

[6/10/1974]

Dr. Ralph:

I am sending this to you as of possible  
**interest**, but please do not feel obligated  
in any way.

L.M.

Rick,  
Please return OK  
Rick

Copy: Dr. Elizabeth Ralph



SMITHSONIAN INSTITUTION

Washington, D. C. 20560  
U.S.A.

June 10, 1974

John Eaves, Jr., Esquire  
American Consul General  
Mount Road  
Madras, India

Dear Jack:

As the saying goes, the buck stops here! I refer to a letter written to you by Dr. S. Paramasivan of Madras on April 12, 1974 which reached me via yourself, Thomas Greene of the Consulate General, Dr. Metzner of the Embassy, and Wayne Mills.

Dr. Paramasivan, who is retired from Government service in the Archeological Survey, requests financial assistance to carry on analytical work with ancient Indian materials in India and in related areas. As described in his letter and attachments, his background and list of publications command respect.

Wayne Mills correctly surmised that Dr. Paramasivan's project does not lie within the Smithsonian Foreign Currency Program's guidelines. However, we always like to help in bringing international scholars together, and in looking into possible academic connections for him I have discovered an American who is involved in the same sort of highly specialized analysis. Her name is Dr. Elizabeth Ralph, and she works at the Applied Science Center for Archeology, University Museum, Philadelphia, Pennsylvania.

I am sending to Dr. Ralph for her information a xerox copy of all the correspondence I received from Wayne, but it is preferable for the initiative to come from Dr. Paramasivan himself and I presume she will take no action until and unless he writes directly to her.

*Dr. Paramasivan's*

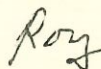
Dr. Paramasivan states that he is "anxious to make collaboration truly international", for which an appropriate channel would be UNESCO in Paris (or its New Delhi office).

If you care to make a constructive suggestion to Dr. Paramasivan when you write or talk to him, you might mention that the effectiveness of his proposal would be increased if he were to be more specific in describing his objectives, the methods by which he hopes to achieve them, and the particular locations in foreign countries where he wishes to carry out research.

This is the first opportunity I have had to write to you as Consul General. I hope there will be many more.

Please give my very best not only to Maria but to all my old Indian colleagues in the office.

Sincerely,



LeRoy Makepeace  
Office of International and  
Environmental Programs

Enclosures

From: Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras-17  
12th April 1974.

S/M  
Wynne Mills

Mr John Eaves, Jr  
American Consul General  
in Southern India,  
Madras.

Dear Mr Eaves,

I thank you very much for your kindness and courtesy during our discussions on Wednesday last. As suggested by you, I am sending you the "NOTES" on the subject of our discussions. I have taken the liberty of attaching a few enclosures to the "Notes" to make them more complete with a detailed background. I should be grateful to you for any help in the matter.

Once again I thank you.

With best regards,

Sincerely yours,

S. Paramasivan

S. Paramasivan

Enclosure:

One.

6 Rajanar Street,  
Tyagaroyanagar,  
Madras-17

## NOTES

### Scientific Work while in service:

I organised the chemical laboratory in the Madras Government Museum for the conservation and scientific study of ancient Indian materials, particularly the world-famous bronzes. The bronzes were the largest in the world. The electrolytic restoration, which had been in vogue in American Museums, had to be specially adapted.

I studied the science and technology of ancient Indian wall paintings, dating from the 2nd century B.C to the 17th century A.D, undertook their conservation and investigated on ancient Indian metallurgy (Vide Enclosure 1). These investigations gave a scientific status to the subject for the first time in India. So far, there has not been any follow-up action.

I collaborated with Dr Lawrence S. Harrison, the American Lighting Expert and Dr O'Dea, Head of the Science Museum, London, and studied the problems of artificial illumination of Ajanta caves.

At the suggestion of the late, Dr H. J. Bhabha, I made a study tour of U.K, Belgium, Holland, Germany, Austria, France, Spain, Italy, Switzerland, Greece, Yougoslavia and Egypt. (Vide Enclosure 2)

### Work after retirement:

I submitted a memorandum to the Council of Scientific Research Paris and they set up an international unit for the geophysical survey of ancient sites. I interested the council of scientific research, Rome in the neutron activation analysis of ancient Roman materials, which had infiltrated into many countries of Europe, Africa and Asia.

of ancient sites - a broad based scheme for India and neighbouring countries, including under-sea archaeological survey. I gave a scheme for the study of stress distribution over monuments to forecast where cracks are likely to occur, as a preliminary to structural conservation. I gave a scheme to the British Museum, London, for the preservation of their limestone sculptures from India.

