Force (National Service) on Radar both working on equipment and instruction.

I look forward to hearing from you,

Yours faithfully,

R. E. Linington  
(R. E. LININGTON)



Dr. FROELICH RAINY,  
The Director, University Museum,  
PHILADELPHIA,  
PENNSYLVANIA,  
U. S. A.

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Sender's name and address: R. E. LININGTON,  
PEMBROKE COLLEGE,  
OXFORD

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

To open cut here

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Research Techniques

May 31, 1960

Mr. R. E. Linington  
Pembroke College  
Oxford  
England

Dear Mr. Linington:

Many thanks for your letter of the 23rd, saying that you might be interested in the job here for the coming year to work on an electronic device for archaeology. I have been advised informally that the money is being made available by the National Science Foundation, but I have not yet officially received notice. In any case, I think it will be available and I'm interested in the possibility of your working with us.

Could you send me a somewhat more detailed statement of your experience, both in physics and archaeology, including a statement of the degree that you have received, or are about to receive and the names of two Faculty members at Oxford, whom we could ask for recommendation.

The work will begin about the first of September and continue for one year under the National Science Foundation grant. I expect you would be working with the physics department here, the laboratories of the Sun Oil Company and our people here at the Museum.

We hope to produce an acoustical prospecting device based upon instruments already developed at The Sun Oil Company. This should also put you in touch with various electronic companies in this country.

I do not know, at this point, what salary we can offer for this job, although I'm sure it will be adequate and we would expect to pay your travel expenses to and from England.

We should make a final decision about this very shortly and I should very much appreciate a Curriculum Vitae from you as soon as possible.

Sincerely yours,

FR:ah

Froelich Rainey  
Director

DEPARTMENT OF ANTIQUITIES · ASHMOLEAN MUSEUM · OXFORD

Telephone 57522

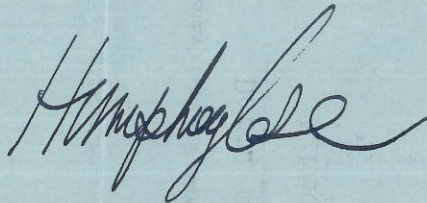
1st June, 1960.

Dear Dr. Rainey,

I spoke to Richard Linington, the young man I had in mind for your research project in acoustic surveying. He told me that he will think the matter over. As I have not heard from him yet I presume that he is still thinking it over or has already written to you. He sounded interested.

I hope your trip concluded satisfactorily and that you did not find too great a pile of work awaiting you on your return.

Yours sincerely,



H. J. Case.

Senior Assistant Keeper.

Dr. Froelich Rainey,  
University Museum,  
Philadelphia, Penn.,  
U.S.A.

BY AIR MAIL  
PAR AVION JUNE  
AIR LETTER  
AEROGRAMME

JUNE  
DAIRY



Dr. Froelich Rainey,

The University Museum,

Philadelphia,

Penn.,

U.S.A.

First fold here

Second fold here

Sender's name and address: H. J. Case,

Dept. of Antiquities,

Ashmolean Museum, OXFORD.

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

To open cut L

Eckert

June 2, 1960

Memorandum:

To: Mr. Samuel B. Eckert  
From: Froelich Rainey  
Subject: Research in archaeological prospecting equipment

I have been unofficially advised that we are going to get \$29,000. from the National Science Foundation to work on archaeological techniques, beginning in September. Unfortunately, 20% of this goes to the University of Pennsylvania for administrative costs (believe it, or not), but in any case we have something to begin working with.

In conversations with Mr. Johnston, just before I left for Egypt, we agreed that we should get some young Physicist to work specifically on an acoustical prospecting instrument for archaeology, which would be something similar to instruments used in oil prospecting and, I hope, that this young man can be guided by your laboratories here in Newtown Square and particularly by Mr. Johnston.

At Oxford, in England, I learned about a young man named Linington, who is just now taking his Honor degree in Physics and who has been working for two years with archaeological prospecting equipment now being developed at Oxford. He has also been working with the R. A. F. on radar design.

How can we set this up with your laboratories? I think we have not a prayer of developing a new instrument in one year, without your help.

Also, in Italy, I spent a couple of days with Lerici working on his new prospecting equipment and I made a tentative agreement to get our people together next spring in Italy to work together with various equipment on three or four sites in Italy. If this works out, Lerici will send his young physicist over here in January to give us a hand and to compare notes on Italian and American equipment. This sort of research is the kind we really should do at the University Museum and I think it has really great possibilities. Could we get this organized before the end of June?

PEMBROKE COLLEGE  
OXFORD.

6th June 1960.

Dear Dr. Rainey,

Thankyou for your letter of 31st May. I have enclosed a statement of my experience both in Physics and in Archaeology, which I hope is sufficiently explicit.

As to the question of referees; firstly my tutor, Dr. J.Wilks, Pembroke College, Oxford, has agreed to act for the Physics, whilst Prof. I.A.Richmond, Professor of the Archaeology of the Roman Empire, All Souls College, Oxford, has kindly consented to act for the Archaeology. In addition Dr. M.J.Aitken of the Research Laboratory for Archaeology and the History of Art, has agreed to supply information on my work with his laboratory. Finally Mr. H.J.Case of the Ashmolean Museum, who I understand has already discussed the matter with you, has said that he would be willing to be referred to.

I look forward to hearing from you, especially as to the nature, conditions and salary for this post, that is if you feel able to make me a definite offer. Of course until such an offer were made I could not commit myself; however from what you have said in your letter, I am very interested in the prospect of joining you for a year.

Mr. Case has asked me to mention one minor point, this is that he would like me to stand by my agreement to help him on his Cognac excavation, which will not finish until 29th August. If it was essential to be in America very early in September I expect that a compromise could be arrived at, however I hope that it will be possible to take this previous committment into consideration if I am to be made a definite offer.

Again many thanks for the information and the tentative offer,

Yours sincerely,

R.E. Linington

R.E.Linington.

Research and Techniques

June 9, 1960

Dr. H. J. Case  
Senior Assistant Keeper  
Department of Antiquities  
Ashmolean Museum  
Oxford  
England

Dear Dr. Case:

Many thanks for yours of June 1st concerning Linington. I had a letter from him and have just written saying we are very interested in his coming over here and also asking for usual Curriculum Vitae, so we can make an appointment. I must wait until our funds are officially available, but he sounds good to all of us here. I think if he is willing it will all work out.

I hope you will excuse me for delaying so long in writing to say how much I appreciate all you did for me at Oxford. It really was a shame to ruin a beautiful Saturday afternoon for you, but it was a tremendous help to me and I'm very grateful. Perhaps bringing Linington over here will keep us more closely in touch with what you are doing there and I hope you will call on us at any time if there is anything we can do to assist you. With warmest personal regards,

Yours,

FR:ah

Froelich Rainey  
Director

June 22, 1960

Mr. R. E. Linington  
Pembroke College  
Oxford  
England

Dear Mr. Linington:

We have now officially received our grant from the National Science Foundation and I am in a position to invite you to come here next year. Your statement of training and so forth has been referred to the Physics Department and we have discussed at some length what we can offer you as a salary for the year. They assume that your Honors degree in Physics there is probably equivalent to a Masters degree in the United States and on this basis they feel that our schedule can allow us to pay you \$5,500. for the year, plus your travel expenses to and from England. This is somewhat more than would be normal for a permanent appointment, but for the year only, it would be satisfactory with us. If you are single, you can do very well with this and if you are married, it will be adequate.

