January 23, 1963
919 Hilltop Drive
Palestine, Texas

Dr. Beth Ralph
Department of Anthropology
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Dr. Ralph:

In early January, I visited the Department of Anthropology to discuss my plans to enter the Graduate School. At that time I talked with you about the chance of my working in your group during my first year. As you may remember, I have had a fair amount of experience in physics and electronics. My resume is enclosed to give you an idea of what sort of work I have done.

During my first year I want to spend as much time as possible on my studies, but the precarious state of my finances makes some work such as you might be able to offer me very attractive. On the other hand, it would also be very satisfying to me if I could engage myself in some creative work where I could use the abilities I already have. If you might have some place for me in your work, I would be very grateful.

Sincerely,

Michael E. Meeker

Education

50-54 Palestine High School, Palestine, Texas

54 University of Texas (summer school)

54-58 Massachusetts Institute of Technology
Major: physics degree: S.B.

58-59 l'universite de Paris (Alliance Francaise
Fribourg fellowship & Fulbright Travel Grant)

59-60 M.I.T. Graduate School (physics)
Teaching Fellowship

60-61 M.I.T. Graduate School (physics)
Research Assistantship

Experience

summer '57 staff assistant at Sandia Corporation, Albuguerque, N.M. work involved fast pulse techniques and some work in ferro-magnetics (paper #1)

summer '58 staff member at Sandia Corporation work involved fast pulse techniques and a thermodynamic analysis of the various mechanisms of the explosion of wires by an electric pulse (paper #2)

'58-'59 Bachelor thesis written with M.I.T. gas discharge group. work involved microwave and high vacuum techniques the thesis was more valuable (to me) in that it involved some consideration of a large number of the problems in gas discharges rather than dealing profoundly with any one of them. (paper #3)

'60-'61 Worked on the development and construction of a microwave injector for the M.I.T. linear accelerator. work involved high-vacuum techniques, high- voltage techniques, electron guns, and some instrumentation.

'61-present Performed thermionic research at Thermo-Electron Engineering Corporation, Waltham, Mass. This work tended to be on the engineering side of things. work involved heat transfer calculations,

instrumentation, high vacuum-techniques, brazing techniques, and some consideration of gas discharges and surface physics. (paper #4, #5, and #6)

Professional Papers

1. Experimental Study of High-Voltage One-Shot Ferromagnetic Explosive-Electric Transducers, Sandia Corp. intra-company publication 1957
2. Study of the Thermodynamics of Electrically Exploded Wires, Sandia Corp. intra-company publication 1958
3. A New Technique for Determining Electron and Ion Densitites in the Ambipolar Diffusion Limit, S.B. Thesis, M.I.T. 1959
4. An Experimental Determination of the Heat Conductivity of Cesium Gas, Advanced Energy Conversion Journal (1962) S. Kitrilakis and M.E. Meeker
5. Annual Technical Summary Report for the Thermionic Emitter Materials Research Program, S. Kitrilakis, M.E. Meeker, N. Rasor, Office of Naval Research 1962, June
6. Experimental Determination of the Detailed Work Function Distribution of Metal Surfaces by the Photoelectric Effect (in progress)

(I have also sent two copies of my transcripts to the University of Pennsylvania Office of Admissions)

Archaeological Techniques

April 5, 1961

Mr. John Russell Meldorf
704 West Eleventh Street
Sterling, Illinois

Dear Mr. Meldorf:

My office sent you a copy of the magazine "Expedition" with the article on Electronics and Archaeology, but I am sorry to say we have no diagram of the resistance apparatus.

The Michimho instrument was developed by a road engineer in Michigan. We are now working on a different device which operates on a sonic principle. We do not know yet whether this will work.

Most sincerely,

FR:ah

Froelich Rainey
Director

704 West Eleventh Street

Sterling, Illinois

March 25, 1961

Dr. Froelich Rainey

University Museum

33rd Spruce Street

Philadelphia,,Pennsilvania

Dear Dr. Rainey,

I was told by Dr. Mathew W. Stirling that you might have a diagram of the Michimho as was used by Dr. Stirling in his excavations at Cerro de las Mesas. He also told me that it was being improved for further research but I wish only a diagram showing how it works and naming each part before it was remodeled for I wish to make a crude, but working model for a science exhibit. Since my exhibit is on the archaeology of the southwestern United States, if you have anything pertaining to this topic, I would like to borrow it. I wish to have an explaination of your role, that is if you played one, in the developement and use of the Michimho.

I am also enclosing $1.00 for the article in "Expedition", Vol. 2 No. 4, 1960, explaining Dr. Stirling's excavtions.

Would you please have all this in my hands before April 1, for I have a deadline to meet and I must still build the Michimho.

Thak you for your kind consideration.

Sincerly,

John Russell Meldorf

John Russell Meldorf

BRYN MAWR COLLEGE
ARCHAEOLOGICAL EXPEDITION
ELMALI (ANTALYA)
TURKEY

October 12, 1964

Dear Beth:

Greetings from the fringes of Anatolia. We are still in the midst of digging and are poking around in the ruins of a burnt house and complex of the Early Bronze Age, all nicely stratified and datable by general archaeological means to about 25 00-2300 B.C., if our theories are right.

We are coming across quite a bit of burnt wood and are taking samples for C-14 analysis. One thing I am not sure of is whether we are allowed to let the charcoal hunks dry before we put them in the plastic bags. I have seen soupy samples and wonder whether there is any harm in letting the sample dry in sunlight during a couple of hours on the site. The charcoal comes out clean or almost clean, we brush the dirt off and then either put the pieces in the bags right away or let them dry in the strong and clean sunlight for a while, putting them on top of a plastic sheet. The air here, incidentally, must be very pure and safe we think, it is good mountain air and there are no factories, laboratories, railroads or chimneys anywhere in the vicinity. But I'd appreciate a word from you on the ~~de~~ desirability of drying the samples. They come from relatively deep and somewhat moist layers.

We hope to get some grain or other burnt vegetable matter too, and will make a liberal sample collection.

I hope this string of samples will reach your lab before you move your focus to some remote non-Mediterranean shores. How has the recent testing been? The crew here is much impressed with the possibility of getting a scientific age determination for E.B. Lycia, and will do its best to follow your precepts.

Many greetings also to Ellen (tell her we are still continuing for another month or so, weather and other circumstances being excellent),

Yours, Machteld

MELLINK

October 26, 1964

Dr. M. J. Mellink
Bryn Mawr College Archaeological Expedition
Elmali (Antalya)
Turkey

Dear Dr. Mellink:

In answer to your letter of October 12th, Beth is still in Italy, and is not due back for at least another two or three weeks.

With regard to your sample collection techniques, it's very kind of you to pre-dry the charcoal samples, but not really necessary; we can oven dry them here before starting pretreatment. If there is some chance of local fungus or mildew growth if the samples are packed in a wet condition, or if there is a problem of packaging a wet sample, then by all means dry them. But please take care that there is no chance of more localized contamination, such as charcoal, grain dust, dust from nearby excavations, etc., for these can distort the date as can factory smokes.

Good luck.

Sincerely,

Robert Stuckenrath, jr.
Radiocarbon Laboratory

June 12, 1964

Dr. Machteld Mellinck
Department of Archaeology
Bryn Mawr College
Bryn Mawr, Pa.

Dear Machteld:

The C^{14} dates for Can Hasan are enclosed. Bob Stuckenrath prepared this yesterday, but is absent today. Therefore, I won't send copies to Drs. French and Mellaart until Monday after I have gone over it with him. I suspect the labelling of transition C, etc. may be incorrect.

With best regards,

Beth

EKR:pc

June 16, 1964

Dr. Machteld Mellink
Department of Archaeology
Bryn Mawr College
Bryn Mawr, Pa.

Dear Machteld:

A revised copy of the Can Hasan list is enclosed.

Hope that all goes well with your paper.

With best regards,

Beth

EKR:pc
Enc.

BRYN MAWR COLLEGE
BRYN MAWR, PENNSYLVANIA 19010

DEPARTMENT OF CLASSICAL AND
NEAR EASTERN ARCHAEOLOGY
(215) 645-5334

April 23, 1980

Dear Mrs. Lawn,

This is a belated note to thank you again for your kindness in giving our small group of seniors an introduction to the work in the C-14 lab. They appreciated the seminar-in-the-lab very much and we all learned a great deal especially about the coordination with dendrochronology and your pioneering efforts to establish the calibration curve. Please give my best thanks and admiration also to Beth Ralph.

Sincerely yours,
Machteld J Mellink.

[MACHTELD MELLINK]

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"

January 9, 1964

TO: Dr. Froelich Rainey

From: H.N. Michael

Subject: Preliminary survey by H. Michael of available woods for crossdating purposes.

Pursuant to our conversations, I am sending you this memo so that you may be reminded to take up the subject of my possible visit to survey the available woods now in association with some of the Egyptian antiquities.

If clearance and appropriate guidance can be secured for me, the precise date could be worked out by correspondence with the person or persons concerned. At the moment it seems that the likely date of my arrival in Egypt would be August 15 ± four days, but certainly not earlier than August 11, 1964. (The Moscow congress terminates on August 10.)

MEMORANDUM

TO: Dr. F. G. Rainey

FROM: H. N. Michael

DATE: May 13, 1965

SUBJECT: Permission to core wooden structures at Dahshur, Meidum, and possibly Saggara.

In a recent letter (attached), Zaky Iskander mentioned that it will be necessary to have permission from:

Mr. Mohammed Mahdi, Director General
Department of Antiquities
(he does not complete rest of the address)

in order to carry out the corings. He suggested that you write to Mahdi asking for the permit.

Here are some pertinent facts:

1. Names: Drs. Bryant Bannister and H. N. Michael

2. Sites: Bent pyramid at Dahshur, pyramid at Meidum, and possibly Saggara

3. Purpose: To obtain samples of woods which hopefully may yield information which will enable us to establish a dendrochronology applicable to the Near East. The samples obtained by coring may correlate (cross-index) with samples of cedars of Lebanon obtained from buried logs recently excavated in Lebanon.

4. It should be emphasized that the amount of wood needed is extremely small (a "plug" about 1 cm. in diameter) and that the corings will in no way injure or deface the wooden structures or beams from which they will be taken.

5. It will be much appreciated if permission could be given so that we could have it here before our departure on June 6, 1965.

HENRY MICHAEL

HÔTEL SAINT-GEORGES
BEYROUTH (LIBAN)

TÉL.: 231437 - 238493 - 220560
ADR. TÉLÉGR. GEORGOTEL

16 Aug 64

Dear Beth –

The time is about 1 AM and I am writing this on the plane somewhere over Pakistan.

The "buried log" seems to have been a fiasco from beginning to end. It turns out that it was cut correctly, near the base, and amazingly has less than 200 rings. I say amazingly because the "monastery" log is about 1/3 its diameter & yet has about the same no. of rings.