Current Work:

The late Dr Bhabha initiated neutron activation analysis of ancient materials with my collaboration. Just three months before his death, he wanted me to take up further work on ancient materials at the Bhabha Atomic Research Centre. I prepared a comprehensive memorandum on "Scientific Research on ancient Indian materials - Its Scope and Dimensions," comprising of nearly 50 chapters, and sent it to the present head of the BARC. I had the support of the Directors of the Indian Museum, Calcutta, and the Madras Government Museum, who have the largest collections of ancient materials in India to be investigated, and who promised collaboration ( Vide Enclosures 3 & 4). The Director of the BARC invited me Bombay for discussions. The Director General of Archaeology in India, New Delhi, has agreed to collaborate with the BARC (Vide Enclosure 5). The Indian Institute of Science, Bangalore, have also extended their collaboration with me (Vide Enclosure 6).

The BARC has set up a study group in their Health Physics Division, which has all the necessary scientific facilities ( Vide Enclosure 7 ). They have sent me a preliminary report on their investigations (Vide Enclosure 8). This is the first time that the biggest scientific institution in the country, the biggest museums and the Archaeological Survey of India have been brought together for the scientific study of India's cultural property.

The BARC has taken up these investigations at my suggestion. But the materials to be investigated are with the museums and the Archaeological Survey of India. I have to contact them periodically, make selections, conduct preliminary scientific studies and process them for advanced investigations at the BARC and the Indian Institute of Science. If I back out at this stage, the work will stop. If I have to discharge my responsibilities, some travelling must be done to Bombay (BARC), Bangalore (Indian Institute of Sciences), Calcutta (Indian Museum) and Delhi (Archaeological Survey) almost thrice a year. I have retired from service and doing the work in an honorary capacity and for the love of it. But I cannot afford the expenditure ~~xxx~~ connected with travelling. Some sort of a travelling grant may be useful.

Request:

1. Ancient India has had cultural contacts with Mesopotamia, Iran and other West Asian countries, possibly Egypt, countries of the Mediterranean, of the Far East, like China, Japan, Indo-China, Sumatra, Java, Bali. Any scientific study on ancient Indian materials by BARC will heighten the value of the investigations, and impel others to do the same with ancient materials of countries with which India had cultural contacts. There will be international understanding and integration, as also national and emotional integration. With this end in view I am anxious to get into touch with some of the American Universities and scientific institutions, which have like interests with regard to ancient metals and alloys, pottery, bones, thermoluminescence, environment etc. I am anxious to make collaboration truly international.

2. I am anxious to explore the possibility of getting some travel grant for three years at present, which will give impetus to

these investigations.

LIST OF PUBLICATIONS

By

Dr S. Paramasivan, M.A., D.Sc., F.A.Sc

-----

- Ajanta Paintings 2nd C.  
B.C - 5th C  
A.D
- Bagh  
5th C A.D
- Badami  
5th C A.D
- Sittannavasal  
7th C A.D
- Conjeevaram  
7th C A.D.
- Ellora  
8th C A.D.
- Tanjore  
10th C A.D &  
17th C A.D
1. Technique of the Painting Process in the cave temples at Ajanta - Annual Report of the Archaeological Department of H. E. H. The Nizam's Dominions (1936-37), pp 25-30.
  2. Technique of the painting process in the Bagh Caves in the Gwalior State. Nature, 140 (1937), p.198
  3. The wall paintings in the Bagh Caves - An Investigation into their methods. Proc. Ind. Acad. Sci. A., X (1939), pp 85-95.
  4. The technique of the painting process in the rock-cut temples at Badami. Proc. Ind. Acad. Sci. A X (1939), pp 145-49
  5. The mural paintings in the cave temple at Sittannavasal - An Investigation into the methods - Nature, 139 (1937) p. 114.
  6. The mural paintings in the cave temple at Sittannavasal - An Investigation into their methods. Technical Studies in the Field of Fine Arts (Harvard University) .. VIII (1939), pp 82-89
  7. Preservation of Sittannavasal Frescoes - Jour. Mad. Uni VIII (1941).., pp 7-15.
  8. Technique of the painting process in the Kailasanatha and Vaikunthaperumal temples at Conjeevaram - Nature, CXLII (1938).., p. 757.
  9. Pallava Paintings at Conjeevaram - An Investigation into their methods - Proc. Ind. Acad. Sci. A., X (1939), pp 77-84
  10. Technique of the painting process at Ellora - Annual Report of the Archaeological Department of H. E. H. The Nizam's Dominions (1936-37), pp 31-38.
  11. A Note on the Dating of the Frescoes in the Irthadivara temple at Tanjore - Jour. Ori. Res (Madras) .. IX (1935), pp 363-67.