By all means continue your work with Professor Case during the summer and if you can make it, we would like to see you here by the middle of September. It seems to me that the primary job will be designing and developing a new acoustical instrument in collaboration with Sun Oil Company. I will see the head of their Research laboratories tomorrow at lunch and try to work out how this can be done in detail. Also, during the time you are here I hope we can compile pertinent information on who is doing what in this field. In the late winter, or early spring, I expect to join up with Lerici's group, in Italy, and with the British School, in Rome, to do some experimentation in the field and you could expect to be in Italy during a couple of months in the early spring. We also may decide after you arrive to purchase one of the proton magnetometers from your shop there.

The question of whether we continue this kind of research in electronic instruments will probably depend on how far we get this year and whether we can get another grant from the Science Foundation. In any case, you would be assured of an appointment here until the middle of September 1961. We would, of course, like to hear from you as soon as possible because after the middle of July, most of us are away for the summer and we would like to get this research project set up before that time. We all look forward to having you join us here and I'm sure you will find it an interesting and pleasant place to work. Incidentally you will be working directly with Dr. Elizabeth Ralph, the head of our radio carbon laboratory and with me as the head of the project.

Very best wishes,

FR:ah

Froelich Rainey  
Director

Research Techniques

July 12, 1960

The Visa Department  
The United States Embassy  
London, England

Dear Sirs:

Mr. R. E. Linington, Bexleyheath, Kent, England, will shortly be applying for a visa to enter the United States. He is being employed by the University Museum and we would very much appreciate any assistance you may give him in connection with his visa.

Because we are employing Mr. Linington, we are fully informed about him and can fully recommend him to you.

Most sincerely ,

FR:ah

Froelich Rainey  
Director

Research

July 12, 1960

Mr. R. E. Linington  
18 Chestnut Drive  
Bexleyheath  
Kent  
England

Dear Mr. Linington:

Many thanks for your letter of July 5th saying that you will be here in September for the position next year in our techniques research.

Here are the answers to your specific questions:

1. Enclosed is a letter to our Embassy in London recommending you for a visa to the United States and stating that you are being employed by us.
2. As for travel arrangements, I will have my secretary send you a check to cover the cost of passage from London to New York via jet economy class which is the way we all travel across the Atlantic. You can then turn in an expense account for whatever additional expenses you have when you arrive here.
3. You should come directly to the Museum in Philadelphia and I will ask someone on the staff here to arrange accommodations for you upon arrival in Philadelphia. Unfortunately, I must be in Texas and Seattle during the first week in September but the Associate Director, Dr. Kidder, will be here and will see that you get settled.

Since writing to you I have had a discussion with Mr. Eckert and Mr. Johnson of the Sun Oil Company and we think that you should work directly with Mr. Johnson who is the head of their laboratories, specifically on the design and the development of an electronic acoustical apparatus which will be a modification of something Mr. Johnson has been working with for oil prospecting. I learned that the headquarters for this work is really in Beaumont, Texas, and that there is another oil company doing similar work somewhere in the southwest, so it looks as if you would spend sometime in Texas. However, as soon as you arrive we will work out specific plans with Mr. Johnson and he will act as your mentor in this development work. Also, as I indicated, we hope to work out a listing of institutions, companies, and people who are working on electronic techniques which might be applied to archaeology. We hope that you will have a pretty good idea of what is going on in

MEMORANDUM

TO: Mr. R. E. Linington

FROM: Froelich Rainey

DATE: September 15, 1960

Mr. F. L. Johnston and Mr. P. E. Cheney will be at the Sun Oil Company Production Research Laboratory, Richardson, Texas, telephone: Riverside 7-1611. Mr. Eugene McDermott is the man at the Texas Instruments Inc., Dallas. Mr. Johnston suggested you stay at the Sheraton Hotel in Dallas where he is to be on Friday, September 23rd. Also, Dr. C. L. Lundell, Director, Texas Research Foundation, Renner, Texas, is the botanist working with us at Tikal in Guatemala. He knows all about this and you might like to call him while you are in Dallas.

FR:jd

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Archival  
Techniques*

Page 2.

England and that you will look into this before coming over. Thereafter through the Sun Oil Company you should be able to find out what is being done here in the United States.

Certainly you will be trying out certain equipment in the field and as I indicated this will probably be with Lerici in Italy sometime in the spring.

We will look forward to meeting you and I feel sure you are going to find this an exciting job. Please tell Professor Case that his request on Egyptian material was turned over to the registrar sometime ago and I hope that he has gotten a response by now. If not, please let me know.

Sincerely,

Froelich Rainey  
Director

FR:jd

*Enclosure*

October 26, 1961.

Miss Jeanette Fla<sup>m</sup>n,  
4815 Walton Avenue,  
Philadelphia, Pa.

Dear Miss Fla<sup>m</sup>n:

For the Techniques Laboratory (University Museum), we are looking for someone to do part-time work in connection with the development of the Information Center. In this center we plan to assemble card files and references to scientific techniques which are applicable to archaeological and anthropological research.

The requirements for the job are some knowledge of archaeology and reasonable typewriting ability.

If you are interested, please call to arrange a time for an interview.

Sincerely yours,

Elizabeth K. Ralph  
Carbon-14 Laboratory  
EVERgreen 6-0100  
ext. 8168

EKR:LF

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P  
Y

# UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 4

*The School of Metallurgical Engineering*

PROFESSOR R. MADDIN, *Director*

March 12, 1962

Dr. F. Rainey, Director  
University Museum

Dear Dr. Rainey:

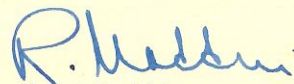
I am enclosing a copy of my vita which may be of interest to you in your search for funds to support work on research and development in new techniques for archaeology. I stated to you earlier I should like to offer my services as an unpaid consultant for any work where you feel I may make a contribution.

We have, of course, in the School of Metallurgy a great deal of equipment such as metallographs and electron microscopes, both for reflected and transmitted light. We have x-ray equipment for examination of metals and materials, and all of the necessary polishing equipment. There are available mass spectrographs, kilns, furnaces, etc.

I feel that the work you and Miss Ralph and your colleagues are doing is of intense interest. Furthermore, I consider that there is the opportunity to create here at Penn a major effort in the application of science to the solution of archaeological problems.

I have read your proposal dated 1 September, 1961 to the National Science Foundation and consider that there are a number of areas in which we can be of some help to you, especially in aiding the establishment of an information center on new techniques, in your chemical laboratory expansion and, to a lesser extent, in your development of "underground explorers".

Sincerely yours,

  
R. Maddin

RM-gp  
Encl.

CC Miss E. K. Ralph

VITA

DR. R. MADDIN

Robert Maddin, Dr. Eng.--- Professor of Metallurgy, School of Metallurgical Engineering, University of Pennsylvania; Acting Director 1955; Appointed Director, January 15, 1957 - Present.