It seems to have been my bad luck to trust Basbous's statements. I have learned from

two independent sources that he is a chronic liar and a character not to be trusted despite his relatively high position. However, this is a thing of the past — I will tell you the details later.

In trying to secure permission to conduct living cedars, I have approached Major (which is the reason, I couldn't or rather should not ~~have~~ see Bastouns). I did so at the urging of Bannister in London and Moscow, and after seeing what the Russians are doing with recovered wooden carts and chariots from Lake Sevan in Armenia (from the Russian dendrochronologist Kolchin). These date to ca. 2500 - 3000 B.P. and may correlate with the Anatolian Plateau work.

Also I have "discovered" (through Wahbe) that there is an extensive forest of some 10's of thousands of trees near EL BAROUK and that it probably contains older trees than the monastery grove. A ~~new~~ primitive road was bulldozed in the mountain-side last year, but it impossible to negotiate it

HOTEL SAINT-GEORGES
BEYROUTH

with a passenger car, so I got no closer than 5 road miles from the ~~forest~~.

At any rate, Mr. Idir was very cooperative and if he survives the coming Tuesday election of a new president, I think the permission will be forthcoming after our formal application. We can either follow it through or, if you think it appropriate, turn the matter over to Bannister.

In Sidon (Saida), in the "Crusader" fort, there is an exhibit of a ~~tag~~ cedar beam from a Phoenician ship which had been recovered from the waters of the harbor. It is one of these latent "possibilities" if the project gets going.

~~Bass's~~ Bass's recovered wood may be another possibility. He has gotten quite a play in the Beirut newspapers, with photographs and appropriate verbiage.

I hope that your summer has been a reasonable one as far as work is concerned and hope further that you will not leave for Europe before I get back. Since you will not be back until December, decisions have to be made (provided the project goes) about the work in Egypt and possibly in Lebanon. But, I am sure, even though you may leave early, that we could handle it by correspondence.

I am scheduled to arrive in Tokyo Aug. 24 and stay in the Tokyo Hilton for 2 nights before I go native. I also may be able to check for mail at the Hilton on Aug. 31. So, if you are leaving and there are things I should know, please write.

Best of all,

Henry [MICHAEL]

July 1, 1965

Dr. Henry N. Michael
C/O Dr. Zaky Iskander, Director of the Laboratory
Department of Antiquities
Tahrir Square, Cairo Egypt, U.A.R.

Dear Henry:

My sojourn in Italy ended abruptly on June 19th when we managed to get the water lower in our excavation of last fall (plain of Sybaris), and found that there wasn't much to see. Therefore, I'm back at work in hot Philadelphia.

I have enclosed a copy of an article about anti-matter, etc. with the thought that you might know someone who could obtain a cross section of a tree from the area described. It should span the year 1908 with ten or more rings on either side. This is not urgent and, maybe not possible, but I'm sending it now in case you prefer to write to someone from Egypt or Europe.

Please give my regards to Bryant and Zaky (if you see him), and best wishes for the success of your project.

Beth

EKR:rm

Enc.

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"

July 3, 1963

Miss Elizabeth K. Ralph
c/o S. Murnaghan
5 Windsor Avenue
Belfast, Northern Ireland

Dear Beth:

This is a preliminary report on what I found in Turkey and Lebanon, and also some additional notes on Wesley Ferguson and Bannister.

(1) At the City Mound at Gordion there was a half-burned beam which I suspected might be good for correlation purposes with the Tumulus M. M. since it came from the Phrygian level. I cross-cut it and discovered 130 intact rings (including the pith) and, although this may not mean much, it will be a good exercise in correlating the Tumulus and the City Mound.

(2) Lebanon essentially gives, as far as I can see, negative information as far as the living Cedars of Lebanon are concerned. As usual, many people are misled by adjoined trunks of several trees in thinking that one tree may be very old. I believe this to be the case of the one Cedar which has a 16 meter circumference. Actually, it is 5 separate trees. There are some giant ones, single ones, growing on well drained hillocks but they probably will not be older than, say, 600 or 700 years. As a matter of fact the circumstance that a church was built in the grove 400 years ago, thereby the Grove becoming a sacrad place, caused the trees to be preserved. The buried trunk is impressive, just as Pritchard wrote, and I believe ~~we~~ it might eventually pay to do something with it. The recently fallen tree is somewhere between 180 and 250 years old. I have gotten promises of sections from both and I think these promises will be carried out because of the energy of Dr. Malek Basbous.

(3) This refers to a letter by Bannister to Dr. Rainey, which is a follow-up to the letter which Jeanette Flamm forwarded to you and essentially states that Bannister wants to go to Egypt this winter, probably will get some

money to do it, but still wants our cooperation in the way of recommendations and, of course, will share the results.

(4) Ferguson wrote a follow-up letter also, and it is very encouraging. Let me abstract the principal points:

> "During the past year, the basic dating -- back to 780 B.C. -- for the bristlecone pine in the White Mountains of California has been greatly strengthed by the dating and incorporation of additional material. With this interval as a base, the chronology was extended first to 1100, then to 1550 B.C. A series of cross sections from a single tree has provided an extension to 1900 B.C. As these early intervals are being studied, additional material is being dated, and specimens prior to this time are being identified. Portions of specimens being studied have units that crossdate back to 2400 and 2500 B.C. Thus, we are increasingly certain of the 4000-year age of these trees and of the ultimate establishment of a definitive year-to-year chronology which, when supported by radiocarbon dating and by a derived climatic chronology, will establish indisputable evidence of age."

Since you will be back in Philadelphia, according to a rumor, before I return from Alaska, I will leave all the pertinent correspondence in the basket on my desk for you to read. There are additional letters from the Lebanon Embassy in Washington and from Najjar, but of relatively little importance.

Hoping that the magnetometer is buzzing correctly over the Bronze Age sites in Ireland, I am

Cordially,

Henry N. Michael

HNM/jaw

[April, 1966?]

ASCA.

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"

Report from the Dendrochronology Section of MASCA

During the past two years the section has processed or obtained (from the Tree-Ring Laboratory in Tucson) samples of wood from ancient bristlecone pines which reach into the 4th millennium B.C. These samples were sent or will be sent to the Radiocarbon Laboratory for comparative analysis. Eventually we expect to obtain even older wood. At present, the limit seems to be about 4700 B.C., i.e., precisely dated samples which are some 6650 years old.

A promising aspect of dendrochronology will be the examination of the so-called "fossil" tree-line, that is, the altitudinal limit of trees during the altithermal (Atlantic) phase of the postglacial period. The tree-line during this phase was some 400 feet higher than the present one and surprisingly, contains remnants of trees which died thousands of years ago. If these remnants can be correlated dendrochronologically with the already dated samples, the chronology may be extended another 1000 or 1500 years. However, these studies are still in their very initial stage.

H. N. Michael

April 1, 1970

Dr. Joseph W. Michels
Department of Anthropology
College of the Liberal Arts
The Pennsylvania State University
Walnut Building
University Park, Pa. 16802

Dear Dr. Michels:

Thank you for the good news that your manuscript may be completed in April.

There is a slight possibility that we may have an opening in our laboratories, and I shall be glad to talk to Miss Hagan. Her qualifications sound excellent.

Sincerely yours,

Elizabeth K. Ralph

EKR/mm

Ralph
ASCA

c/o American Embassy
Djl. Merdeka Selatan
Djakarta, Indonesia
November 9, 1970

Dear Prof. Rainey,

This is a question regarding a possible system of dating stone work which I would like to bring to your attention.

Enclosed are three photos of a Hindu Lingga-phalus in the Djakarta museum, date and site unknown, but which is between 500 and 1000 years old. The split is new, 1 or 2 years. The closeups show the ruler just below the ripple of the glans. Along the edge of the split runs an even double-layer band of oxidation.

My question is, is it possible to date the worked stone by the thickness of the oxidation band or cortex?

I will be glad to send you whatever might be needed from this end to pursue the question. In any event, I would appreciate your dropping me a postcard with an (initial) opinion.

Yours truly,

Paul Minault

Paul Minault

Henry, what do you think?
EKR

The variables (climate, relative luminosity, etc.) would probably be too great to establish a rate. How about sending this to J. W. Michels?

THE PENNSYLVANIA STATE UNIVERSITY
409 SOCIAL SCIENCES BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Anthropology

Area Code 814
865-2509

October 11, 1972

Dr. Elizabeth Ralph
University Museum
University of Pennsylvania
33rd and Spruce Streets
Philadelphia, Pa.

Dear Dr. Ralph:

The procedures of the university regarding promotion to Full Professor requires supporting recommendations from distinguished scholars from other institutions. This department is considering the promotion of Associate Professor Joseph W. Michels to the rank of Full Professor.

It would assist us in our deliberations if we could have your assessment of Dr. Michel's ability as a scholar. His vita is attached.

If we could have your assessment before 1 November it would be greatly appreciated.

While this is a somewhat thankless task, it seems to be a necessary one, and we will be most grateful for your help.

Sincerely,

Warren T. Morrill, Head
Department of Anthropology

WTM:jcd

replied 10/27/72
mailed 10/28/72

JOSEPH W. MICHELS
1188 Smithfield Street
State College, Pennsylvania
814-237-0813

Personal Information

Date of Birth: November 1, 1936

Marital status: Married - Two Children

Education and Degrees

B. A. - Philosophy, University of California, Los Angeles, June 1958

M. A. - Anthropology, University of California, Los Angeles, February 1963

Ph.D. - Anthropology, University of California, Los Angeles, August 1965

Positions Held as an Anthropologist

Teaching Assistant - University of California, Los Angeles, two years/half time

Instructor - Los Angeles Valley College, two years/quarter time

Assistant Professor - Pennsylvania State University, 1965 - 1968

Assistant Professor - University of California, San Diego, Fall 1968 - Winter 1969

Associate Professor - Pennsylvania State University, March, 1969 - present

Areas of Archaeological Fieldwork

Western United States: Southern California (including Channel Islands)

Central California

Southwestern United States: Southwestern Utah

Northeastern United States: Central Pennsylvania

Central Mexico: Valley of Mexico (laboratory work only)

Guatemala: Eastern Highlands

Current Research Topics - Theoretical

Complex Society Archaeology

Quantitative Analysis

Computer Applications in Archaeology

Research Design

Current Research Topics - Substantive

The Archaeology of Highland Guatemala

The Prehispanic Obsidian Industry in the Valley of Mexico

Recently Completed Research Topics - Substantive

The Culture History of Central Pennsylvania

Great Basin/Sierra Nevada Prehistoric Relationships

Obsidian Hydration Dating

Professional Affiliations

Fellow - American Anthropological Association

Fellow - American Association for the Advancement of Science

Associate - Current Anthropology

Member - Society for American Archaeology

Member - Society for Pennsylvania Archaeology

Publications

Books: Dating Methods in Archaeology. Seminar Press (January 1973).