- anjore  
0th C A.D &  
7th C A.D.
- Vijayalaya-  
Cholisvaram  
9th C A.D.
- Indian Wall  
Paintings  
(General Tech-  
que ).  
Mamandur  
7th C A.D.
- Tiruparutti-  
kunram 13 C A.D
- Lepakshi &  
Somapalle  
14-16 C A.D
- Vijayanagar  
Paintings  
14-17th C A.D
- Tirumalai  
16th C A.D
- Cochin &  
Travancore  
9th C A.D &  
15-16th C A.D
- Miscellaneous
12. Technique of the painting process in the Brihadisvara Temple at Tanjore - Nature, 137 (1936), p. 867.
  13. Technique of the painting process in the Brihadisvara Temple at Tanjore - Technical Studies in the Field of Fine Arts (Harvard University), V (1937), pp 221-45.
  14. Technique of wall paintings in the Brihadisvara Temple at Tanjore - Current Science, VI (1937-38), pp 289-90.
  15. Technique of painting process in the temple of Vijayalaya-Cholisvaram in the Pudukkottai State, Nature, 140 (1937), p. 198.
  16. Technique of the painting process in the temple of Vijayalaya-Cholisvaram in the Pudukkottai State - Proc. Ind. Acad., A. VII (1938), pp 282-92
  17. Indian Wall Paintings - Jour. Mad. Uni., XII (1940) pp 95-128.
  18. Ancient Wall Paintings in the Cave Temple at Mamandur - Jour. Mad. Uni., XIII (1941), pp 4-6
  19. Ancient Wall paintings in the Jain Temple at Tiruparuttikunram. Jour. Mad. Uni., XIII (1941), pp 4-8.
  20. An Investigation into the methods of mural paintings - Lepakshi and Somapalle - Jour. Ind. Soc. Ori. Art VII (1939), pp 27-35.
  21. The Vijayanagar Paintings - The late Vijayanagar paintings in the Brihadisvara temple at Tanjore - Vijayanagar Sexcentenary Volume (1936), pp 87-100.
  22. Investigations into the methods of mural paintings - Tirumalai., Jour. Ind. Soc. Ori. Art., VII (1939) pp 33-38.
  23. An Investigation into the methods of mural paintings - Vadakkumnathan, Pallimanna, Peruvanam, Chemmanlatta, Tiruvanjikulam, Mattancheri, Tirunandikkara, Ettumanur, Padmanabhapuram Palace and Padmanabhaswami Temple. Jour. Ind. Soc. Ori. Art., VII (1939) pp 18-27
  24. Electrolytic Restoration of Bronze Statues and copper Plates. Proc. Ind. Acad. Sci., A., XIII (1941) pp 53-63
  25. Investigations on ancient Indian metallurgy - Ancient Indian Bronze ~~and~~ Bowls. Proc. Ind. Acad. Sci., A., XIII, (1941) pp 87-90.
  26. Investigations on ancient Indian metallurgy - Ancient Indian Bronze Coins of the 2nd and 11th centuries A.D.

## Miscellaneous

27. Metallography of Indo-Greek Coins from Taxila - Current Science, XI (1942), pp 190-92.
28. Classification of pre-historic Sites - Current Science XIII (1944), pp ~~303-32~~ 303 - 7.
29. Anomalous Diamagnetism of Graphite - Indian Journal of Physics, IV (1929), pp 149-45
30. Specific Heat in Relation to Raman Effect Data - Ind. Jour. Phy., VI (1931), pp 413-420.

N.B. Nature has brought out a summary of some of the above papers on wall paintings ( Vide Nature, 145 (1940), pp 195-96.

