geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Remote Sensing and Interpretation

May 5, 1969

Gentlemen:

Introducing a New Company

We are pleased to introduce GeoMetrics, a new company, formed to provide you with instruments and services for the remote sensing, processing, and interpretation of environmental data. Our efforts will be directed towards satisfying your requirements in exploration and research of natural resources and monitoring various physical and chemical parameters of the earth's environment.

Initially, GeoMetrics will offer a new generation of lightweight and high performance proton precession magnetometers for airborne, marine, and land-based surveys and for geophysical research and observatory applications. Data acquisition systems will also be available for recording geophysical data, as well as other required parameters, such as time or location, in computer-compatible form.

Our professional staff offers services utilizing unique computer techniques for reduction, display and analysis of geophysical data. Machine-drawn maps are prepared with methods for data correction, filtering, and contouring, which are more comprehensive than any now used in the industry. These techniques are being applied towards more practical and meaningful interpretation of magnetic, electromagnetic, gravity, gamma ray, infrared, and other remotely sensed data.

Individuals at GeoMetrics represent more than 50 years combined experience in research, development, marketing, and applications of remote sensing. Among the principal members of GeoMetrics, many of whom you may know, are:

Sheldon Breiner	Richard A. McBride
Don I. Cameron	Douglas P. O'Brien
Neil Hickman	Robert O. Prindle
William R. Jacobson	Thomas Tullsen

If you wish to receive further information on our products and services, please complete and mail the enclosed card. We look forward to a long and mutually beneficial business relationship with our friends and clients involved in research, exploration, and measurement of environmental data.

Sincerely,

Sheldon Breiner

Sheldon Breiner
President

geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Remote Sensing and Interpretation

May 29, 1969

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

Dear Fro:

I am writing to confirm our telephone conversation of 15 May concerning our offer to process the data from San Lorenzo which we received in the mail two days ago. We propose removing by computer techniques the time variation effects present on each grid and automatically plotting contour maps of the data using the Varian STATOS V plotter. This work should be completed in July for an estimated price of approximately $2000.

The data plotted by Beth Ralph from San Lorenzo has in it many time variations expressed as long, straight-line contours very apparent on most of the maps. The course contour interval necessary to plot the few large anomalies also prevents accurate plotting of the more subtle features. Many other anomalies implicit in the data are obscured either by the time variations or other discrete offsets associated with the magnetometer or the magnetometer bearer. We propose reconstructing a virtual tie-line across the non-anomalous portions of the maps and using this tie-line as a reference for all the profile lines to bring them to a common level. Contour levels are then determined using a program which has the capability to suppress the drawing of fine detail contours in high gradient areas. This feature widens the apparent dynamic range of the map while at the same time ensuring that the subtle, low gradient anomalies will be portrayed.

The resultant data will then be contoured on a new electrostatic plotting device, the Varian STATOS V, that is many times faster than any comparable plotting device now in use. Another feature of this electrostatic plotter, which we are not prepared to utilize at this time, however, is the ability to plot variably shaded areas between contours to display the anomalous areas, enhance any patterns, and allow the eye to discern the more subtle features. A preliminary example of this type of presentation is enclosed.

The above procedures accomplish far more than the presentation of glamorous new computer techniques. The computer and graphic procedures reduce errors, selectively emphasize certain features, and in general present the data in a considerably more interpretable form. Needless to say, there is also a powerful bit of public relations value in the application of the latest computer technology, graphical displays, and spin resonance magnetometry to the exploration of a 3,000 year old civilization.

On a related subject, we shall also be pleased to perform surveys for you if for any reason you require additional support or field-qualified personnel. We also have several new ideas that might prove useful as powerful techniques for exploration. Perhaps you would like to try these some day.

In summary, we look forward to a continued good relationship in developing and applying the most effective techniques to archaeological exploration. We expect exciting results from the computer-plotted San Lorenzo survey and shall keep you informed of progress and developments as soon as they are achieved.

With best regards,

Sheldon

Sheldon Breiner
President

cc: Dr. E. L. Ginzton
Dr. Louis Malter

SB:sk
Enclosure

NOTE: For the purposes of our financial accountability, I would appreciate your signing the attached copy of this letter in the space provided to confirm the work we have already undertaken. I put an upper ceiling of $3000 on the job, but expect the work to amount to $2000.