Monographs: Archaeological Investigations of Sheep Rock Shelter, 3 Volumes: Vols. 1 & 2 with I. Smith; Vol. 3 with J. Dutt. Occasional Papers in Anthropology, No. 5. Department of Anthropology, Penn State University. 1200 pages, 1967, 1968.

Archaeological Investigations of the Workman Site. With J.B. Huner. Occasional Papers in Anthropology, No. 4, Department of Anthropology, Penn State University. 310 pages, 1968.

Kaminaljuyu Project - 1968 Season, Part One - The Excavations. With W. T. Sanders. Occasional Papers in Anthropology, No. 2, The Pennsylvania State University. 183 pages, 1969.

Book Chapters: The Colonial Period Obsidian Industry of the Valley of Mexico. In Science and Archaeology, edited by R. Brill, M.I.T. Press, pp. 251-271, 1971.

Obsidian Hydration Dating. With C. Bebrich. In Dating Techniques for the Archaeologist, edited by H. Michael and E. Ralph. M.I.T. Press, pp. 164-222, 1971.

Articles: The Snow Creek Rock Shelter Site. Archaeological Survey Annual Report 1963-1964, pp. 85-129. Department of Anthropology, University of California, Los Angeles.

A Progress Report on the UCLA Obsidian Dating Laboratory. Archaeological Survey Annual Report 1965, pp. 379-387. Department of Anthropology, University of California, Los Angeles.

Electron Microscopic and Optical Observations of Obsidian Hydration. With D. L. Gibbons. Proceedings of the 25th Anniversary Meeting, Electron Microscopy Society of America, pp. 336-337. Chicago, 1967.

Archaeology and Dating by Hydration of Obsidian. Science, Vol. 158, No. 3798, pp. 211-214. October 1967.

Settlement Pattern and Demography at Sheep Rock Shelter: Their Role in Culture Contact. Southwestern Journal of Anthropology, Vol. 124, No. 1, pp. 66-82. Spring 1968.

Testing Stratigraphy and Artifact Re-Use Through Obsidian Hydration Dating. American Antiquity. Vol. 34, No. 1, pp. 15-22. January 1969.

Dating Methods. Annual Review of Anthropology. Vol. 1, Fall 1972.

Research Grants

State of California Salvage Grant (1963)

Project: Excavation of the Mammoth Junction Site, Mono County, California

Amount: $1,700.00

UCLA Academic Senate Doctoral Research Assistance Grant (1965)

Project: Lithic Serial Chronology Through Obsidian Hydration Dating

Amount: $150.00

National Science Foundation Institutional Grant (1965)

Project: To Establish an Obsidian Hydration Dating Laboratory at Pennsylvania State University

Amount: $3,600.00

National Parks Service Grant (1966 and 1967)

Project: Salvage Excavation of Archaeological Sites within the Flood Area of the Raystown Dam, Huntington, Pennsylvania

Amount: $7,000.00

Pennsylvania State Museum and Historical Commission Grant (1966 and 1967)

Project: The Excavation of the Sheep Rock Shelter Site, Huntington, Pennsylvania

Amount: $7,000.00

National Science Foundation Grant (1966 - 1968)

Project: The Structure and Function of the Prehispanic Obsidian Industry of the Valley of Mexico

Amount: $16,4000.00

National Science Foundation Grant (1968) - Co-Director: W. T. Sanders - Principal Investigator

Project: Archaeological Exploration of Kaminaljuyu, Guatemala

Amount: $25,000.00

National Science Foundation Grant (1969 - 1970) - Co-Director: W. T. Sanders - Principal Investigator

Project: Archaeological Exploration of Kaminaljuyu, Guatemala

Amount: $187,000.00

National Science Foundation Grant (1971) - Co-Principal Investigator, with W. T. Sanders

Project: Archaeological Exploration of Kaminaljuyu, Guatemala

Amount: $76,000.00

Teaching Responsibilities

Anthy 9 - Introductory Old World Archaeology

Anthy 11 - Introductory North American Archaeology

Anthy 13 - Field Methods in Archaeology

Anthy 14 - Laboratory Methods in Archaeology

Anthy 423 - Eastern United States Archaeology

Anthy 424 - African Archaeology

Anthy 452 - The Anthropology of Hunting Societies

Anthy 462 - Method in Archaeology

Anthy 545 - Seminar in Scientific Theory in Anthropology

Anthy 562 - Seminar in Methods in Anthropology

College Affairs

Acting Head, Department of Anthropology, 12/69 - 6/70
Member, Way Out Committee, 1967 - 1968
Member, Non-Western Studies Committee, 1966
Member, Social Sciences Council, 1970 - 1971
Member, Committee on Committees, 1971
Member, Policy Committee, 1970 - 1971
Senator, University Senate, 1970 - 1971
Chairman, CARLA Committee, 1971
Delegate, Danforth Foundation Workshop in the Liberal Arts, 1972
Member, Curricular Affairs Committee, 1972

Graduate Faculty

Senior Membership, 1972

THE PENNSYLVANIA STATE UNIVERSITY
409 SOCIAL SCIENCES BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

College of the Liberal Arts
Department of Anthropology

Area Code 814
865-2509

November 3, 1972

Dr. Elizabeth K. Ralph
University of Pennsylvania
The University Museum
33rd & Spruce Streets
Philadelphia, Pa. 19104

Dear Dr. Ralph:

Thank you for your letter regarding Professor Michel's promotion. It will be of considerable assistance to us in our deliberations.

Sincerely,

Warren T. Morrill

Warren T. Morrill
Head

WTM:bg

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

35 - 43 LINCOLN'S INN FIELDS, LONDON WC2A 3PN

Telephone 01 - 405 3474 Cables COLLSURG LONDON WC2

Odontological Museum.

20 June 1980.

Dear Dr Ralph.

Thank you for your letter of June 10. which was helpful to me. I could with difficulty produce a 1-2kg sample of single burials of bad presumptive 12th & 16th centuries. However, the long wait is daunting.

I will get in touch with Dr. Haynes & Iverson & see what transpires.

Thank you.

Yours sincerely

H.E.W. Miles.

H.E.W. Miles

To open slit here

To open First fold here

Sender's name and address

A.E.W Miles.

ROYAL COLLEGE OF SURGEONS OF ENGLAND,

35 - 43 LINCOLN'S INN FIELDS,

LONDON, WC2A 3PN.

BC

An air letter should not contain any enclosure

The 'APSLEY' Air Letter

A Dickinson Robinson Group Product

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Par avion Aerogramme

Dr Elizabeth K. Ralph.
Faculty of Arts & Sciences.
Univ. of Pennsylvania.
Dept. of Physics. E.1.
~~Philadelphia. P.A. 19104~~
U.S.A.

Beth -
How about samples & writing Allen?
FRO

408 A Butler Avenue
Princeton, New Jersey
March 6, 1968

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

Dear Dr. Rainey,

I am a Graduate Student in Classical Archaeology at Princeton University and last Spring at our excavations at Morgantina in Sicily we uncovered a pre-historic hut which contained a series of small cooking stoves. These stoves were constructed by hollowing out an area in the virgin soil, lining it with slightly refined clay and moulding a grid-like clay top for each which allows heat to come through to the bottom of cooking vessels. Since the walls of these stoves are still in situ and were baked into a terracotta consistency by the fires used in the stoves, we are interested in the possibilities of archaeomagnetic dating. Although the date of the hut is fairly secure on the basis of pottery analogies and Carbon-14, one would like to utilize all possible dating methods.

If it seems to you that archaeomagnetism might be applicable in our situation, I would appreciate any information you might send me with regard to the procedure to be used in securing samples, the necessary quantity of the samples, and any other pertinent information such as how to pack for shipment, where to send samples, etc. If our situation is suitable for archaeomagnetic testing, we would like to plan accordingly before this year's summer season begins.

Thank you very much.

Sincerely yours,
Stephen Miller
Stephen Miller

March 13, 1968

Mr. Stephen Miller
408 A Butler Avenue
Princeton, New Jersey

Dear Mr. Miller:

Dr. Rainey has asked me to reply to your letter in regard to archaeomagnetic measurements of samples from Morgantina. In our laboratories, we are interested in archaeomagnetic techniques, but we haven't made any practical determinations here. Therefore, I think that the best person to consult is Dr. Martin J. Aitken, Research Laboratory for Archaeology and the History of Art, 6 Keble Road, Oxford, England. There are also several articles on the subject in various volumes of Archaeometry (published by the same laboratory), and a chapter in Physics and Archaeology by M.J. Aitken (Interscience Publishers, 1961).

About three years ago, Hugh Bergh, who was then a graduate student in the Department of Geology, Princeton University, did a few archaeometric measurements on samples from an historical site in Nova Scotia. He is no longer at Princeton, but I think that Dr. Sheldon Judson or some other member of the Department of Geology could give you some practical advice about the taking of samples.

Whether or not these measurements would be of any real use in dating depends upon how much has already been done in southern Italy. I am not too optimistic, but Dr. Aitken could give you a better answer.

Within a year or two, we hope to obtain precisions comparable to C-14 dating with the thermoluminescence technique of dating pottery and fired clay, but we have not yet attained this stage of development.

Sincerely yours,

Elizabeth K. Ralph

EKR/abn

November 24, 1970

Mr. Paul Minault
c/o American Embassy
Djl. Merdeka Selatan
Djakarta, Indonesia

Dear Mr. Minault:

Dr. Rainey has referred your letter of November 9th and photographs of a Hindu Lingga-phalus to me.

I think that the variables such as climate, relative humidity, etc., would probably be too great to establish a rate of hydration.

However, Dr. Michels is the expert in studies of obsidian hydration rates, so I am forwarding your request to him.

Sincerely yours,

Elizabeth K. Ralph

EKR/ek

MOBILE DRILLING COMPANY, INC.

EXECUTIVE OFFICES AND PLANT: 3807 MADISON AVENUE · INDIANAPOLIS, INDIANA 46227 U.S.A.

AREA CODE 317/787-6371 · CABLE: MODRIL · TELEX NO. 2-7352

8 November 1967

Mr. O. H. Bullitt
1517 Locust Street
Philadelphia 2, Pennsylvania

Confirming our telephone conversation this afternoon regarding a portable drill, we are pleased to enclose descriptive literature and factory prices on the Model Minuteman Mobile Drill.

You will note the tools and accessories described in Mobilkit A-1 on Page 4 of bulletin MD20-861-A appear well suited to your primary requirements. Furthermore, I feel confident that this unit will provide the means by which you can easily double your current drilling rates while using the McCullough earth auger and with considerably less wear and tear on the operating personnel.