Born: Hartford, Connecticut - 20 October 1918

Educational Background:

Research Associate, Yale University, 1948-49  
Instructor in Chemistry, New Haven Junior College, 1946-49  
Assistant Professor, The Johns Hopkins University, 1949-52.  
Associate Professor, The Johns Hopkins University, 1952.  
Visiting Lecturer in Metallurgy, Summer Course, MIT 1953.  
Visiting Professor in Metallurgy, The University of Birmingham, England, calendar year 1954.  
Metallurgical Observer, Bethlehem Steel Co., Sparrows Point, Summer 1949.  
Lt. U. S. Air Forces, 1942-45. (Served in Africa, Middle East, China, Burma and India).  
Professor of Metallurgy, School of Metallurgical Engineering, University of Pennsylvania, July 1, 1955. Acting Director, October 1955, Appointed Director, January 15, 1957.

Society Memberships:

American Institute of Mining, Metallurgical and Petroleum Engineers.  
Chairman, Society Publications Committee  
Chairman, Mathewson Gold Medal Committee  
American Society for Metals.  
Member Committee for Metallurgical Education  
National Seminar Committee - Chairman 1957  
British Institute of Metals.  
American Association of University Professors.  
University of Birmingham (England) Metallurgical Society.  
Honorary Life Member  
Yale Metallurgical Association  
Maryland Institute of Metals  
Co-founder, Board of Directors, Honorary Member

Honors:

Honorary Member - Maryland Institute of Metals.  
Honorary Life Member - University of Birmingham (England) Metallurgical Society.  
Honorary Member - Alpha Sigma Mu

Sigma Xi  
American Men of Science  
Who's Who in Engineering  
Who's Who in Education  
Who's Who

Research Contract Director:

Office of Naval Research  
Atomic Energy Commission

PUBLICATIONS:

- Maddin, R., Mathewson, C. H., Hibbard, W. R. Jr. - "The Origin of Annealing Twins in Brass", Transactions, AIME, 185, (1949), 655.
- Maddin, R., Hibbard, W. R. Jr. - "Some Observations in the Structure of Alpha Brass Single Crystals after Cutting and Polishing", Transactions, AIME, 185, (1949), 700.
- Maddin, R. - "An Observation of Diffusion During Homogenization of Single Crystals of Alpha Brass", Transactions, AIME, 1948.
- Maddin R. - "The Crystallography of the Origin of Annealing Twins", American Mineralogist, 1949.
- Maddin, R. - "Hardness and Hardness Measurement", Encl. of Chem. Tech. 1951.
- Maddin, R. and Asher, W. - "An Apparatus for Cutting Metals Strain-Free", Review of Scientific Instruments, October 1950.
- Maddin, R., Chen, N. K., and Pond, R. B. - "Growth of Molybdenum Single Crystals", Transactions, AIME (1951), 3, 461.
- Maddin, R. and Pond, R. B. - "The Strain Rate Sensitivity of Molybdenum at Room Temperature", Metal Progress, July 1951, 77.
- Maddin, R. - "The Extent of Strain on Axially Extended Alpha Brass Single Crystals", Journal of Metals, March 1952, 270.
- Maddin, R. and Kramer, I. R. - "Delay Time for the Initiation of Slip in Metal Single Crystals", Journal of Metals, Feb. 1952, 197.
- Maddin, R. - "Cross Slip in Single Crystals of Aluminum and Alpha Brass", Journal of the Institute of Metals, October 1952.
- Maddin, R. and Chen, N. K. - "Research on Single Crystals of Metals", Iron Age, October 1952.
- Maddin, R. and Chen, N. K. - "The Cold Rolling and Annealing Textures of Molybdenum Single Crystals", Journal of Metals, Feb. 1953, 300.
- Maddin, R., Harrison, E., and Gelinas, R. - "Shear Along Glide Planes in Aluminum", Acta Met. (1953), 1, 460.
- Maddin, R., Aust, K. T. and Chen, N. K. - "The Bending of Molybdenum Single Crystals", Transactions, AIME, Journal of Metals, Nov. 1953, 1477.
- Maddin, R. and Chen, N. K. - "Plasticity of Molybdenum Single Crystals", Transactions, AIME, Journal of Metals, October 1951, 937.
- Maddin, R. and Chen, N. K. - "Some Observations on Polygonization of Molybdenum Single Crystals", Journal of Metals, July 1951, 531.

- Maddin, R. and Chen, N. K. - "Plasticity of Columbium Single Crystals", Journal of Metals, Sept. 1953, 1131
- Maddin, R. and Chen, N. K. - "Slip Planes and the Energy of Dislocations in a Body Centered Cubic Structure", Acta Met. 1954, 2, 49.
- Maddin, R. and Chen, N. K. - "Plasticity of Molybdenum Single Crystals at High Temperatures", Journal of Metals, October 1951, 937.
- Maddin, R. and Chen, N. K. - Progress in Metal Physics., vol. 5, Pergamon Press Ltd. (London) 1954. Chap. 2. "Geometrical Aspects of Plastic Deformation of Metals Single Crystals"
- Maddin, R. - "What is a Metal?", The Johns Hopkins University Magazine, 1952 (Reprinted in Chemistry).
- Maddin, R. and Graham, C. D. Jr. - "Surface Nucleation in the Recrystallization of Aluminum Single Crystals", Journal of the Institute of Metals, London, 1954/55, 83, 169.
- Maddin, R. and Cottrell, A. H. - "Quenched Hardening in Aluminum Single Crystals", Phil. Mag., 1955
- Kocks, U. F. and Maddin, R. - "Observations on the Deformation of Niobium", Acta Met., 4, (1956), 91.
- Aust, K. T. and Maddin, R. - "Subgrain and Electrical Resistivity Studies of Molybdenum Single Crystals", Acta Met., 4, (1956), 632.
- Ujiye, N. and Maddin, R. - "Structural Changes During the Cold Rolling of Molybdenum Single Crystals", Trans. AIME, 206, (1956), 1298.
- Aust, K. T., Harrison, E. and Maddin, R. - "Grain Boundaries Migration in Aluminum BiCrystals", Journal of the Institute of Metals, London, 85, (1956-57), 15.
- Maddin, R. - "Creep and Fracture of Metals at High Temperatures", International Symposium, held at National Phys. Lab., London, published Jan. 1956. Published discussion.
- Maddin, R. - "The Undergraduate Metallurgy Curriculum", Newsletter, University of Birmingham, Metallurgical Society Publication, Fall 1956.
- Maddin, R. - (Editor Vol. 48A) "Creep and Recovery", ASM, Cleveland, Ohio, 1957.
- Hoke, J. and Maddin, R. - "Compression of Molybdenum Single Crystals", Journal of the Mechanics and Physics of Solids, 5, (1956), 26.
- Tung, S. K. and Maddin, R. - "Shear Along Grain Boundaries in Aluminum BiCrystals", Journal of Metals, July 1957.
- Maddin, R. - "Equilibrium Between Scotch-Bourbon and Scotch-Bourbon-Water", Newsletter, Univ. of Birmingham Metallurgical Society, Fall 1956.