S. Panwaraswami

Enclosure No. 2

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Apollo Pier Road  
Bombay 1

Director

Prof H. J. Bhabha, D.Sc., F.R.S

26th November 1951

Ref: DIR/C/60/7/1595.

Dear Dr Paramasivan,

While I was in Italy this summer and last summer, I was very impressed by the way in which the Italians have developed the technique of removing frescoes from the walls of collapsing ~~walks~~ buildings and fixing them on to canvas which can then be displayed in museums. In this process either only the paint and the ground on which the painting was done or a very small thickness of plaster with it is removed, the whole being not more than 1 m.m thick. It occurs to me that a knowledge and experience of this process would be of the greatest importance in India where many of the frescoes are disappearing because they are in caves where the ill effects of damp cannot be kept out. If they could be removed intact, and preserved in museums it would certainly be a great benefit to Indian art. Moreover, in many cases several frescoes have been painted at different epochs on top of each other on the same wall. A refinement of the process might open up the possibility of removing the top fresco intact while at the same time uncovering the lower one to view. If you should therefore make an application to the appropriate authorities in your department for study leave to study these processes, I shall be glad to support your application, if necessary, you may give my name for reference. From what I have seen of your work in the past, it seems to me that you would be the right person to take up these problems in India.

Yours sincerely

(Sd) H. J. Bhabha

Dr S. Paramasivan,  
Offg. Archaeological Chemist in India,  
Dehra Dun.

(True Copy)

S. Paramasivan

A. K. Bhattacharyya, M.A., P.R.S.,  
F.M.A (Lond)

Director,  
Indian Museum,  
27 Jawaharlal Nehru Road,  
Calcutta-13  
June 8, 1972.

Dear Dr Paramasivan,

I have read with considerable interest your dissertation on "Scientific Research on ancient Indian materials," dealing in a comprehensive way with the latest scientific techniques available for the examination and dating of ancient materials. The increasing role of science in the study of our cultural relics is now well recognised and it is also to be admitted that in this country, having a vast scope for scientific work in this field, much still remains to be done.

I was therefore very glad to learn from you that a good beginning is about to be made in this direction. Your idea of establishing an independent institute for scientific research on ancient materials is a commendable one and I wish this proposal all success. I may also assure you on behalf of the Indian Museum, that we shall be prepared to collaborate in the work of the proposed independent research ~~work~~ Institute in all practicable ways.

Yours sincerely

(Sd) A. K. Bhattacharyya.

Dr S. Paramasivan, M.A., D.Sc  
6 Rajachar Street,  
T' Nagar,  
Madras-17.

(True Copy)

S. Paramasivan

Dr S. T. Satyamurti, M.A  
D.Sc(Colorado)., F.Z.S  
Director of Museums, Madras.

Government Museum,  
Egmore, Madras-6  
Dated 15th March 1973

Dear Dr Paramasivan,

I read your thesis on the "Scientific Research on ancient Indian materials - Its Scope and dimensions," with the deepest possible interest. It will interest also the curators of the various scientific sections of this museum. During my visit to the United States and the European countries, I was greatly impressed with the application of scientific methods to the study of their own ancient materials and those of other countries, and the use of the most sophisticated scientific equipments. Although our cultural property ----- have depth, variety and numbers, and influenced those of our neighbouring countries, there is practically no institution in India which utilises the most modern and up-to-date scientific methods of the West. This has been a long neglected subject in the country.

This museum has special reason to be grateful to you. You organised the research laboratory in the Madras Museum in the early thirties. Through your investigations and publications you gave it a recognised international scientific status. It was the first laboratory of its kind in India, and has remained as an ideal in the country. With your experience and knowledge, which has grown with age and time, your thesis has attempted an altogether fresh approach to the subject, focussing attention on our cultural property. So far as I am aware, there is no comprehensive publication on the subject in the West. This museum, with which you were associated once, and which has a number of scientific departments would indeed be glad to welcome the publication of your thesis in a suitable form, so that it could be of use to various scientific students of our cultural property and of archaeology.

I welcome your proposal to have an independent scientific unit where investigations could be carried out on ancient Indian materials in an objective and scientific manner. In a country, where there is a tendency on the part of many of the scholars to look at ancient Indian materials in a subjective way, with their own personal equations, the scientific study of the materials must have an objective outlook. Of course, they would welcome collaboration of other experts for discussion and further study on the basis of sufficient experimental data. Such an institution is long overdue. And it is a pity that the idea has not struck any of the Indian or foreign experts and consultants, who have visited India.