After you've had time to review the enclosures, please feel free to contact us again. Delivery on this equipment will normally run anywhere from stock to 10 days.

Richard A. Dickinson
Executive Vice President

RAD:jkh

Encl.

cc: Mr. James B. Stokes

ORVILLE H. BULLITT
1517 LOCUST STREET
PHILADELPHIA 2

November 10, 1967

Mr. Richard A. Dickinson,
Executive Vice President
Mobile Drilling Company, Inc.
3807 Madison Avenue,
Indianapolis, Indiana 46227

Dear Mr. Dickinson:

Thank you very much for the information about the Minuteman Drill. Are there any of these drills in this area, so that we could see how they operate?

I have sent your booklet to Dr. Froelich G. Rainey, Director of The University Museum, and you may hear direct from him.

Sincerely yours,

OHB

OHB/hg

cc: Dr. Rainey

PRICE BULLETIN #77A-2
EFFECTIVE SEPTEMBER 1, 1967

MOBILE DRILL®

MOBILE DRILL MODEL MINUTEMAN

MINUTEMAN BASIC DRILL, POWERED BY BRIGGS & STRATTON 5.75 HP 4-CYCLE AIR-COOLED GASOLINE ENGNE & CLUTCH, 3-SPEEDS FORWARD, 1-REVERSE TRANSMISSION, 44 INCH CONTINUOUS STROKE AND MOUNTED ON RUBBER TIRED PORTABLE FRAME.....	$ 1095.00
MOBILE KIT A-1.....	412.00
MOBILE KIT C-1.....	1160.00
MOBILE KIT S-1.....	1005.00
MOBILE "HANDYMAN" TOOL KIT.....	127.60

OPTIONAL EQUIPMENT

#060450 PORTABLE SKID MOUNTED WATER PUMP, SELF POWERED BY BRIGGS & STRATTON 2-1/2 HP GASOLINE ENGINE, PROGRESSING CAVITY TYPE, WATER BY PASS SYSTEM 3/4" X 15' PRESSURE HOSE WITH SHUT-OFF VALVE, 3/4" X 30' SUCTION HOSE WITH FOOT VALVE STRAINER AND FITTINGS.....	340.00
MAST-PUMP-HOIST UNIT, SKID MOUNTED, 4-LEG DERRICK WITH 17 GPM, 100 PSI FAIRBANKS-MORSE DUPLEX WATER PUMP, SINGLE SPEED CATHEAD HOIST, POWERED BY 11 HP HERCULES 4-CYLINDER ZXB WATER-COOLED GASOLINE ENGINE (SUCTION AND PRESSURE HOSES NOT INCLUDED).....	1775.00
MAST-HOIST UNIT, LESS WATER PUMP.....	1600.00

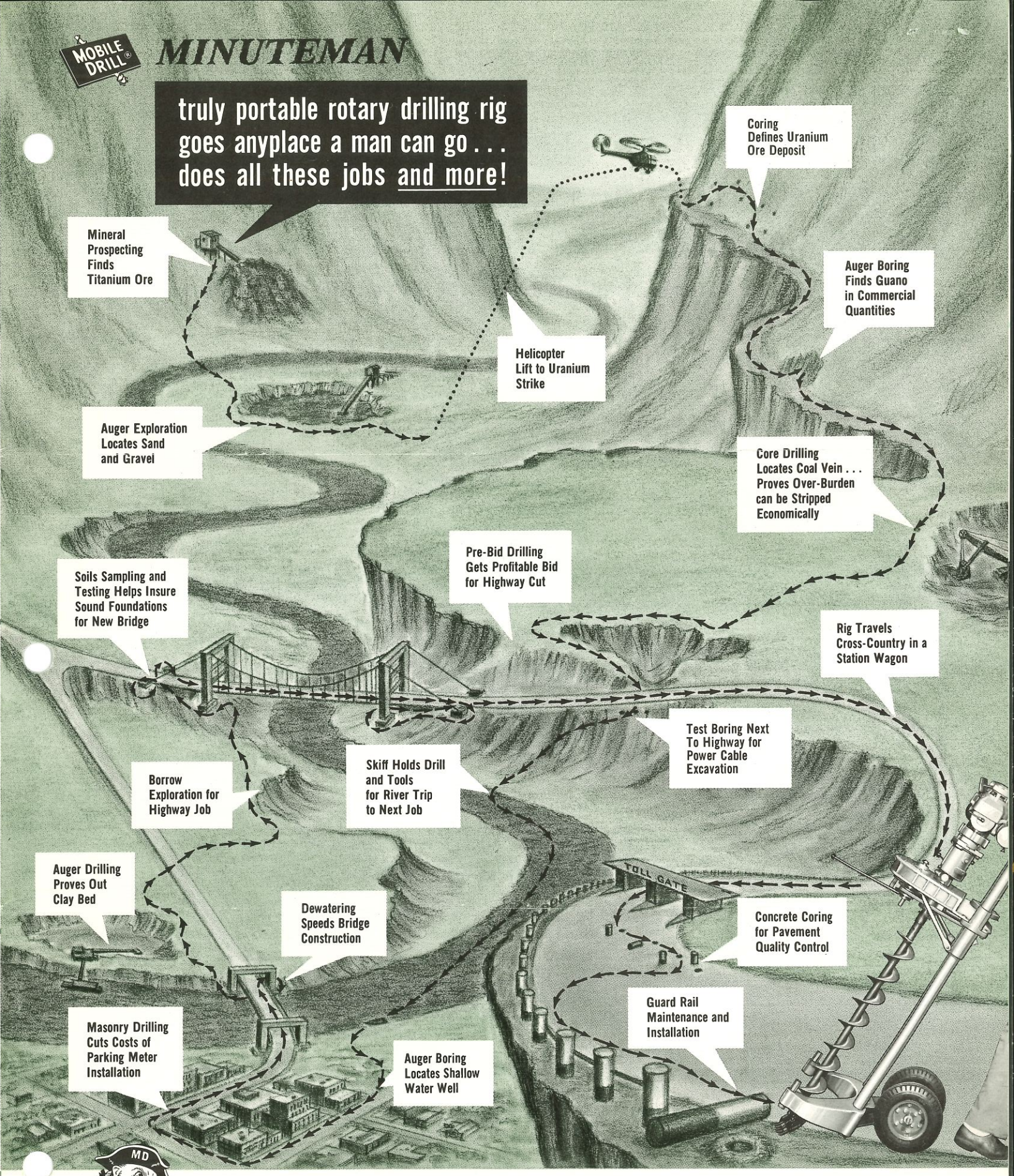
NOTE: TOOLS IN KIT ILLUSTRATED INDIVIDUALLY IN MOBILE CATALOGS 850 AND 615.

ALL PRICES FOB FACTORY, INDIANAPOLIS, INDIANA U.S.A.
AND SUBJECT TO CHANGE WITHOUT NOTICE

MOBILE DRILL®

MINUTEMAN

truly portable rotary drilling rig goes anyplace a man can go . . . does all these jobs and more!



MD

MINUTEMAN

MOBILE DRILL®

Your first line of defense against hidden costs!

MOBILE DRILL®

MINUTEMAN

the first truly **PORTABLE, MULTI-PURPOSE ROTARY DRILL**

precision engineered for economical subsurface exploration and "on the spot" drilling in soils, rock and concrete

BUILT FOR RELIABILITY AND OPERATING EASE

Lightweight, powerful 5.75 HP Briggs & Stratton aluminum alloy engine is equipped with patented lubrication system and dirt protected, vacuum-type crankcase breather. Heavy-duty construction features include integrally cast cylinder sleeve, heat-treated Armasteel crankshaft, induction hardened crankpin and main bearing journals and aluminum alloy main bearings.

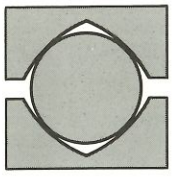
Engine throttle is mounted on power feed lever. Operator can change both engine speed and spindle RPM without removing his hand from lever.

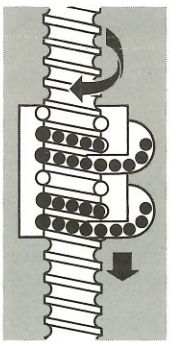
Power feed lever applies engine drive through belt and idler to raise or lower drill head.

MINUTEMAN feed and hoist mechanism is a unique, recirculating ball bearing screw and nut that is 98% friction free. It permits either power or hand feed and prevents jamming even under muddy or dusty operating conditions.

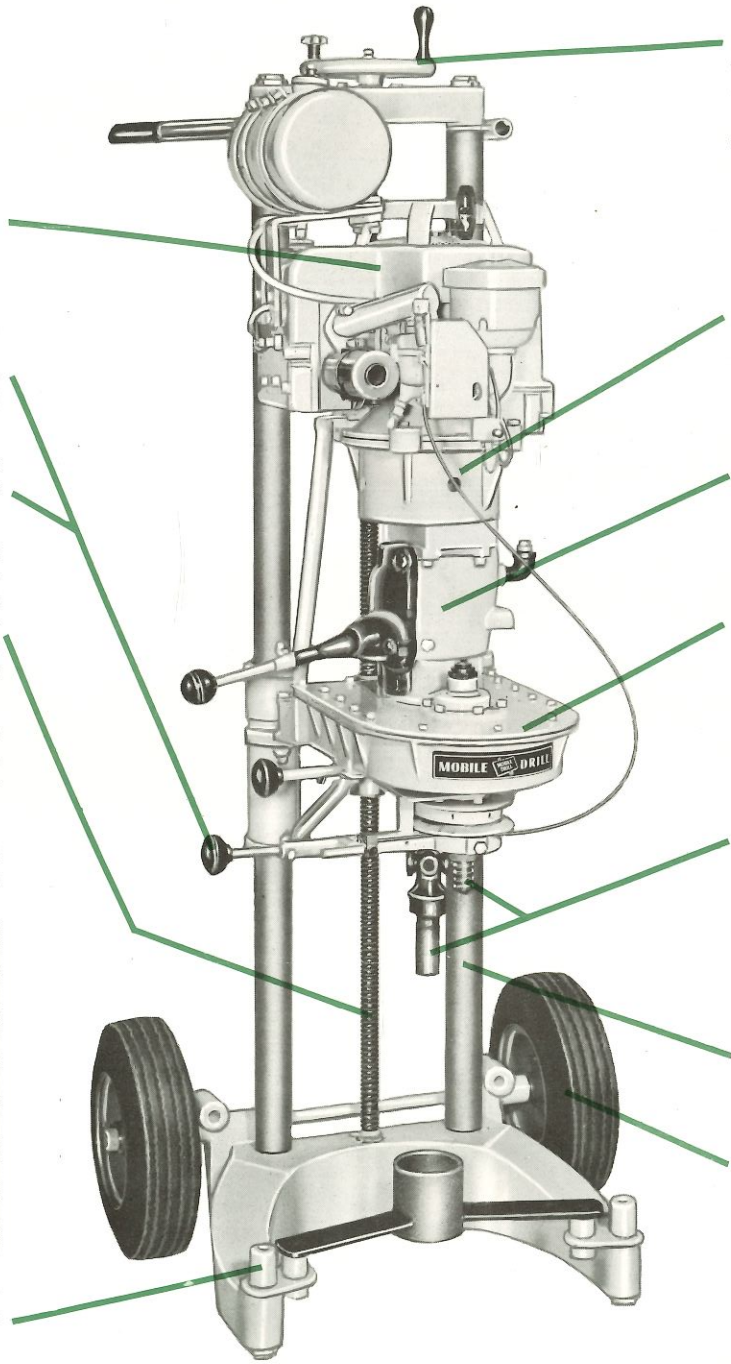
Rolling balls engage both screw and nut to change rotary motion to "up" or "down" motion with minimum friction loss.