- Maddin, R. - "Flow Curves in Solids", Dictionary of Physics, Pergamon Press, Inc., New York.
- Maddin, R. - "Plastic Deformation", Dictionary of Physics, Pergamon Press, Inc., New York.
- Tanner, L. and Maddin, R. - "Overshooting in Quenched Aluminum Crystals", Acta Met., 7, (1959), 76.
- Kuhlmann-Wilsdorf, D., Maddin, R., and H. Kumura, "Zum Ursprung der Versetzungen bei der plastischen Deformation von Kristallen", Zeits fur Metallkunde, 49, (1958), 584.
- Kimura, H., Maddin, R. and Wilsdorf, D., - "Quenched-In Vacancies in Noble Metals-I Theory of Decay", Acta Met., 7(1959), 145.
- Kimura, H., Maddin, R. and Wilsdorf, D. - "Quenched-In Vacancies in Noble Metals-II Mechanism of Quench Hardening", Acta Met., 7, (1959), 154.
- Lee, C. H. and Maddin, R., - "Effect of Torsional Strains on Self-Diffusion in Silver Single Crystals", Trans. Met. Soc. (AIME), 215, (1959), 397.
- R. Maddin, Doris Wilsdorf, H. G. F. Wilsdorf, - "Point Defect Hardening in Face-Centered Cubic Metals" 1960 ASM Seminar "Strengthening Mechanisms in Solids", Phila. Pa. October 1960.
- R. Maddin, A. Lawley. "Effect of zone-refining and Orientation on the hardness of High Purity Rhenium". Acta Met., Vol. 8, No. 12, 1960, pp. 896-897.
- R. Maddin, W. Liebman, Alan Lawley. "Effect of Hydrogen on the Mechanical Properties of Molybdenum and other Transition Metals". To be published in Acta Met.
- R. Maddin, C. H. Lee. "The Effect of Torsional Deformation on Self-Diffusion in Silver". Vol. 32, No. 10, pp. 1846-1851 Journal of Applied Physics, October 1961.
- R. Maddin, D. Kuhlmann-Wilsdorf. Discussion of Letter by Mori, Meshii and Kauffman. Acta Met., Vol. 9, No. 1, 1961, p. 72.
- E. S. Tankins and R. Maddin. "Effect of Grain Size, Strain Rate, and Temperature on the Yield Strength of Columbium". Transactions AIME Fall 1960, Vol. 10. Lake George Symposium on Columbium. Published by Interscience Publishing Co., Copyrighted 1961.
- R. Maddin, A. Lawley, J. Van den Sype. "Tensile Properties of Zone Refined Molybdenum in the Temperature Range 4.2°K to 373°K, ~~submitted~~ accepted to Journal of the Institute of Metals."
- A. Lawley and R. Maddin. "Tensile Behaviour of Zone-Melted Molybdenum-Rhenium Single Crystals". ~~Submitted~~ accepted to Trans. Met. Soc.
- R. Maddin and J. N. Hobstetter, "Graduate Education in Materials Science" published in Proceedings of the Conference on Metallurgy and Industry, San Carlos de Bariloche, Argentina, April 1962

*Techniques*

March 16, 1962

Dr. R. Maddin, Director  
School of Metallurgical Engineering

Dear Dr. Maddin:

Many thanks for the copy of your vita and for your offer to act as an unpaid consultant on our work on the techniques. I am delighted that you are building up the School of Metallurgy, and that we can cooperate with you in the development of the Applied Science Center for Archaeology. It seems to me that this is a tremendous advantage for us and I hope you also will find it most interesting. At this moment your offer is very helpful because we are now applying again to the National Science Foundation for a continuing grant and thus your letter comes at a most opportune time.

Miss Ralph and I both will be off in Italy testing our underground explorers during the next two months, but the work at the laboratory continues and we will both certainly be in touch with you before long.

Most sincerely,

Froelich Rainey  
Director

FR:ad

[Knox]

January 16, 1963

Employment Office  
Alan Wood Steel Co.  
Box 112  
Conshohocken, Pennsylvania

Dear Sirs:

We are considering the employment of Mr. Reed Knox as a metallurgical technician in the Applied Science Center for Archaeology. Under the general direction of Professors Cyril S. Smith and Robert Maddin studies of the history of metallurgy and the application of metallographic methods to the study of archaeological materials will be initiated.

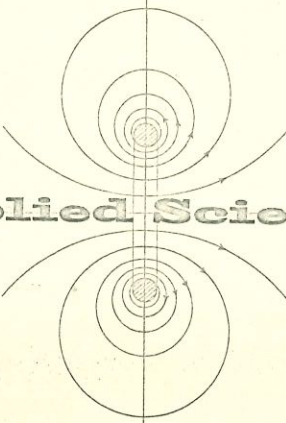
Mr. Knox will be expected to perform many of the metallurgical analyses with little direct supervision.

Any information that you can give me in regard to the ability of Mr. Knox to carry out these tasks, his personality, his facility for working with others in the laboratory, and so forth will be very much appreciated.

Sincerely yours,

Elizabeth K. Ralph

EKR:dml



# Applied Science Center for Archaeology

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

March 8, 1963.

Mr. Reed Knox  
Dept. of Metallurgy

Dear Mr. Knox:

If you would like to start to work part-time in the Applied Science Center for Archaeology, please see Mrs. Dellevigne in the University Museum to fill out the necessary forms. Suggested salary is \$2400 for half-time employment.

Mr. Mark Han in the ASCA laboratories has one project for you to work on and Prof. Maddin will soon have suggestions from Prof. Smith for other projects.

I'm leaving for Italy on Monday, and am sorry that I shall not be here to help with these arrangements.

Sincerely yours,

EKR:LF

Elizabeth K. Ralph

CC Prof. Maddin  
Dept. of Metallurgy

Mrs. A. Dellevigne<sup>1</sup>  
University Museum

RESEARCH LABORATORY FOR ARCHAEOLOGY  
AND THE HISTORY OF ART

[TITE]

TEL. 55211

6 KEBLE ROAD  
OXFORD

MJA/CAB

21st February 1967.

Miss E. K. Ralph,  
University Museum,  
University of Pennsylvania,  
33rd and Spruce Streets,  
Philadelphia,  
Pennsylvania 19104,  
U.S.A.

TITE

Send  
Thanks

Dear Beth,

Many thanks for your letter about analysis which I think Teddy has already replied to. He asks me to say, however, that at the end of the third paragraph, zinc should be added to the list of elements.

I thought you might like to have the enclosed reprints. There will be more about the metal detector in Archaeometry.

I don't know how your personnel situation is now but in case you still have any interest in Mike Tite, I thought I should mention that his present appointment in Leeds comes to an end this summer.

I hope to call in and see you all in late October en route to Los Angeles - unless we have the pleasure of seeing you here in Oxford before that?

With best wishes.