The Madras Government Museum has cultural property which ranges in time from the prehistoric to almost the modern times. Many of them are historic and of international character. As the Director, I do feel strongly that they have not been scientifically studied in the accepted western sense of the term. So far as I am aware, the same must be the case with all the bigger museums of India. When this unit which you envisage comes into existence - and I am sure that the authorities would work towards that possibility we shall be glad to extend all necessary facilities for its work ..... With scientific data on our historic ancient materials we shall be in a better position to explain them to scholars. I wish all success to your well-merited proposal.

Yours sincerely

(Sd) S. T. Satyamurti

To  
Dr S. Paramasivan,  
Archaeological Chemist in India (Retd)  
6 Rajachar Street,  
T' Nagar, Madras-17.

(True Copy)

S. Paramasivan

GOVERNMENT OF INDIA  
ARCHAEOLOGICAL SURVEY OF INDIA

B. K. Thapar  
Joint Director General

1974  
New Delhi-11, the 30th March 1974

Dear Dr Paramasivan,

I thank you for your letter of the 25th March 1974.

We are happy to know that the Bhabha Research Centre, Bombay, have started the thermoluminescence dating of pottery. We have been long looking for this opportunity. In India, there are quite a varied class of pottery which it is very difficult to date objectively by any other known method. The Ochre colour pottery has recently been dated through this method. We have still to obtain confirmatory data from more sites to establish the time-break. But, meanwhile, we should date two classes of pottery on a priority basis: (i) pre-Harappan, Kalibangan or any other site of that horizon in Rajasthan or elsewhere and (ii) Megalithic; one might add the Painted Grey Ware as well into this place but this should not be given priority. As far as I remember the Oxford Laboratory does not accept any samples unless the soil around the sherds is also sent along with it. You have very rightly put it in your letter. The sherds already with you do not have this information with them. It will be necessary therefore that samples should be collected freshly and then sent to the Laboratory according to the instructions. I have already a copy of the instructions for collecting samples. I am really eager to see the experiment succeeding in India.

Yours sincerely

(Sd) B. K. Thapar

Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras-17

(True Copy)

S. Paramasivan

INDIAN INSTITUTE OF SCIENCE

No. CISI/VSV/72.

BANGALORE 12

Prof V. S. Venkata-  
subramanyan.

Date 5 Feb 1972.

Dear Dr Paramasivan,

We have completed the analysis of six sets of pottery samples and the four coins and the preliminary results are encouraging. The results for trace elements in the pottery samples show a differentiation between materials from different regions and suggest a distinct possibility of identification. I am giving the results in the form of graphs, which also show a considerable similarity between specimens (a) - pre-Harappan (Kalibangan) and (b) Russet coated (Brahmagiri). The copper coins also are different in composition while the lead isolate ratios in the lead coins suggest very young lead ( 250 M.Y ) deposits. I think we can suggest a project on the basis of these preliminary results, and work it out next time you go over here.

With best regards,

Yours sincerely

(Sd) V. S. Venkatasubramanyan

Dr S. Paramasivan,  
6 Rajachar Street,  
T' Nagar, Madras 17.

(True Copy)

S. Paramasivan

Enclosure No. 7

GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE  
Health Physics Division

No.  
HPD/Gen-8/1948.

November 10, 1973

Dear Dr Paramasivan,

This is to acknowledge receipt of your letter dated October 27, 1973 with a parcel containing forty packets of ancient Indian materials. As Dr Ganguly was abroad for quite some time, your letter and parcel could not be acknowledged earlier.

A study group is being formed in Health Physics Division for the study of these ancient materials using techniques of Atomic Absorption Spectrometry, neutron activation analysis and Thermoluminescence Dosimetry. Investigations will be started soon and you will be kept posted of the progress we make periodically. Help from other divisions regarding X-Ray fluorescence analysis, metallurgical examination etc will also be sought in due course.

We thank you very much for having kindly provided us with these valuable samples and assure you of our earnest attempt to unravel the histories contained in these ancient materials.

With kind regards,

Yours sincerely

(Sd) S.D.Soman  
Head, H.P.Division.

Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras-17

(True Copy)

S. Paramasivan

Enclosure No. 8

GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE  
Health Physics Division

S.D. Soman  
Head, Health Physics Division,

HPD/Gen-8/211.

March 18, 1974

Dear Dr Paramasivan,

I am sending herewith some of the preliminary results obtained by us in various investigations on the ancient materials kindly supplied by you. The results have been presented in three separate titles, viz.,

- 1) TL Dating of pottery samples,
- ii) Atomic Absorption ~~Spectrometric~~ spectrophotometric analysis of ancient coins,
- iii) Neutron activation analysis of ancient coins.

These are results from ~~trial~~ runs only and further detailed investigations are being undertaken. In the meanwhile, we would appreciate receiving any comments, suggestions or guidelines from you in the light of the preliminary data obtained by us.

With kind regards,

Yours sincerely

(Sd) S.D. Soman

Encl: As above

Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras-17.

(True Copy)

S. Paramasivan

Jim Weinstein  
What about this?  
Beth

From: S. Paramasivan, M.A., D.Sc., F.A.Sc  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras-17 (India)  
12th October 1974

Dr Elizabeth Ralph,  
Applied Science Centre for Archaeology,  
University Museum,  
Philadelphia,  
Pennsylvania.

Dear Dr Elizabeth Ralph,

I had a letter from Mr John Eaves, Jr, Americal Consul General in Southern India, Madras, dated July 25, 1974. In his letter he says,

" I have recently had a letter from Mr LeRoy of the Office of International and Environmental Programmes of the Smithsonian in Washington, D.C., as a follow-up to my approach on your behalf to the Scientific Attache at the American Embassy in New Delhi.

" Mr Makepeace informs me that your project does not lie within the Smithsonian Foreign Currency Guidelines. However, he suggests that you may wish to communicate with an American scholar who is involved in the same kind of highly specialised analysis as you are, with a view to discussing your project and seeing what suggestions she might have. Her name is Dr Elizabeth Ralph and she works at the Applied Science Centre for Archaeology, University Museum, Philadelphia, Pennsylvania. Mr Makepiece has already informed Dr Ralph that she may expect to be receiving a letter from you.

" Mr Makepeace also suggests that UNESCO, which has an office in New Delhi, might be an appropriate channel for you to investigate in pursuit of your interest in making the collaboration truly international.

" Mr Makepeace also suggested that he belived the effectiveness of your proposal would be increased if you were ~~were~~ to be more specific in describing your objectives, the methods by which you hope to achieve them, and the particular locations in forwign countries where you wish to carry out research.

I am, therefore, sending you, by separate registered post, copy of my " Scheme for Scientific Research on Ancient Bronzes - A scientific study in cultural relation," as suggested by Mr LeRoy Makepeace, of the Office of the International and Environmental Programme of the Smithsonian Institution in Washington, D.C.,

(2)

I am interested in the scientific and technological study of ancient bronzes in the world context. Several countries in the world had each its own science and technology of bronzes in ancient times. An attempt is to be made to conduct the investigations pertaining to different regions and to co-ordinate the scientific results. There is another point of interest. Indus Valley civilisation and later, the Indian civilisation had its cultural impacts on the countries of the Far East in a manner broadly dealt with in my scheme. Again, the Indus Valley civilisation had its impacts on the Sumerian civilisation. And the Indo-Sumerian civilisation influenced the culture of various Mediterranean countries, and through them the culture of Africa and the New World. I have also discussed these aspects in my scheme.

I am mainly interested in science and technology pertaining to ancient bronzes. I am also interested in the archaeological and historical implications.

I would request you to acknowledge the receipt of my " Scheme " which I am sending by a separate registered post.

With kind regards,

Sincerely Yours,

*S. Paramasivan*

(S. Paramasivan )

From: Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras 17  
15th October 1974

Dr Elizabeth Ralph,  
Applied Science Centre  
for Archaeology,  
University Museum,  
Philadelphia,  
Pennsylvania,

Dear Dr Elizabeth Ralph,

I hope you have received my letter dated 12th October and a copy of my "scheme for scientific research on ancient bronzes - A scientific study in cultural relations." On a second thought, I feel that I should amplify the objective and the methods of research. I am, therefore, sending you a supplementary Note in about a week.