Ball raceways in screw and nut are not circular. Grit that works into raceways is forced into spaces formed by diverging arcs where it cannot hinder threading action.





Positive, stake type anchors withstand drilling torque for maximum drill stability and safety.



Hand wheel provides the precise feed control required for diamond core drilling in rock or masonry. Hand wheel also permits continuous 44" stroke in or out of hole whenever manual feed is desirable.

Oversize dry paper type air filter does not cause horsepower loss.

Centrifugal clutch remains disengaged until engine reaches operating RPM, then engages automatically to pick up load smoothly, without grabbing. Unusually simple, durable construction permits clutch to withstand long, hard usage.

Smooth working transmission is an industrial, sliding spur gear type. Gears and shafts are heat treated alloy steel to last the life of the drill.

Rotary housing is a fully enclosed, aluminum alloy casting. It incorporates a pump which supplies a continuous flow of cool oil to transmission and rotary gears regardless of drilling angle.

Clear plastic external circulating oil line lets the operator check oil flow visually.

Rotary housing has two output shafts. The high speed shaft, for rock and masonry coring, has a hollow spindle with "EW" drill rod thread. The low speed shaft is located near drill frame to better withstand heavy loads induced by auger drilling. Auger connections are made by a simple drive pin.

Tough, high tensile steel alloy tube construction insures maximum wearability and lightweight strength.

Large diameter rubber tired wheels are positioned to balance drill weight over axle for easier handling.

SAFETY FEATURES

Centrifugal clutch automatically disengages under heavy shock load to protect drill.

Engine goes immediately to idle and clutch disengages when operator releases throttle-gear shift lever.

Power feed lever snaps "off" and stops vertical thrust when released by operator.

Stake type anchors secure MINUTEMAN firmly to work surface. There's no danger of rig spinning to injure operator if bit strikes rock, reinforcing rod or tree roots.

First of its kind with "BIG RIG" Rotary Drive

MINUTEMAN rotary drive means that power is transmitted from engine to drill spindles through a centrifugal clutch, a four-speed transmission and a sealed gear case. This "big rig" drive train gives you both the high RPM required for rock and concrete coring and the low RPM and high torque . . . the lugging power . . . needed to overcome heavy loads imposed by auger drilling.

This wide range of speed and torque output provides accurate power control essential for maximum tool life and guards your rig against costly repairs and downtime.

MINUTEMAN *rotary drive* (previously available only on heavy truck mounted rigs) is the reason why a drill that weighs just 235 pounds can take "EW" cores from 100′ and auger samples from 30′.

Savings on a single project can more than pay for the MINUTEMAN

Applications include:

- Pre-bid drilling for general construction, earth or rock moving.
- Test drilling for structural foundations, roads, runways.
- Shallow prospecting for ores, minerals, aggregates, clays, chemicals.
- Drilling in concrete and soils for installation of guard rails, fences, signs, parking meters, drainage systems and well points.
- Masonry drilling for concrete quality control.
- *plus* . . . Soils testing with standard sampling tools and procedures.

ELIMINATE GUESSWORK . . . GET THE FACTS YOU NEED

for Profitable Bids • Accurate Planning and Scheduling • Sound Design and Construction • Economical Prospecting

SPECIFICATIONS

Dimensions

Height—in.	63½
Width—in.	22
Length—in.	23
Weight—lbs.	235
Domestic shipping, less drilling tools—lbs.	255
Export shipping, less drilling tools—lbs.	405

Transmission—3 speed forward, 1 reverse

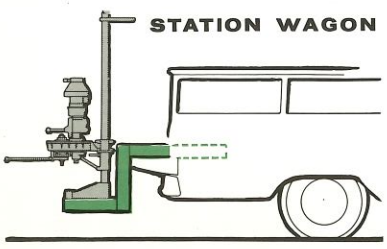
1st gear	3.294-1.0
2nd gear	1.721-1.0
3rd gear	1.00 -1.0
Reverse	3.294-1.0
Lo-Speed Shaft R.P.M. @ 3600 Engine R.P.M.	
1st gear	105
2nd gear	200
3rd gear	345
Reverse	105
Hi-Speed Shaft R.P.M. @ 3600 Engine R.P.M.	
1st gear	340
2nd gear	650
3rd gear	1110
Reverse	340

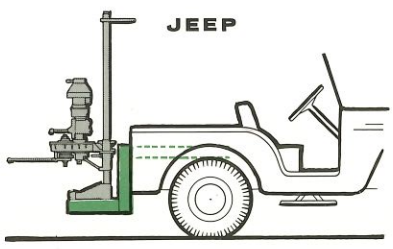
Feed—Recirculating ball bearing screw. Continuous or intermittent power, manual or power in or out, 44″ stroke.

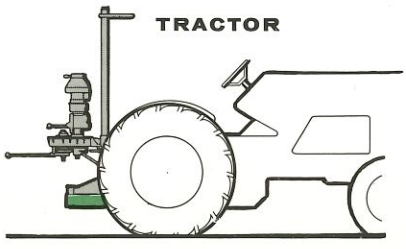
Drilling Capacities

Auger Drilling (Lo-Speed Shaft):	
Diameters	3″ to 12″
Depth	30′ with 3″ Augers 10′ with 12″ Augers
Core Drilling (High-Speed Shaft):	
Size	EW
Depth	100′
Masonry Drilling: Bit Diameter	1″ to 8″

The MINUTEMAN may be mounted on the side or rear of any light vehicle. Typical installations are shown below:







MINUTEMAN Drilling Kits and Accessories . . .

Equip the MINUTEMAN for action . . . anytime . . . anywhere

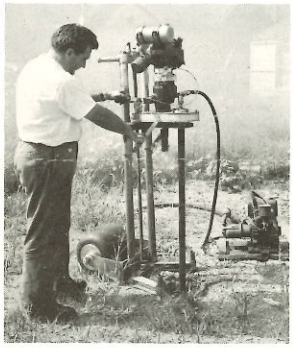
MOBILE KIT A-1 for AUGER DRILLING

Basic Kit permits drilling 3" diameter holes to 30' depths . . . handles the majority of jobs where pre-bid drilling, borrow exploration, dewatering, soil sampling and similar procedures are needed. The list of tools is offered as a suggestion only. It may be varied to meet your specific requirements.

MINUTEMAN handles augers from 3" to 12" diameter; drives 3" diameter augers to 30'.

Basic Kit Includes:

- 10—3" dia. x 3' continuous flight augers.
- 1—3" dia. all-purpose finger-bit drill head.
- 100—extra finger bits for all-purpose head.
- 1—3" dia. clay-sand drill head.
- 1—3" size, extra bit for clay-sand head.
- 1—3" dia. rock type drill head
- 1—3" auger retriever
- 1—3" auger guide
- 1—3" auger holder
- 10—U-pins
- 10—wedges
- 1—pointed hammer



Core drilling through overburden. Self powered water pump is described in tool list.

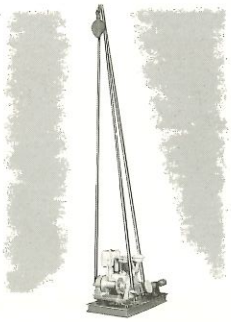
MOBILE KIT C-1 for CORE DRILLING

Basic Kit contains all tools, except casing, required to start the hole on a rock surface and take ⅞ cores from 50'. For greater depths (to 100') order additional drill rod and the MOBILE MAST-PUMP-HOIST Unit described below.

Basic Kit Includes:

- 1—EW-rod ring
- 1—EW water swivel, side port
- 1—1' length, EW rod
- 1—2' length, EW rod w/coupling
- 17—3' length, EW rod w/couplings
- 1—2' EW starting core barrel
- 1—5' EW single tube core barrel
- 2—EW core lifters
- 2—EW diamond set core bits
- 1—EW diamond set reaming shell
- 1—EW cross chopping bit
- 1—EW rod coupling recovery tap
- 1—EW rod recovery tap
- 1—EW lowering iron assembly
- 1—060450 Self powered. Robbins-Meyers ECG-23 progressing cavity, water by-pass system has 2½ HP Aircooled gasoline engine; water by-pass system 15' ¾" pressure hose, 30' ¾" suction hose, foot valve strainer and fittings

MOBILE MAST-PUMP-HOIST UNIT



Mast-pump-hoist unit, skid mounted, 4-leg derrick with 17 GPM 100 PSI Fairbanks-Morse duplex water pump, single speed cathead hoist, powered by 11 H.P. Hercules 4-cylinder ZXB water-cooled gasoline engine (suction and pressure hoses not included). Mast and hoist may be ordered without pump if desired.

MOBILE KIT S-1 FOR SOIL SAMPLING

Performs penetration tests to 50'. Will sample to 100' with additional "BX" casing (order separately as required). To be used in conjunction with MOBILE MAST-PUMP-HOIST UNIT. Tool list may be varied to meet your needs.

Basic Kit Includes:

- 1—2" OD x 1⅜" ID split spoon sampler with AW box thread
- 1—basket trap for split spoon sampler
- 1—2¼" wide straight chopping bit
- 1—1' section flush joint BX casing
- 1—2' section flush joint BX casing
- 6—3' sections flush joint BX casing
- 6—5' sections flush joint BX casing
- 1—BX casing drive shoe
- 1—sub, AW rod to BX casing
- 1—1' section AW drill rod
- 1—2' section AW drill rod
- 6—3' sections AW drill rod
- 6—5' sections AW drill rod
- 1—plain type AW hoist plug
- 1—140# Mobile Safety Hammer
- 1—¼" swivel safety hoist hook
- 24—sample jars
- 1—sub, auger coupl. to AW rod
- 1—AW water swivel
- 1—AW rod ring
- 65 linear feet, ⅞", left lay manila hemp rope

MOBILE MASONRY DRILLING KITS

Include Mobile "Thinline" *Oriented* Diamond Bits in any diameters from 1" to 8", water swivel, strap wrench and starting guide. Mobile also supplies a complete line of accessories for masonry drilling or testing. Complete kits designed to meet your specific requirements, quoted on request.