Yours sincerely,

M. J. Aitken

Enc. (3)

April 3, 1967

Dr. M. J. Aitken  
Research Laboratory for  
Archaeology and the History of Art  
6 Keble Road  
Oxford, England

Dear Martin:

Many thanks for your letter of 21st February and for the reprints. Please extend my thanks to Mrs. Millett for her offer to do our bronze analyses. Unfortunately, the students who are studying the objects don't seem to have time to take samples from them, but, perhaps, some day something will happen.

I appreciated your telling me about Mike Tite. I didn't write to him immediately because of all of our hesitation in past years. I wanted to have a definite position to offer first. Now we have one—Research Associate in Physics with the main project being to experiment with TL and ESR to see if either or both can be applied for the detection of natural C-14.

From what Dr. Hall said, I may be too late with this offer, but I hope not.

With best regards,

E. K. Ralph

EKR:lm

MGMPHAT HSB  
2-013511E276002 10/03/74  
ICS IPMTZZ CSP  
1 215EV67400 MGM TDMT PHILADELPHIA PA 10-03 1154A EDT  
ZIP 19174

 **Mailgram**



THIS MAILGRAM WAS TRANSMITTED ELECTRONICALLY BY WESTERN UNION TO A POST OFFICE NEAR YOU FOR DELIVERY

▶ UNIVERSITY MUSEUM JG  
33 AND SPRUCE ST  
PHILADELPHIA PA 19174

THIS MAILGRAM IS A CONFIRMATION COPY OF THE FOLLOWING MESSAGE:

INTL LT TDMT PHILADELPHIA PA 10-03 1154A EDT  
INT LT DR OTTO HAAS GRAND HOTEL  
ST HELIER  
JERSEYCHANNELISLAND (ENGLAND)  
GORMAN RECOMMENDS MICHAEL TITE DEPARTMENT OF PHYSICAL UNIVERSITY  
OF ESSEX COLCHESTER FOR MASCA JOB IT IS POSSIBLE FOR YOU TO  
SEE HIM  
FRO  
11:54 EDT  
MGMPHAT HSB

Report No. 4  
F.O. Haas  
October 23, 1974

cc: Dr. Rainey ✓  
Dr. Ralph

Dr. M.S. Tite, Dept. of Physics, University  
of Essex, Wivenhoe Park, Colchester CO4 3SQ  
- October 16 -

While in Europe, I learnt from Dr. Gorman through Dr. Rainey that Dr. Tite be considered for the position at MASCA left open by Dr. Carriveau's resignation. Accordingly, I wrote to Dr. Tite suggesting that we meet on October 16 and received his reply copy attached. We met in his office at Colchester in the afternoon of October 16.

While Dr. Tite (36) is about the same age as Dr. Carriveau, he is more senior than the job description we have and are trying to fill. He wants a higher salary - \$ 20,000 - \$ 25,000 per year versus \$ 14,000 per year. Nevertheless, I do not think that Dr. Tite should be ruled out immediately because we want to up-grade the quality of the personnel in MASCA and need to be developing someone who can take charge of the laboratory at some time in the future.

Dr. Tite is a Lecturer at the University of Essex with seniority which would make him equivalent to an Associate Professor in the United States. He is a graduate of Oxford (under Dr. Aitken) and has done some work at Leeds. His field of research is thermoluminescence. At the University Museum he knows Dr. Ralph, Dr. Wailes and Mr. Han.

Dr. Tite is not certain that he will like it in the United States. He is due to receive a period of study leave of 3 - 6 months. He would be willing to spend this in Philadelphia if we are interest-

ed. The University of Essex would pay his salary. In addition he would need money for travel and a home. He is married with two small children. I estimate that roughly this will cost about \$ 4,000 for six months.

I think very highly of Dr. Tite. He is mature and personable. I do not think he has had much experience in managing others. In our general discussion it was clear that he is concerned over the lack of new scientific developments which can be applied to archaeology. From a brief study of the equipment that he has MASCA is shown to be in a good position.

I have reprints of some of Dr. Tite's recent publication if those receiving copies of this report would like to read them.

F. Otto Haas

3 copy  
92

# University of Essex

Department of Physics  
Wivenhoe Park  
Colchester CO4 3SQ

Tel: Colchester 44144 (STD Code 020 6)  
Telegraphic address: University Colchester  
Telex: 98440 (UNILIB COLCHSTR)

2195  
11-10-74

Mr. F. O. Haas,  
c/o Brown's Hotel,  
Dover St.,  
LONDON W1

Dear Mr Haas,

Thank you for your letter of 4<sup>th</sup> October concerning the possibility of my being considered for a position at MASCA. Although I am obviously interested in this, in view of my involvement in research into the application of physical techniques to archaeology over the past 15 years, it would appear from your comments & from the salary offered that you are in fact looking for someone rather more junior than myself. In addition I currently have a permanent post at Essex & would therefore want to investigate the overall situation (ie both in respect to research facilities & domestic arrangements) at Philadelphia before uprooting myself & my family to take up a position which I assume carries somewhat limited security of tenure.

It occurs to me that if you are still interested in considering me for the ~~vacant~~ post, in spite of my comments above, I could make use of a period of study leave which I get from Essex & spend 6 months or so at Philadelphia in order for us both to establish whether or not we are suited to each other.

I should be happy to come up to London to discuss the situation with you but unfortunately I have heavy teaching commitments & cannot easily get away from the University at the two periods that you suggest. However you could contact me by telephone either at the University or perhaps more easily at home in the evening (after 8.30pm) where my telephone number is Earls Colne 2161.

Yours sincerely

M J Pitt

April 18, 1967

Miss S. N. Shaw  
12 Museum Mansion  
63 a Great Russell Street  
London W.C.I., England

Dear Miss Shaw:

Ever since I returned from Italy in September, I have been thinking that I should write to you to thank you for initiating so much action in regard to conservation and for recommending Gayle Wever. I have been remiss, but I am nonetheless grateful.

When we started ASCA, the inclusion of conservation was discussed many times and some attempts were made to find funds. The trouble is that USA foundations are more interested in supporting new techniques. Even though the methods of conservation have changed very much, the name is "old". Also, it should be the responsibility of the Museum.

Now, thanks to you, we have the Women's Committee behind us and they are raising adequate funds to equip and supply the laboratories with all that Gayle seems to require. We shall be somewhat restricted in space until the new wing is built - possibly within two years. Gayle has been given half of Eric Parkinson's room, the small room with sink next to it, and one-third of the large ASCA room. Franca Gallori seems to prefer to work in this office (where you were) with her vibrating and other tools.

Salary funds are still coming from emergency sources, but as you wrote, we do need more trained people. The situation will be, especially, bad this summer with Franca leaving in May (she may return next year) and Gayle going on a field trip to Alaska in June, July, and August. Would there be any possibility of your returning for the summer months, or, if not, do you know of anyone who could come?

Sincerely yours,

Elizabeth K. Ralph

**Loyola**  
College  
Montreal Canada

GEOTECHNICAL SCIENCES

March 15th, 1968

Miss Elizabeth Ralph,  
University Museum,  
33rd. and Spruce Sts.,  
Philadelphia, Pennsylvania.