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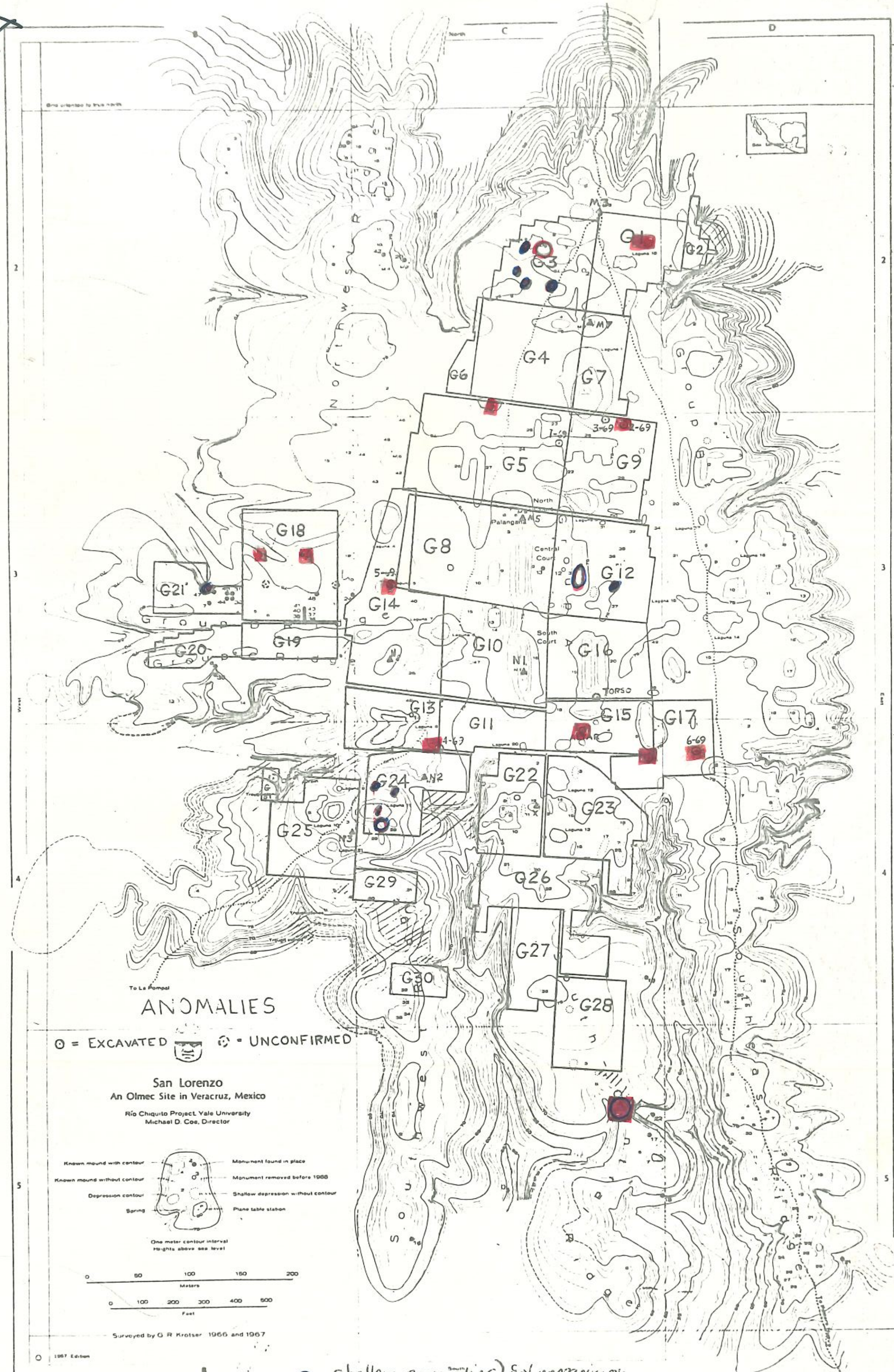
geoMetrics

SHELDON BREINER
President

Remote Sensing and
Interpretation

914 Industrial Avenue, Palo Alto, California 94303 • (415) 321-7610

ASCA file



Magnetic maps from grids 2, 6, 7, 3, 12, 12, 22, 24, 28, 30 available but reduced & printed. Significant anomalies appear, however, in grids 3, 12, 21 & 24 the locations of these anomalies are shown on this page (approximate location).

- shallow anomalies } not appearing on
- deep anomalies } attached individual grids
- Very large anomalies — some from exposed monuments