MOBILE "HANDYMAN" TOOL KIT

Contains miscellaneous hand tools and items needed for set-up, tool handling and maintenance.

- 1—No. 2105 Socket Wrench Set
- 1—8" Crescent Wrench
- 1—12" Crescent Wrench
- 1—Pr. 6" Pliers
- 1—6" Screwdriver
- 1—12" Screwdriver
- 1—Set Allen Wrenches
- 1—Pr. 10" Vise Grips
- 1—Hacksaw
- 3—Hacksaw Blades
- 1—16-oz. Ball Peen Hammer
- 1—15/16" Deep Well Socket
- 2—24" Pipe Wrenches
- 1—K-20 Kennedy Tool Box

MOBILE DRILL®

MOBILE DRILLING CO., INC.

3807 Madison Avenue

Indianapolis, Indiana, U. S. A. 46227

Phone: 317-787-6371 Telex: 27352

FORM NO. MD 20-861-A LITHO IN U.S.A.

March 21, 1962

COPY

Prof. H. Mooney
School of Mines
University of Minnesota
Minneapolis 14, Minn.

Dear Prof. Mooney:

The Gossen "Geohm" is sold in the USA by National Electronics, Box 1237, Sheridan, Wyoming. The general manager of this company is Harold F. Demple.

I enjoyed meeting you at the Detection Symposium, and regret only that there wasn't more time for individual discussions.

Sincerely yours,

Elizabeth K. Ralph

EKR/deh

Techniques

February 8, 1967

Prof. H. Morris Morgan
Department of Anthropology
and Geography
University of Alaska
College, Alaska 99735

Dear Professor Morgan:

Your sample from the Campus Site has arrived, and I am sorry to report that it is much too small for C-14 dating.

Since it seems to consist of bones that are only slightly charred, we need at least 500 grams. The present sample weighs only 30 grams.

Shall we return this sample to you, or is more material available to send to us?

Sincerely yours,

Elizabeth K. Ralph

EKR/deh

cc: Dr. F. Rainey
Univ. Museum

DEPARTMENT OF PHYSICS

College of Arts & Sciences
Pahlavi University — Shiraz, IRAN

May 24, 1978

Dr. Elizabeth K. Ralph
Museum Applied Science Center for Archaeology
The University Museum Fl
University of Pennsylvania
33rd Spruce Streets
Philadelphia, Pennsylvania 19104
U.S.A.

Dear Dr. Ralph:

I appreciated very much the help you gave me last year when I inquired about articles on Magnetometers. This year I expect to be in the Philadelphia area around the beginning of August, but my travel plans are not yet fixed. Would it be convenient if I visited you at that time?

Letters mailed after about June 15 should be sent in care of my mother.

Mrs. E. Morehouse
11 Crestwood Drive
Chatham, N.J. 07928

since there is a rather good chance that I would not receive them here in Shiraz.

Yours truly,

Roger Morehouse

Dr. Roger Morehouse

Martin Biddle,
Director.

Dr. Roger Morehouse,
Department of Physics,
College of Arts and Sciences,
Pahlavi University - Shiraz,
IRAN.

14 June 1976

Dear Dr. Morehouse,

Thank you for your letter of May 24th. We should be glad to have you visit our laboratories in the beginning of August.

We are now doing work in the field with magnetometers, etc. at Valley Forge National Park. It is possible that this work will be finished in August, but if not, we can show you the magnetometersand soil-penetrating radar in action.

Sincerely yours,

Elizabeth K. Ralph.

Jan

Techniques

December 3, 1966

Dear Mr. Morgan:

Many thanks for your letter of December 23rd, regarding the carbon-14 dating of a carbon sample from the Campus Site. First let me say that one carbon sample from any site is certainly not sufficient to give us a dependable date. It is our policy not to do any carbon dating unless we have more than one sample. This, of course, is to avoid confusion from inadequate dating material. However, since we are doing arctic dating here, we will run the sample for what it is worth, so long as you understand that it will not give you a date for the site which is dependable. So, do send this on to us by air, wrapped in some sort of cellophane. We will have a look at it and if it is at all possible as dating material, we will experiment with it. There will be no cost to you. Enclosed please find the appropriate form to fill out.

Many thanks for the list of materials found. This should be most interesting in comparison with the early levels at Onion Portage and the Aleutians, and I do hope you can publish the material somewhere.

All very best wishes,

Froelich Rainey
Director

Mr. H. Morris Morgan
Department of Anthropology and Geography
University of Alaska
College, Alaska 99735

FGR/vg

UNIVERSITY OF ALASKA
COLLEGE, ALASKA 99735

December 23, 1966

Dr. Froelich Rainey
The University Museum
Thirty-third and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Rainey:

May I enlist your advice and assistance in getting a C-14 date from a small (14 gram) carbon sample we have retrieved from the Campus Site. Your experience with arctic dating problems along with your work with this site previously convice me you can give us good counsel.

There are these questions: (1) Would your institution run the sample? (2) What is the most advisable way to get it to your(packing, shipping, etc.)? and (3) What would it cost? The sample is definitely from the cultural strata but it is somewhat amorphous. I am not certain whether it is bone or wood.

This past summer's work had to be done. It was productive. The attached list shows what was recovered. More material remains in the site.

Any assistance you can give us will be greatly appreciated.

Sincerely,

H. Morris Morgan

H. Morris Morgan
Assistant Professor of Anthropology
and Geography

HMM:am

Enclosures

PLEASE REPLY BY AIRMAIL

FLAKE KNIVES: 4

CORES: 4

CORE TABLETS: 4

END AND SIDE SCRAPERS: 9

PROJECTILE POINT AND FRAGMENTS: 9

4 point frag.
3 def. points (1 notched)
2 probable pt. frag.

BLADES AND FRAGMENTS: 286

including - several retouched blades

Ridge flakes
Burin Spalls

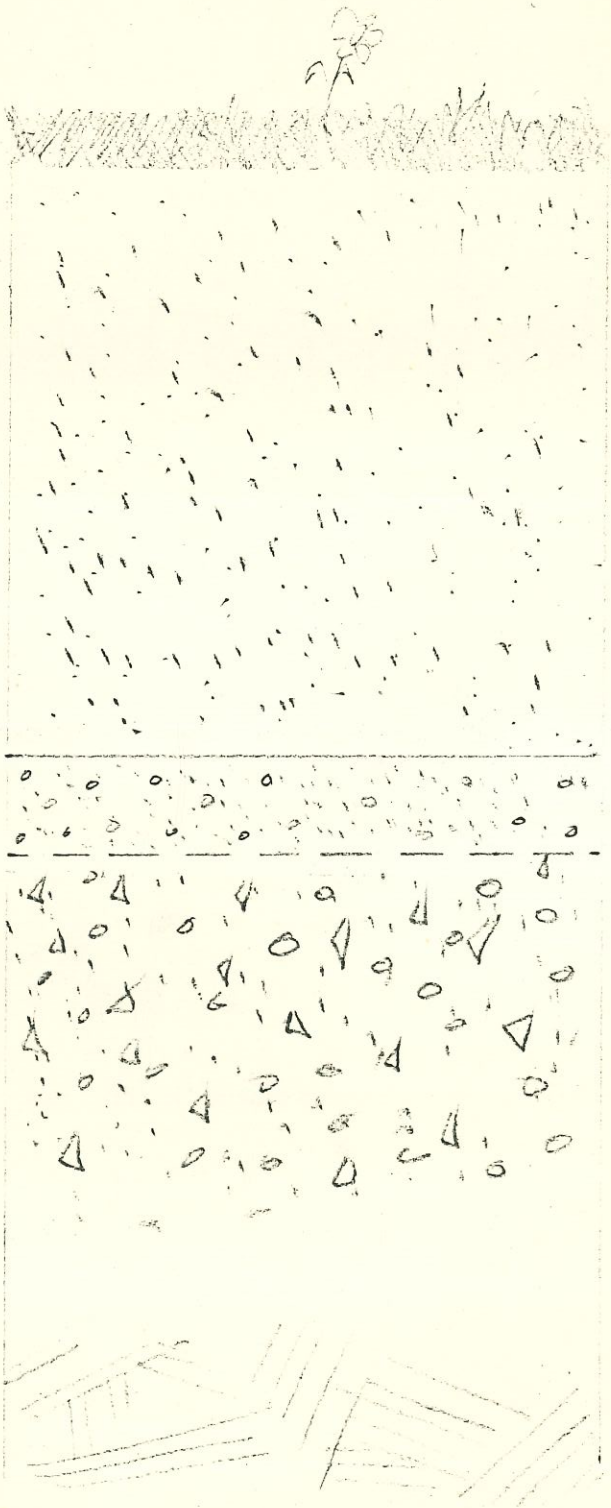
DEFINITE BURIN: 2

PROBABLE BURIN: 1

Clear and dark obsidian

TOTAL - 4212

CAMPUS SITE - SOIL PROFILE



FABRIZIO MORI

ROMA - VIA F. DENZA, 66

Roma 20 Agosto 1962

Dear Miss Ralph,

I hope that you remember our meeting at the party for the Exhibit "Prehistoric Art of the Lybian Sahara". I was really sorry, at that time, to have to leave soon not having the chance to meet you again, but hope that David Crownover has been so kind to bring you my regards.

I am now preparing the 6th Mission to the Acacus and think that we shall be there from December '62 to April '63. I have good reasons to think that, on the basis of the experience made the past years, we shall collect a lot of charcoal samples from stratigraphic deposits through which we can obtain fundamental data for the different problems of the saharan prehistory. A good job has already been made and the dates obtained are putting in evidence the great antiquity of those cultures; we got, up to now, four dates:

5500 B.P. (for the mummy of Uan Muhuggiag)

6000 B.P. (from the medium layers of the same depos.)

7500 B.P. (" " lowest " " " " ")

8000 B.P. (" a trial excavation in a new deposit)

As you know, the importance of these datings is connected to the absolute chronology of the rock paintings, still lacking, and to the palethnological evidences (domestication, pottery etc.) which came to through light upon an unknown culture.

For many reasons of administrative character may be that next year the Inst. of Human Paleonthology of the Pisa University will not be able to continue the series of the C14 datings of samples not belonging to the same Institute; in such case I should be very happy to know if they can be analyzed in your laboratory, increasing the cooperation between us and the University of Pennsylvania that will probably continue, next winter, with the participation of a young scholar of yours to our Mission, according to the agreement between Dr. Rainey and me.

I hope to receive a kind answer from you and, with the best regards, remain

very sincerely yours

Fabrizio Mori

August 31, 1962.