[DOUGLAS]

Dear Miss Ralph,

Some recent and rather unsettling developments have taken place concerning the future of Loyola College. Without going into detail there appears to be a possibility that Loyola, which now conducts programs leading to a Bachelor degree, may revert, within the foreseeable future, to a two year "junior college" program.

Should this occur, I am uncertain as to what my future may be, but I anticipate that my research on various aspects of the defect state of geological materials, as shown by thermoluminescence and other phenomena, may have to be terminated. Because of this I am now making tentative enquiries for a new position on the behalf of my research assistant Mrs. G. Douglas. Her training includes a B.Sc. during which she took the first three years of civil engineering, plus graduate training in geological and soil mechanics subjects. She has worked for me on various aspects of the defect state of geological materials for the past two and a half years.

I would very much appreciate any assistance which you may be able to give Mrs. Douglas in this matter.

Yours very truly,



David J. McDougall.

March 20, 1968

Dr. David J. McDougall  
Geotechnical Sciences  
Loyola College  
Montreal, Canada

Dear Dr. McDougall,

It was good to hear from you, but I am sorry to say that I don't know of any particular position for Mrs. Douglas at this time.

Our University will be in a financial squeeze next year due to a reduction in the appropriation from the State, and has ruled that there be no new appointments. Also, as you probably know, the NSF is short of funds for new projects and positions.

If I happen to hear of an opening at any time, I'll let you know.

Sincerely yours,

Elizabeth K. Ralph

Wle

January 12, 1973

Dear Dr. Carriveau:

As a follow-up to our interviews on December 8th and 9th 1972, we are pleased to offer you a position in the Museum Applied Science Center for Archaeology.

For the first and possibly the second year, your title will be Research Investigator. The starting salary is \$11,000 for twelve months (this includes one month of vacation, usually taken in August).

We hope that you will be able to join us in February 1973 or soon thereafter.

Sincerely,

Froelich Rainey  
Director, University Museum  
and  
Museum Applied Science Center for  
Archaeology

Dr. Gary W. Carriveau  
Department de Physique  
Universite Laval  
Cite Universitaire  
Quebec 10<sup>e</sup>  
CANADA

# UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 19104

*File*

*The College*

DEPARTMENT OF PHYSICS

April 22, 1974

Professor J. O. Freedman  
Ombudsman  
University of Pennsylvania  
3537 Locust Walk/CP

Dear Professor Freedman:

Some of the statements made by Gary Carriveau in his letter to you of April 17, 1974 are just not correct.

The basic points are as follows:

- 1) He arrived one month late, was paid for February, 1973 even though he was not here. After only 4 months of work, he received a \$900 (8.2%) raise that he had not been promised.
- 2) Throughout his first 9 months here, he begged me to find some teaching to do. He brought up the subject so frequently that I was forced to suggest that he demonstrate his ability to conduct research for which he was hired.
- 3) At about this time, I attended a Departmental meeting in Physics at which Professor Wales announced that the Department was looking for some one to teach one section of Physics 250.
- 4) I arranged for Carriveau to meet Professor Wales, and the latter offered him the opportunity to teach this one course. This was in no way considered to be a permanent or even a position in the Department of Physics. In Professor Wales' letter of December 4, 1973, this is explained clearly.
- 5) Carriveau was pleased to be able to teach this course. He said that it was one that he had taught before. I do not remember any discussion of when and where he would prepare his lectures, but Carriveau volunteered the information that preparation time would be no problem since he had taught the course previously.

- 6) When Carriveau was hired, he was offered \$11,000 which he accepted with alacrity. He was not promised a raise, but he was free to read the grant proposal and to see that \$12,960 was budgeted for the second grant year. Incidentally, his position was not even budgeted for the first year. We had to eliminate two graduate students and supplement the funds which had been budgeted for them.
- 7) As explained in Professor Wales' letter and in the NSF GS 36308X-1 budget for the second grant year, Carriveau was never promised more than \$12,960, and it is against the policy of the Department of Physics to pay personnel extra fees for teaching.
- 8) Since Professor Rainey does not waste his time on minor items such as this NSF budget, he was not aware of the details although I did tell him that I planned to raise Carriveau's salary slightly more than \$1000 starting on January 1, 1974. Professor Rainey approved of this plan.
- 9) In summary, Carriveau has received a raise of \$1,960 (17.8%) within a working period of 10 months. Personally, I have not heard of anyone else who has been so lucky.

Sincerely yours,

Elizabeth K. Ralph

EKR/dh

cc: Prof. Wales, Dept. of Physics  
cc: Prof. Rainey, University Museum

file



**Museum Applied Science Center for Archaeology**

Froelich Rainey, Director

Elizabeth K. Ralph, Associate Director

**THE UNIVERSITY MUSEUM F1 • UNIVERSITY OF PENNSYLVANIA**

33rd & SPRUCE STREETS • PHILADELPHIA, PENNSYLVANIA 19174  
386-7400 (Area Code 215) Cable Address "Antique"

14 August 1974

Dr. Froelich Rainey  
Director,  
The University Museum

Dear Dr. Rainey,

I hereby submit my resignation as a Research Specialist effective 15 October 1974. I have an outstanding annual leave of four weeks, therefore my last working day will be 14 September 1974.

Due to the cancellation of the order for electronic components and the subsequent extension of the estimated delivery date to late October, I cannot honor your request to stay until this equipment is installed and in operation.

Respectfully yours,



Gary W. Carriveau

cc: H. Otto Haas, Director MASCA  
David Crownover, Executive Secretary

UNIVERSITY of PENNSYLVANIA

Room 130 Franklin Building  
3451 Walnut Street 16  
Philadelphia, Pa. 19174

Interviews 9-12 Mon-Fri or by Appointment

Date August 8, 1974

typing: gross 61.6  
errors 13.  
netscore 48.6

APPLICATION FOR EMPLOYMENT

Social Security No. 054-40-3524

Mr.  Ms.   
Miss  Mrs.  Ford Josephine Hale  
(Last) (First) (Middle)

Present Address 3924 Spruce St Philadelphia Pa. 19104  
(No. and Street) (City or Town) State (Zip Code)  
as of Sept 1: 4409 Sansom St. Tel. No. Ev 6-8529  
as of Sept.

Date of Birth July 23, 1951 Citizen of U.S. yes If not, type of Visa \_\_\_\_\_

Position Desired any work with animals, or anything connected with history Minimum Starting Salary \$110 per week Date Available August 12 end of Dec.