Other anomalies noted on attached maps

S Breiner Feb, 70

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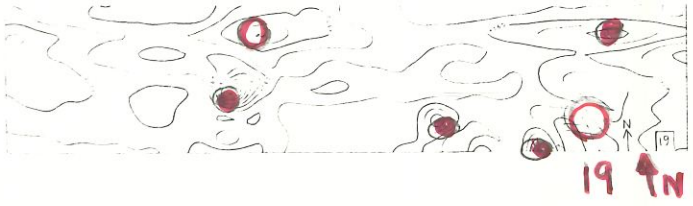
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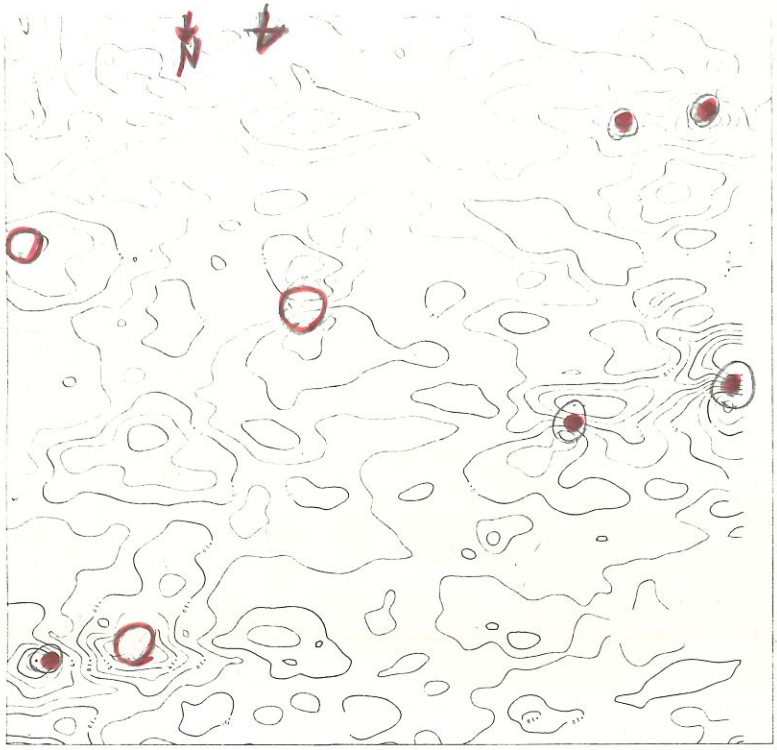