Dr. Fabrizio Mori,
Via F. Denza, 66,
Roma, Italia

Dear Dr. Mori:

Thank you for your letter of 20th August and for your article. I have recently spent four months in Italy as a member of the University Museum expedition at Sibari, therefore, I have enjoyed, especially, reading your article since I can now understand Italian to some extent.

In regard to the dating of your samples in our C-14 laboratory, this decision must be made by Dr. Rainey. It will depend somewhat upon whether or not the region in which you are excavating becomes one of the fields of study of our University Museum; and also upon other commitments.

I have told Dr. Rainey of your request, and we shall inform you when some of these decisions have been made.

Sincerely yours,

Elizabeth K. Ralph

EKR:LF

TULANE UNIVERSITY
NEW ORLEANS 18

Office of the Vice President
206 Gibson Hall

OCTOBER 5, 1962

UNIVERSITY OF PENNSYLVANIA
UNIVERSITY MUSEUM
33RD AND SPRUCE STREETS
PHILADELPHIA 4, PENNSYLVANIA

GENTLEMEN:

IN THE AUGUST, 1962 ISSUE OF THE "INDUSTRIAL RESEARCH NEWSLETTER" PUBLISHED BY ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY APPEARS AN ITEM ENTITLED "MODERN INSTRUMENTS HELP ARCHAEOLOGISTS," DEALING WITH THE USE OF A PROTON-MAGNETOMETER AS A DETECTOR OF BURIED LIMESTONE WALLS.

THIS ITEM ALSO CONTAINS THE SUGGESTION THAT REQUESTS FOR FURTHER INFORMATION ON THIS BE SENT TO YOU. I AM VERY INTERESTED IN RECEIVING ANY ADDITIONAL INFORMATION YOU MAY BE ABLE TO SUPPLY, AND I WILL APPRECIATE YOUR SENDING IT TO ME PERSONALLY AT THE ADDRESS SHOWN ON THE LETTERHEAD ABOVE.

THANKING YOU, AND LOOKING FORWARD TO HEARING FROM YOU, I AM

VERY TRULY YOURS,

J.C. Morris

JCM:DHA

J.C. MORRIS

October 10, 1962

Dr. J. C. Morris
Office of the Vice President
206 Gibson Hall
Tulane University
New Orleans 18, Louisiana

Dear Dr. Morris:

Thank you for your letter of October 5, 1962, and for the interest which you expressed in our work with instruments for underground detection.

I am sending, under separate cover, a report by R. Linington on field surveys conducted in Italy in the fall of 1962, and a copy of Expedition which contains a more general article by C.M. Lerici. A technical report on the more extensive use of the proton magnetometer and of experiments with a new sonic device performed this past spring in Italy will be sent as soon as available.

There are two excellent publications on techniques and archaeological surveys which I shall list below in case you do not know about them. They are as follows:

1) Physics and Archaeology by M. J. Aitken, Interscience Publishers, N.Y. 1961 ($6.00)

2) Archaeometry, vols. 3 and 4. Bull. of the Research Laboratory for Archaeology and the History of Art, 6 Keble Road, Oxford, England ($2.00 or 10 s per volume).

I shall be glad to try to answer any specific questions which you might have in the future.

Sincerely yours,

Elizabeth K. Ralph

EKR:dml

techniques

December 1, 1965

Dear Dr. Morris:

Of course, I remember meeting you in our search for the XXIst century, and I am delighted to hear from you.

The full data on the thermoluminescence method of dating pottery will be coming out in Nature magazine very shortly, and I will see that you get a reprint. At the moment we are still analyzing pottery of known date, to refine the method, but I do think we have got it, and that we should be analyzing unknown before very long. When you are in Philadelphia, by all means come in to see how the apparatus works. We are here all week including Saturday mornings but the Museum is closed on Mondays.

Very best wishes,

Froelich Rainey
Director

Dr. J. C. Morris
Vice President
Tulane University
New Orleans, Louisiana
70118

FGR/vg

notified Mark.
To send reprint

TULANE UNIVERSITY

NEW ORLEANS, LA. 70118

Office of the Vice President
215 ~~Dixon~~ *Gibson Hall*

November 24, 1965

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

Dear Dr. Rainey:

If you have a good memory you may recall having met me in connection with our planning committee for the Seattle World's Fair some years back.

For some time I have been very interested in radioactive dating and was intrigued in reading in the November 13 issue of the New York Times by a report of yours entitled "New System Dates Ancient Pottery." I am wondering if you have any further information on this subject which, judging from the Times' account, is really a breakthrough.

There is some chance that in a few weeks I will be in Philadelphia. Would it be convenient to you if I call on you at the Museum and would it be possible for you to have someone show me your radioactive dating equipment? Nothing could give me more pleasure than seeing you again and learning more about this subject.

With kindest regards, I am

Sincerely,

Joe Morris

J.C. Morris
Vice President

JCM:dha

April 13, 1967

Professor Frank Morrison
Department of Mineral Technology
University of California
Berkeley, California 94720

Dear Frank:

That is good news that you are coming here on the 20th. If you can visit me before or after, so much the better.

Telephone numbers are:

Museum	215-EV-67400
Physics	215-594-8168
Home	609-737-0003

Best regards,

Beth

EKR:lm

Chron

January 16, 1970

Dear Mr. Moseley:

Many thanks for the statement on the proposed research program on the north Peruvian coast, and let me say that I am sorry I have been so long in replying but I have simply not had a chance to read it until today.

First, this whole business interests me very much partly because of the scale of the operation and the general objective in connection with the emergence of urbanism. If you get this thing going on a long range basis, perhaps we can give you a hand with some of the techniques we are just now developing here. For example with the Air Force, the U.S. Geological Survey and the Ministry of Public Works in England we will be trying an experiment with various types of remote sensing from air craft in the spring, and if this works out as we hope, then the Chan Chan area would be a natural for further experiments along this line. Also it may be that our highly sensitive cesium magnetometer could be used in this area on the ground for site survey. At least it has been very successful in charting whole towns in Yugoslavia, Greece and in the Olmec area in Mexico. Of course, this will all depend upon the kind of terrain. In any case I hope you will keep me posted as to how you get on with this plan whether or not any of these techniques can be used.

All the very best wishes,

Froelich Rainey
Director

Mr. Michael E. Moseley
Harvard University
Cambridge, Massachusetts 02138

October 29, 1969

Dr. Hallam L. Movius, Jr.
Department of Anthropology
Harvard University
Cambridge, Massachusetts

Dear Dr. Movius,

Many thanks for your recent articles. We are very glad to have your fine summary and classification of Upper Palaeolithic tools in our MASCA library.

I have enclosed two reprints.

Sincerely yours,

Elizabeth K. Ralph

EKR/mrb
Enc. (2)

March 1, 1966

Ing. Enrico Mueller
Cassano Ionio
(Cosenza) ITALY

Dear Enrico:

It is time for me to get excited about returning to Italy. If all goes well with the cesium magnetometer, I hope to arrive toward the end of March.

I hope that the insurance company has reimbursed you for the microbus and other costs. If not, please let me know before I leave so that I can do something about it.

I hope, too, that Biaggio Aino has taken the generator to Bari for repair. He promised to do this and I gave him £60,000 for the cost, but, perhaps, he has had trouble in obtaining a truck to transport it. I am trying to persuade Fro to buy another generator and two larger electric pumps, and Fro, in turn, is trying to persuade Mr. Bullitt to give some more money.

Ellen Kohler wants me to thank you very much for Aletti's book. She is glad to have it.

I am looking forward to seeing you. In the meantime, love and best wishes to all,

Elizabeth Ralph

ER:LF

March 15, 1966

Ing. Enrico Mueller
Cassano Ionio
Cosenza
Italy

Dear Enrico:

Many thanks for your good letter and thanks to Anna for her note.

I plan to be at the Hotel Boston on March 24th. If there is still trouble with the Carta Turistica for the Microbus, could you please send the old one to me there? I have written to Dr. Foti for a letter in case it is needed. I do not need the Microbus registration or insurance papers because I'll have the new ones.

I notified the insurance company about the lack of action and they have promised to do something about it.

I have purchased a Fiat 850 which should be waiting for me in Rome, so I won't need the Microbus. The Fiat will be registered in Italy this time--no trouble with permits.

Bobbie Raikes has agreed to be our consultant for hydrolic matters and can join us in late April or May. I hope to talk to him in Rome so that if he agrees that we need more electric pumps, I can order them.

If you have a new telephone number, could I trouble you to send it to me at the Hotel Boston?

I don't know how long the errands will take, but hopefully, I'll be able to travel south on Saturday or Sunday, 26th or 27th.

With best regards to all,

Betta

March 9, 1967

Ing.Enrico Mueller
Cassano Ionio
(Cosenza) Italy

Dear Enrico:

Many thanks for your good leeter of 28th January, and for all that you have done for us. I tried to pursuade Fro that I should go right away to take care of the Microbus and to work in the fields where melons will be planted, but he says that I must wait until May and that I must return in early June. Perhaps, if the grain isn't cut, I can stay longer. It may be that the anomalies we see in the infrared photography are all Roman, but it would be interesting to see if we get correspondence with the magnetometer.

I have another favor to ask. The Museum is thinking of doing a more thorough excavation on Torre del Mordillo in September and October. Dr. Roger Edwards, Associate Professor in our department of Classical Archaeology, will be in charge. He is very competent and his speciality is 4th and 5th century B.C. pottery. He is also a shy meticulous person. His first concern is to have a complete survey made of the plateau, that is, a whole new and accurate contour map of the area at a scale of about 1:1000. He would also like to have bench marks installed at suitable places. (My thought is that these could be related to the pylons without any difficulty.)

Do you know a "geometra" who could do this and have it completed before September? I could tell him more specifically what needs to be done when I arrive in May. Could you give us an estimate too of what it would cost? Also, while they excavate, Dr. Edwards would like to have a skilled "geometra" or an architect present to map the excavation grids and structures within them.

One thought that I have is that possibly Nunzio Lione could help with this, but I don't know whether or not he has had sufficient training in land surveying to do it alone. Perhaps, his father or someone else could supervise him. This is only a suggestion. You may have a much better idea.

I have enclosed the new N.J. registration for the Microbus, and regret that I am not here to take care of the Carta Turistica.

Please extend my thanks and love to Anna for her note.

Cari saluti a tutti,

April 12, 1967

Ing. Enrico Mueller
Cassano Ionio
(Cosenza) Italy

Dear Enrico:

Many thanks for your good letter and congratulations on becoming a grandfather. Please extend my congratulations to Luisa and Mimmo.

This recent trouble with Foti is the fault of Oliver Colburn (il stupido'). De Santis asked Colburn for an article on Torre Mordillo. Colburn first wrote to Foti to ask permission and sent Foti copies of the material that he planned to send to De Santis. Foti replied no in no uncertain terms, but Colburn misunderstood, didn't bother to show Foti's letter to anyone who could read Italian, and sent the stuff to De Santis. It is no wonder that Foti is mad at us - I don't blame him.