How were you referred to the University? Newspaper  Friend  University Employee  Other

Have you ever previously: - Applied for employment with the University? No When \_\_\_\_\_

Been employed by the University? No Department \_\_\_\_\_ When \_\_\_\_\_

Please state dates and other details of past and present military status None

Please state chronic ailments or physical limitations of any nature. None

EDUCATIONAL RECORD

ELEMENTARY SCHOOL

Name and Location	Date Entered	Date Left	Graduated Yes or No
<u>St. Nilda's &amp; St. Hugh's, New York City</u>	<u>1960</u>	<u>1964</u>	<u>_____</u>

HIGH SCHOOL

Name and Location	Date Entered	Date Left	Graduated Yes or No	Course
<u>The Bishop's School, La Jolla, Ca.</u>	<u>1967</u>	<u>1969</u>	<u>yes</u>	<u>high school diploma</u>

COLLEGE OR BUSINESS SCHOOL

Name and Location	Date Entered	Date Left	Field of Specialty	Graduated Yes or No	Degree and Date
<u>Bryn Mawr College</u> <u>Bryn Mawr, Pa.</u>	<u>1969</u>	<u>1973</u>	<u>history</u>	<u>yes</u>	<u>B.A., 1973</u>

SKILLS Typing Speed 40 w.p.m. Shorthand Speed \_\_\_\_\_ Languages not fluent, but knowledge of French, Greek, Latin, German

Equipment office equipment, Xerox Other \_\_\_\_\_

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

Gardening, shell-collecting.

An. Med. Lab. Tech.

PREVIOUS EMPLOYMENT

Name of Current or Most Recent Employer	Address	From
William R. O'Brien, M.D.	111 No. 49 <sup>th</sup> St.	July 1973
Title of Position	Name of Immediate Supervisor	To
Secretary	Wm. R. O'Brien, M.D.	June 1974
Duties	Earnings' Rate	
Typing, filing, answering phones, making calls etc.	\$130 per wk.	
Reason For Termination		
Wrong kind of job for me, too much arithmetic involved.		

Name of Previous Employer	Address	From
Bryn Mawr College	Bryn Mawr, Pa.	Sept. 1972
Title of Position	Name of Immediate Supervisor	To
Library student assistant	can't remember	Jan. 1973, approx.
Duties	Earnings' Rate	
filing, catalogue research	\$1.65/hour	
Reason For Termination		
scheduling problems		

Name of Previous Employer	Address	From
San Juan Mission (Mrs. Benjamin P. Ford)	San Juan Mission, Box 720, Farmington, N.H.	part-time
Title of Position	Name of Immediate Supervisor	To
secretary	Mrs. Benjamin Ford	during vacations
Duties	Earnings' Rate	
typing, running office equipment, general help in office	\$1.75/hour	
Reason For Termination		
went back to Bryn Mawr		

Other Employers	Address	Title of Position	From	To

Since participation in the Group Life Insurance Plan is a condition of employment for full time employees over 25 years of age who have dependents, I agree to become a member of such plan when required and will authorize any necessary deductions for such insurance from my salary.

I agree to submit to a physical examination if required for my position.

All of the foregoing information I have supplied in this application is a full and complete statement of the facts and it is understood that if any falsification be discovered, it will constitute grounds for dismissal upon discovery thereof.

Josephine N. Ford  
Signature of Applicant

A-1  
no spec II

# UNIVERSITY of PENNSYLVANIA

## APPLICATION FOR EMPLOYMENT

Date 21, August 1974

Mr.  Ms.   
Miss  Mrs.  Hao . Tien-Shou Social Sec. # 095-34-9945  
(Last) (First) (Middle)

Home address 2101 Chestnut st. Apt 1805 Philadelphia 19103 Tel. # 561-4393  
(No. and Street) (City or Town) (State and Zip)

Date of birth Oct 7, 1939 Citizen of U.S. yes If not, type of visa \_\_\_\_\_

Introduced by:  Newspaper  Friend  University Employee  Other \_\_\_\_\_

Type of position desired research specialist II Salary acceptable 9500 ~ 11000  
university museum

If previously employed by the University, state department and date no

Please state dates & other details of military status present status 5-A

State nature and dates of any serious illnesses none

Present physical limitations \_\_\_\_\_

### EDUCATION

	School	Years Attended	Major	Degree & Date
High School	Yokohama High School Yokohama, Japan.	1955 1959		Diploma 1959
Business or Vocational				
College or University	Fairleigh Dickinson Univ. Teaneck, N.J.	1962 1968	Physics	B.S. 1968
Graduate Study	Fairleigh Dickinson Univ. Teaneck N.J.	1968 1970	Physics	M.S. 1970

POSITIONS HELD ELSEWHERE  
(Applicant should account for all periods worked)

Current or Most Recent Employer Mädchengymnasium, Wesel, W. Germany  
Address 423 Wesel West Germany  
Immediate Supervisor Frau Haknen Title, if any \_\_\_\_\_  
Position Held Teacher Salary \$ 9600  
Duties Involved Teaching mathematics and physics classes from 8th to 13th grade.  
Classes consist of Geometry, Algebra, Set Theory, Differential and Integral  
Calculus, physics theory and laboratory works.  
Date Hired August 1972 Date Terminated July 1974  
Reason for Leaving Returning home - mother in Philadelphia

Previous Employer Fairleigh Dickinson University  
Address Teaneck N.J.  
Immediate Supervisor Dr. Arthur Title, if any Chairman Phy. Dept  
Position Held Teaching fellow and research assistant Salary fellowship \$3000  
Duties Involved Teaching physics laboratory courses. Assisting in research in the  
subjects of X-Ray Diffraction, thin films, and Spectroscopy  
Date Hired Sept 1968 Date Terminated June 1970  
Reason for Leaving graduated.

Previous Employer General Electric Time Sharing Service  
Address Teaneck N.J.  
Immediate Supervisor \_\_\_\_\_ Title, if any \_\_\_\_\_  
Position Held Sunday Operator Salary \$40 per day  
Duties Involved Operating type GE 235 Computers on Sundays  
Date Hired 1966 Date Terminated 1968  
Reason for Leaving Service no more required.

Previous Employer Hydroscience Inc.

Address Leonia N.J.

Immediate Supervisor Dr. Mancini Title, if any \_\_\_\_\_

Position Held Summer research assistant Salary \$380 per month.

Duties Involved Working in a water pollution research concern, helping solving mathematical equations plotting graphs, conducting biochemical tests.

Date Hired May 1966 Date Terminated Sept 1966

Reason for Leaving Summer Work

Creative or Scholarly Work (completed or in progress)

Membership in Professional Organizations

student member - American Institute of Physics (1966-1970)

Significant Outside Activities of a Community or Recreational Nature

Taught Tai Chi Chuan in an adult Evening College in Germany (1973-1974)

Active participation in a Buddhist organization in Amsterdam (1973-1974)

In the space below, please comment on the relevance of your training, experience or personal interests to the type of position you would wish to hold at the University. (Optional)

I am very interested in art and music. I am also interested in religion, ~~and~~ philosophy, and science. I have done some travelling in Europe, Asia and America and loved the people. I am willing to learn. I believe a combination of these factors will help to make my work both beneficial and fruitful.

- Resume enclosed.



Signature of Applicant

RESUME

TIEN SHOU HAO

Present Address 2101 Chestnut St., Apt. 1805, Philadelphia,  
Pa. 19103

Phone (215) 561-4393

EDUCATION

BS	Physics	1968	Fairleigh Dickinson University
MS	Physics (cum Laude)	1970	Fairleigh Dickinson University
Cert.	German Language for Foreigners	1970	University of Vienna

EXPERIENCE

Aug. 1972 to July 1974 Mädechengymnasium, Wesel, W. Germany,  
mathematics and physics teacher

Duties:

Teaching mathematics and physics classes from 8th Grade to 13th Grade in a German High School. Courses varied from Geometry, Algebra, Set Theory to Differential and Integral Calculus. Physics courses included both theory and laboratory works. All courses conducted in German.