With kind regards,

Sincerely Yours,

S. Paramasivan

INDIA-U.S.A.  
MAIL



25th ANNIVERSARY OF INDEPENDENCE 1972

Pls  
25th

स्वतंत्रता की 25वीं वर्षगांठ

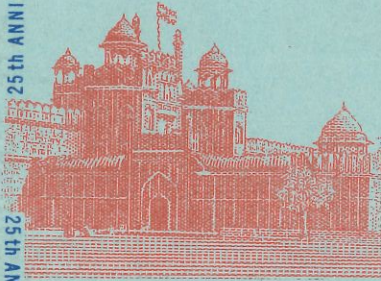
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INDIA  
AIR MAIL



25th ANNIVERSARY OF INDEPENDENCE 1972



Dr Elizabeth Raj  
Applied Science Centre  
for Archaeology,  
University Museum,  
Philadelphia,  
Pennsylvania  
(U.S.A)

ANNIVERSARY OF INDEPENDENCE 1972 स्वतंत्रता की 25 वीं वर्षगांठ

पहला मोड़  
FIRST FOLD

OF INDEPENDENCE 1972 स्वतंत्रता की 25 वीं वर्षगांठ 25th ANNIVERSARY OF INDEPENDENCE 1972

दूसरा मोड़ SECOND FOLD

इस पत्र के अन्दर कुछ न रखिये NO ENCLOSURES ALLOWED

भेजने वाले का नाम और पता:- SENDER'S NAME AND ADDRESS:-

Dr S. Paramasivan

6 Rajachar Street,

Madras 17 (India)

भारत INDIA

From: Dr S. Paramasivan,  
6 Rajachar Street,  
Tyagareyanagar,  
Madras 17 (India)  
31st October 1974

Dr Elizabeth Ralph,  
Applied Science Centre for  
Archaeology,  
University Museum,  
Philadelphia.

Dear Dr Elizabeth Ralph,

Please refer to my previous letters to you and my scheme on Scientific Research on Ancient Bronzes - A scientific Study in Cultural Relations. I am sending you, by separate registered post, a supplementary note on it, as suggested to you in my letter dated 15th inst. I am sorry for the delay.

If there is any point which needs further clarification, please write to me.

Please acknowledged the receipt of my original scheme and this supplementary note.

With kind regards,

Yours sincerely

*S. Paramasivan*

Dr Elizabeth Ralph,  
Applied Science Centre for  
Archaeology,  
University Museum,  
Philadelphia  
(U.S.A.)

REGISTERED MAIL  
INDIA - U.S.A.

Dr S. Paramasivan  
6 Rajachar Street,  
Tyagareyanagar,  
Madras 17 (India)

हवाई पत्र  
AEROGRAMME

INDIA - U.S.A  
AIR MAIL

इंडिपेक्स  
INDIPEX



Dr. Elizabeth Ralph,  
Applied Science Centre for  
Archaeology,  
University Museum,  
Philadelphia



Pennsylvania  
(U.S.A)

दूसरा मोड़ SECOND FOLD

इस पत्र के अन्दर कुछ न रखिये NO ENCLOSURES ALLOWED

भेजने वाले का नाम और पता SENDER'S NAME AND ADDRESS

Dr S. Paramasivan

6 Rajachar Street,

Madras 17 (India)

पिन PIN

भारत INDIA



SMITHSONIAN INSTITUTION

*Washington, D.C. 20560*  
*U.S.A.*

November 4, 1974

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

Dear Dr. Ralph:

Enclosed is the copy of Dr. S. Paramasivan's project entitled "Scheme for Scientific Research on Ancient Bronzes". When I talked with you on the telephone, you said you had also received a copy but would be glad to have another.

As I believed I explained to you, this project is outside the field of the Smithsonian Foreign Currency Program since Dr. Paramasivan is retired and apparently not connected\* with an institution. However, I read his proposal with considerable interest, being unfamiliar with the subject.

I hope something useful comes of this. I know Dr. Paramasivan will be waiting anxiously to hear from you. You should deal directly with him, not through me.

Wishing you good luck, assuming you perceive any merit in this project,

Sincerely,

LeRoy Makepeace

Office of International Activities

*The supplement, also enclosed, arrived  
after this was written.*

November 5th, 1974

Dr. S. Paramasivan  
6 Rajachar Street  
Tyagaroyanagar  
Madras-17 (India)

Dear Dr. Paramasivan,

Thank you for your letters and proposal.