Fro is leaving today for a trip to Greece and Turkey. About the first of May, he plans to be in Italy and he hopes that you and he can patch things up with Foti. Fro will be writing to you directly in the near future. I won't know what my plans are until Fro returns here. I am now scheduled to work in Greece in June, but hope that I will be allowed to come to Sibari for part of May and July.

With best regards and love to the new grandparents and aunts and uncles,

Beth

P.S. A few stamps are enclosed for Zia Luisa. I hope she is well

September 13, 1968

Enrico Mueller
Cassano Ionia 87011
(Cosenza) Italy

Dear Enrico:

Many thanks for your letter of 3rd September.

Under separate cover, we are sending you two copies of our Sybaris Monograph, with the new location of the long wall marked on one Map C, a blue print of our additional cesium magnetometer grids, an aerial photo of the Parco del Cavallo area, and an aerial mosaic, plus a few pictures of the instruments.

I am sending these to you because I do not have Candido's complete address. Please give him my best regards.

Fro will be at Sybaris within a week, but he will probably have to return before the 28th because of teaching committments.

With best regards to you and Anna,

Elizabeth K. Ralph

EKR/mhr

UNIVERSITY INTRAMURAL CORRESPONDENCE

To: Beth Ralph, MASCA

From: Don Fey, News Bureau

Date: November 11, 1972

Re: Attached letter--

MÜLLER

Can you pass along any information you may have on producers, costs, and capabilities of magnetometers, etc. to this group?

Thanks for the help.

Regards,

Don Fey

LOTHAR MÜLLER

84 REGENSBURG, DEN 21.11.72
Nibelungenstraße 24 West Germany
Telefon 91274

University of Pennsylvania
NewsBureau
Franklin Building
3451 Walnut Street
Philadelphia 19104 USA

Metal detector

Dear Sirs,

We are a group of young German archaeologitsts an we are mostly interested in prehistoric researches of our nearer home country, in which for all the Romans let their marks from their more than 400 years attendance.
Very often we missed a productive metal detector during our working.

In different German branch newspapers we could read that your archaeologists use metaldetectors during their works.

Because we can't get any information in Germany we ask you to help us in this case und please you to say us where we can get the adresses of the producing firms or where we can get ground-plans for these detectors.
May be you are able to send us such plans.
As far as we know there an different produces of such-detectors in the United States.
The following interests must be given with such a gear:

1. A minimum of ground sensibility
2. It must be possible to find a metal of 2 inches diameter even in a deep nearly 20 inches inconstestable
3. It must be even possible to different iron-metal and any other metal.

We ask you very much to give us your help in this case and we are waiting for your answer.

Yours truly

L. Müller

November 30, 1972

Mr. Lothar Miller
84 Regensburg, Den
Nibelungen Strasse 24
West Germany

Dear Mr. Miller:

The News Bureau has referred your request to me.

In the United States, there are several companies that make inexpensive metal detectors, The ones that we have tried most recently are made by Edmund Scientific Co., 801 Edscorp Building, Barrington, New Jersey 08007. Their No. 2995 costs $30.00 in the U.S.A.

For advice about magnetometers, I suggest that you consult Dr. I.Scollar Labor Für Feldarchaeologie Rheinisches Landesmuseum, Bonn.

Sincerely yours,

Elizabeth K. Ralph

EKR/11

September 27th, 1973

Mr. Lothar Müller
8400 Regensburg
Nibelungenstrasse 24
West Germany

Dear Mr. Müller,

Thank you for your letter of 21st September 1973 in regard to metal detectors.

Unfortunately, we do not know of any metal detectors that have greater sensitivity. Even the military equipment that is available is no better. The companies that manufacture the latter hint that there may be better ones, but either they are classified or they do not exist in the U.S.A., to my knowledge.

Sincerely yours,

Elizabeth K. Ralph

LOTHAR MÜLLER

84 REGENSBURG, DEN 21. 9. 73
Nibelungenstraße 24
Telefon 91274

W. Germany

Dr. Elizabeth K. Ralph
Museum Applied Science
Center for Archaeology
University of Pennsylvania

33rd & Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Madame,

thank you very much for your letter of November 30, 1972. The type of Metal-Detector, made by Edmund Scientific Co. is quite familiar to us. Several such instruments we have already in use. The disadvantages, you have certainly experianced, too, are the following:

in suftcient depth range, the divice should detect a coin in 1 - 2 ft depth.

erraneous signals by inhomogenities of the soil (rocks, Humidity).

The physical principle of distuned resonant cirquits, on which those instruments are based do not yield more. Higher performance could be gained by multiple loop arrangements or completly different type of instruments.
If you know any, please be so kind to recommend us manufacturors of more sophisticated divices. The Price does not play a predominalt role.

Magnetometers, which detect large scale structures by measuring distortions of the earth magnetic field in the soil are not adaptable to our problems.

We would be pleased to stay in contact whith you and eventualle exchange experience.

Sincerely yours

L. Müller

June 14, 1967

Arch: Techniques

Dear Robert:

Your carbon-14 studies with the African art objects are, of course, right down our alley. Naturally, we are pleased to concur in your testing of our Dogon figure which you have there and, of course, take the sample yourself and go right ahead with the project, as far as we are concerned. I am most curious to learn how you make out.

All the very best,

Froelich Rainey
Director

Mr. Robert Goldwater
Chairman, Administrative Committee
The Museum of Primitive Art
15 West 54th Street
New York, New York 10019

FGR/vg

The Museum of Primitive Art

15 West 54 Street, New York, N.Y. 10019 CIrcle 6-9493 Cable: Primartmus

June 8, 1967

Dr. Froelich G. Rainey
The University Museum
33rd and Spruce Streets
Philadelphia 4, Pa.

Dear Dr. Rainey:

I write to request your cooperation in a dating project being presently carried out by the Museum of Primitive Art.

The Museum, in cooperation with the Conservation Center of the Institute of Fine Arts, New York University, and the Brookhaven Laboratories is making a series of Carbon-14 tests on objects of African art. More specifically we are testing a number of "Tellem" and "Dogon" works with a view to establishing their relative, and if possible, their absolute dates. Our initial interest was to see if such dating by Carbon-14 methods could throw any light on the question of whether "Tellem" and "Dogon" were separate people and cultures separated by a considerable time gap, or parts of a continuous culture. Dates previously suggested for these objects have ranged from the fourteenth through the nineteenth century.

We are testing objects from our own collection, from the Musée de l'Homme and several private collections. We should like to include your Dogon Figure (registration no. 29-12-97); because of its typical style character and its established western history it would be an important member of the series.

The testing is being carried out under the supervision of Professor Edward Sayre of New York University at the Brookhaven Laboratories. To make a test under conditions uniform with those conducted on the series as a whole, 4 grams of wood are needed. The Museum of Primitive Art will be glad to do this extraction according to your directions (probably in the base of this figure) and to fill and repair the small cavity thus created. Or if you prefer, to do it at the University Museum we would reimburse you for the expense involved.

From our own experience we are confident that the necessary material can be extracted without damage to the work. The test results will be an important step in the scientific dating of African sculpture.

We would be grateful for your cooperation.

Sincerely yours,

Robert Goldwater

Robert Goldwater

TELEPHONE 364-3451
POST OFFICE BOX 431

COCHISE COLLEGE .. DOUGLAS, ARIZONA
85607

DR. WILLIAM B. HARWOOD
PRESIDENT

February 28, 1966

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

Dear Dr. Ralph:

Please forgive me for not answering your letter of January 7 sooner but we have been trying to get money for our project so we could include the cesium magnetometer. However we have been unsuccessful and therefore will have to exclude the magnetometer from the project.

Thank you very much for the kindness concerning this matter.

Sincerely yours,

Richard D. Myers

Richard D. Myers

January 7, 1966

Dr. Richard D. Myers
Coschise College
Douglas, Arizona 85607

Dear Dr. Myers:

After writing to you on December 13th about instrument surveys at the Garden Canyon ruin, our situation has changed somewhat here.

This past fall we had good success in southern Italy with the new Varian Associates' portable precision cesium magnetometer. It is more sensitive and much faster to use than proton magnetometers. As a result of this and subsequent discussions, we are now planning to act as agent for Varian Associates in conducting surveys with this improved instrument. Since this is an experimental period and 2 prototypes only are available, the cost is rather high--$3000 per month. This fee includes the rental of a cesium magnetometer and its use under the direction of a geophysicist. Two local assistants or students would also be required (not included in the fee).

If you would like us to do a survey at Garden Canyon ruin on this basis, please let us know as soon as possible. We already have commitments for most of May and June in Europe, but early May or July might be available times.

Sincerely yours,

Elizabeth K. Ralph
Associate Director

EKR/rs

TELEPHONE 364-3451
DRAWER L

COCHISE COLLEGE . . DOUGLAS, ARIZONA
85607

DR. WILLIAM B. HARWOOD
PRESIDENT

Ralph
Should we do this?
Will prob reply?
Fro

December 6, 1965

Dr. Froelich G. Rainey
Department of Anthropology
University of Pennsylvania
Philadelphia, Pennsylvania

Dear Dr. Rainey:

Cochise College, in cooperation with the Amerind Foundation and Fort Huachuca, is planning to excavate the Garden Canyon ruin in the Huachuca Mountains this next spring. It is hoped that the excavation of this site will add new knowledge to the Archaeology of Southeastern Arizona.

We are interested in trying new techniques as well as the standard methods in archaeology and would like very much to have a magnetometer used at the site. Since we are in the process of drawing up a request for a grant from the National Geographic Society would you be so kind as to advise me of the cost involved in using a magnetometer in this project? Your prompt reply will be most appreciated.

Thank you for your kindness.

Sincerely,

Richard D. Myers

Richard D. Myers
Instructor in Anthropology

RDM: jh

December 13, 1965

Dr. Richard D. Myers
Instructor in Anthropology
Cochise College
Douglas, Arizona 85607

Dear Dr. Myers:

Dr. Rainey has asked me to reply to your letter of December 6th. Your proposed project in the Huachuca Mountains sounds very promising.

In regard to costs, if we or a similar organization do the instrument surveys for you, the main costs are for salaries and travel. If we send a student geophysicist to be in charge of the instrument surveys, I estimate about $500 per month for his salary. One or two student assistants would be required (depending upon the type of instruments used). These could be your students or we could send ours (salary for each about $75 per week, plus travel expenses). Food and housing should also be considered unless supplied as part of the excavation.

If you would like us to help with the surveys, we should first discuss the type of soil, what kinds of structures are sought, etc., in order to estimate which instrument will work best.

Sincerely yours,

Elizabeth K. Ralph

EKR/mhr