1968 to 1970 Fairleigh Dickinson University  
Teaching and Research Assistant

Duties:

Teaching physics laboratory courses. Assisting in research in the following subjects: X-Ray Diffraction- to determine precision lattice constant of crystals; Thin Films Technique; and Far Infra-red Spectroscopy.

1966 to 1968 General Electric Time Sharing Service,  
Teaneck, N. J.

Duties:

Computer Operator; operating type GE 235 computers on Sundays.

May 1966 to Sept. 1966 Hydrosience Inc. Leonia, N. J.

Duties:

Work in a water pollution research concern, help solving mathematical equations, plotting graphs, conducting biochemical tests in laboratory and assisting in data processing.

EXPERIENCE (cont\*d)

Also worked for Alitalia Airlines at J. F. K. Airport, Flushing, New York in the Passenger Service Department from May 1970 to Oct. 1970. Proficient in English, Chinese, Japanese and German. Primarily interested in art and music. Taught Tai Chi Chuan in Adult Evening College in Germany- 1973 to 1974. Traveled extensively in Asia, America and Europe.

Vice-President : Student Chapter of American Institute of Physics  
at Fairleigh Dickinson University (1966-1970)

Salary Desired:	Open	Age: 34	
Date Available:	Immediate	Marital Status:	Single
U.S. Citizen:	Yes	Draft Status:	5-A

References available upon request

cc: 1) Dr. Rainey

2) Dr. Ralph

November 14, 1974

Herrn  
Dr. I. Scollar  
Rheinisches Landesmuseum

53 Bonn  
Colmanstr. 14-16  
WEST GERMANY

Dear Dr. Scollar:

Thank you for your letter of October 31, 1974 to Dr. Rainey concerning Dr. Ian Graham. There is an opening in the University Museum's Applied Science Center for Archaeology described in the attached. What we are looking for in particular is a person who can, among other things, study new scientific developments that can be applied to archaeology.

If Dr. Graham is interested in being considered for this position will you kindly ask him to send me his curriculum vitae and any other information that he believes may be helpful. On account of a problem with our budget it is possible that we may not be able to fill this position until the end of the first quarter of 1975, and I realize that this might be a problem for Dr. Graham.

Sincerely yours,

S/d F. Otto Haas

F. Otto Haas  
Vice Chairman  
& Chairman MASCA

October 16, 1978

M. L. Readhead  
2 Cavan Street  
Bicton, W.A. 6157  
Australia

Dear Mr. Readhead:

In reply to your letter of 5th October, I am writing to say that we do not have any positions available at the present time.

However, I am forwarding your letter to the Research Laboratory for Archaeology and the History of Art, Oxford University in case they have an opening.

As a word of personal advice, it would be better to typewrite your letter.

Sincerely yours,

E. K. Ralph

EKR:mbp

UNIVERSITY INTRAMURAL CORRESPONDENCE  
MUSEUM

October 17, 1979

Dear Beth,

A chance to write you on Museum business!

MS 4054 (photograph attached) was lent to ASCA for testing back in the 1960's. The piece was not returned to Dr. Edwards' section. Do you know if it is still in some cabinet. Might it be over at the C-14 lab? If you remember anything about it ----or having given it back to Roger, please let me know.

I hope last week was pleasant. October in your environs has to be wonderful. But hasn't it been chilly!

Let's have lunch one day soon. Many thanks,

Jenneth

589-9294

14Jan80

Beth:

Can you remember anything about this large (Diam.  $7\frac{3}{4}$ " ), heavy bronze ring which was loaned to ASCA in the long ago days when it was ASCA? We have asked MASCA twice and it simply can't be found. We would like it back. Any idea who in ASCA would have wanted it for testing, etc., etc.?

Roger

...um aheni<sup>2</sup>; for these  
... the same statement  
... provided for the  
... making, we again have  
... in 13, 1 among the  
... this same ring of bronze  
... tors have been unable

... venture the belief that  
... rings,"<sup>4</sup> the identifica-  
... regarded as quite prob-  
... numerous? We have  
... es that involve pulling  
... implement as the ring  
... the contestants in the  
... but actually they seem  
... did not clasp each other

... ht in greatest number  
... ve producing country;  
... he half dozen double  
... are characteristic of  
... equally from one an-

... a pressboard, orbis olearius

... able in our discussion.  
... with a diameter of five  
... ers each six knots and a  
... Schumacher, *Beschreib. der*  
... *La civilisation Primitive en*  
... av. 1901, fig. 6 c; p. 234:  
... oggetti di ginnastica . . .  
... altri fermagli di fascia."  
... d, a thud.  
... eptions παίζειν ἐλκυστίνδα,  
... a is different. See Gras-  
... Daremberg et Saglio, *s.v.*  
... sium,' I, p. 929\*; F. D.  
... νέσθαι and manus consertio.  
... caratteristici del Piceno

... other, but also  
... in some speci-  
... mens at varying  
... distances, so as  
... better to accom-  
... modate, it would  
... seem, the grip-  
... ping of the  
... hand.<sup>1</sup>

... Finally, I come  
... to what has been  
... my chief inspira-  
... tion to write this  
... article, a splen-  
... did specimen in  
... the Museum of  
... the University  
... of Pennsylvania  
... which has the  
... usual six projec-  
... tions unequally  
... spaced (Fig. 1). This has long rested in the same case with a

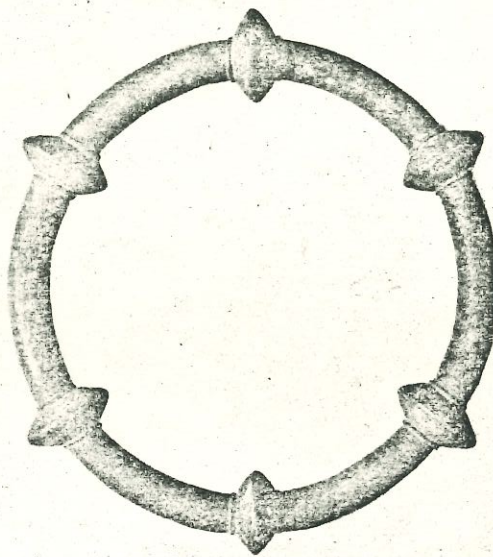


FIGURE 1.—"ATHLETE'S RING": UNIVERSITY MUSEUM, PHILADELPHIA. MS 4054

MS 4054

RING

cabret XXIX ✓  
ASCA  
testing

LOCALITY

Italy

CULTURE OR PEOPLE

DESCRIPTION

Large, bronze.

MASCA unable to find, 1979

cf. *Notizie degli Scavi* 1901, p. 234

publ: *ASA* XXII (1918) p. 295 ff, p. 301 fig 1

~~Wid. shape Gallery, Case 2~~

DIMENSIONS

Diameter 7 3/4"

COLLECTED

Gift of Dr. R. H. Lomborn

INDICES

CATALOGUED