My colleagues and I are in the process of studying the proposal.  
In the meantime, I am just writing to say that it has arrived.

Sincerely yours,

Elizabeth K. Ralph

January 22, 1975

Mr. Le Roy Makepeace  
Office of International Activities  
Smithsonian Institution  
Washington, D.C. 20560

Dear Mr. Makepeace:

Except for writing to Dr. Raramasivan to acknowledge the receipt of his proposals, I have done nothing because I am in a real quandry.

I have enclosed a copy of the comments made by an expert in these fields. I agree with him - some of the suggestions are just unbelievable.

Could you advise me upon how to handle this with Dr. Paramasivan? One out would be to tell him that due to the economic situation, we have no funds and can offer no services at this time. This is partly true.

Sincerely yours,

Elizabeth K. Ralph

From: Dr S. Paramasivan  
6 Rajachar Street,  
Tyagaroyanagar,  
Madras 17 (India)  
22nd February 1975

Dr Elizabeth Ralph,  
Applied Science Centre for Archaeology,  
University Museum,  
Philadelphia.

Dear Dr Ralph,

I am sorry I could not write to you all these days acknowledging the receipt of your reprints relating to Radiocarbon dating, which you were pleased to send me. I was busy in connection with the National Symposium on THERMOLUMINESCENCE, which was held at Kalpakkam, the Madras Unit of the Indian Atomic Research Centre. It was concluded only last week. I initiated investigation on TL dating of ancient Indian pottery which has a long continuous tradition from about 3000 B.C to almost the modern times. We did some exploratory work, taking selected samples from important archaeological sites in India. The preliminary results are very encouraging. We are planning a more concentrated ~~atta~~ attack on Harappan and on some aspects of the Pre-Harappan and the Post-Harappan pottery.

I am sending you, by separate post, a copy of the abstracts of papers read at the National Symposium held at Kalpakkam. The abstract relating to the TL dating of pottery appears on page 71.

I should be grateful to you, if you can send me all the ~~availab~~ available reprints of your publications and those of your colleagues on TL dating. They will be most useful to me. Incidentally, I should like to have also copies of MASCA Newsletter, if that is possible.

If your laboratory is carrying on investigations on the dating of fossil bones through the study of L- and D- amino acids - isoleucine and alloisoleucine, and if reprints are available, I should be much obliged.

I presume that you and your colleagues have gone through my report on "Research on Bronzes - A Scientific Study in Cultural Relations," which I submitted to you at the suggestion of Dr Makepeace of Washington. May I have the privilege and pleasure of hearing from you your reactions.

Thanking you.

With kind regards,

Yours sincerely

J. Paramasivan

February 27, 1975

Dr. S. Paramasivaa  
6 Rajachar Street  
Tyagaroyanagar  
Madras 17  
India

Dear Dr. Paramasivan:

Thank you for your letter of February 22nd.

I am enclosing xerox copies of most of our fairly recent articles on TL dating as well as three MASCA Newsletters. We shall put your name on our mailing list for Newsletters in the future. ✓

We are not doing amino acid dating here, but the technique is mentioned in two of the enclosed Newsletters.

I am sorry about the delay in replying about your report on "Research on Bronzes." I sent a copy to several people in the Department of Metallurgy and I am waiting to hear from them.

Sincerely yours,

Elizabeth K. Ralph

*Handwritten note:*  
Put Dr.  
your name  
in mailing list

Dr S. PARAMASIVAN  
6 RAJACHAR ST  
TYAGAROYANAGAR  
MADRAS-17 (INDIA)

20 Dec 1975

Dr Elizabeth K. Ralph  
Applied Science Centre for  
Archaeology  
University of Pennsylvania  
Philadelphia.

With Season's Greetings

S. Paramasivan

हवाई पत्र  
AEROGramME



Dr Elizabeth K. Ralph  
Applied Science Centre for Bioaerology  
University Museum  
2328 Spruce Street  
Philadelphia, Pennsylvania  
(U.S.A.) 19104



पहला मोड़  
FIRST FOLD

दूसरा मोड़ SECOND FOLD

इस पत्र के अन्दर कुछ न रखिये NO ENCLOSURES ALLOWED

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