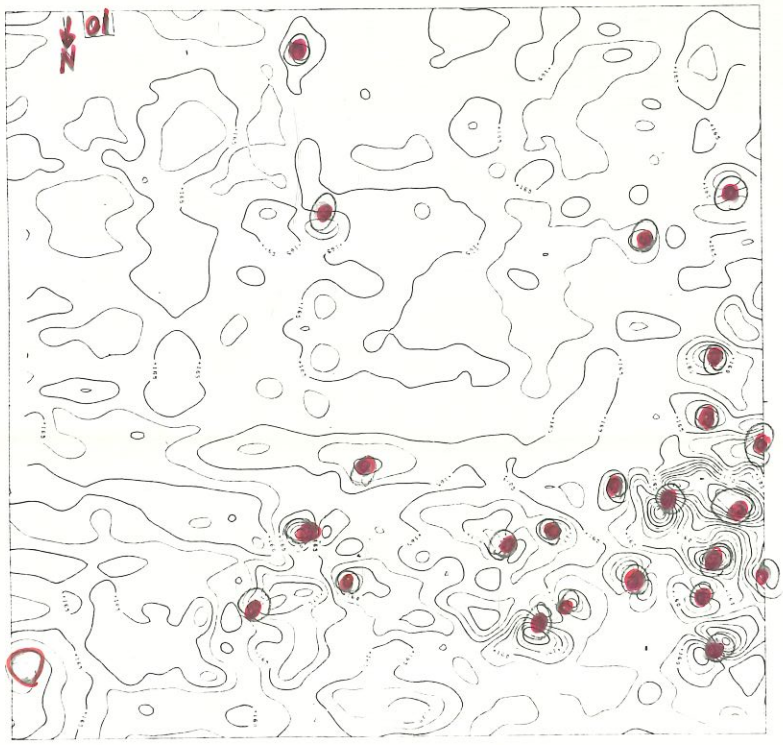

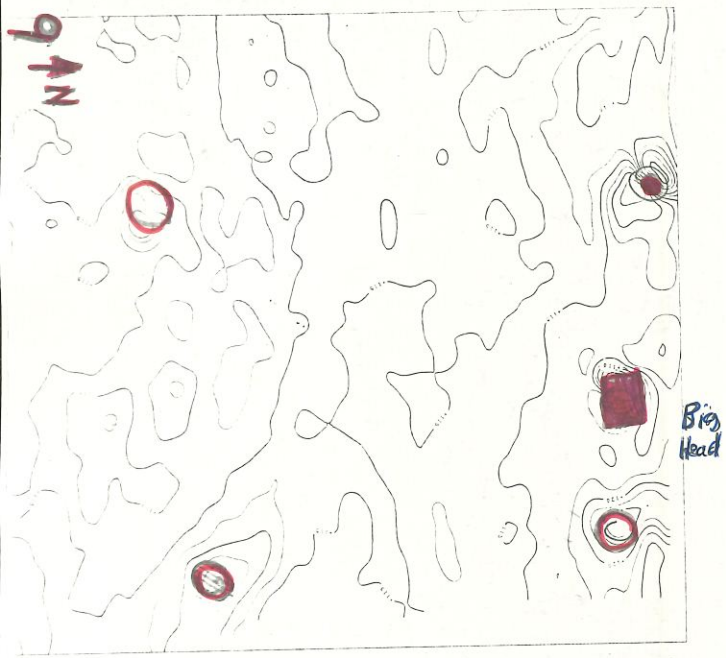
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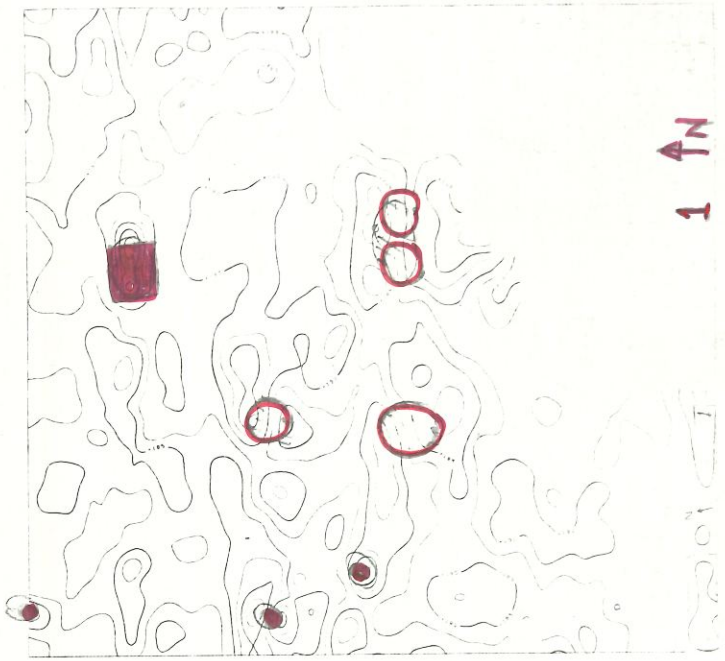
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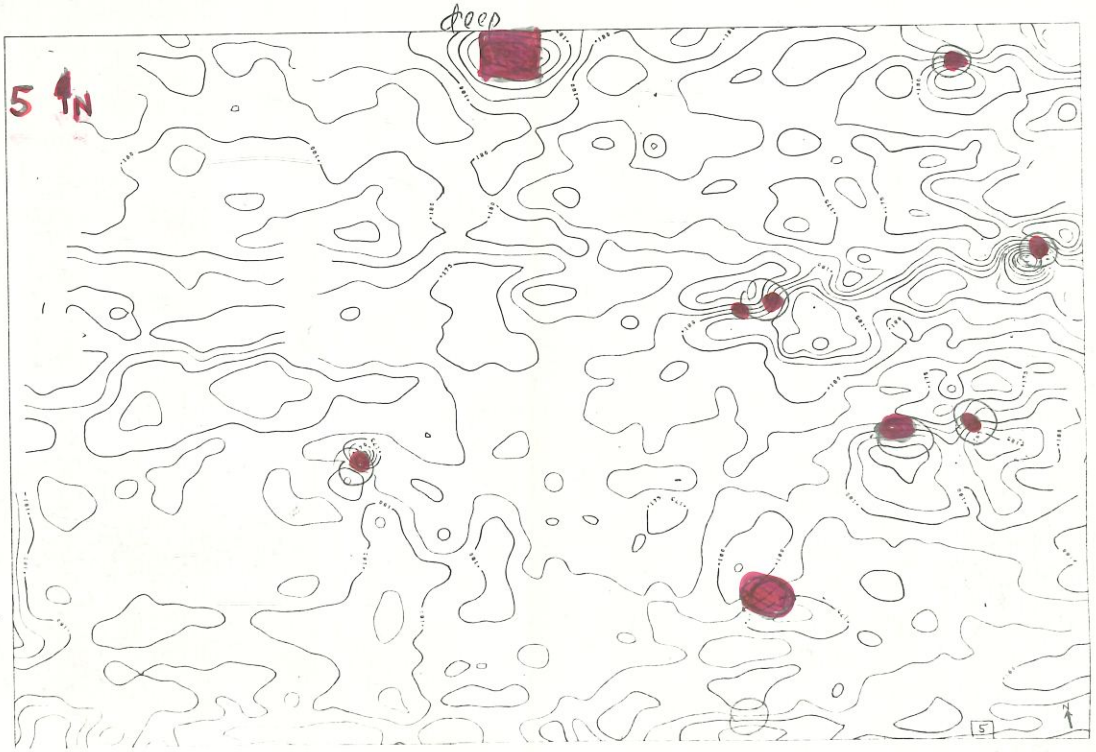
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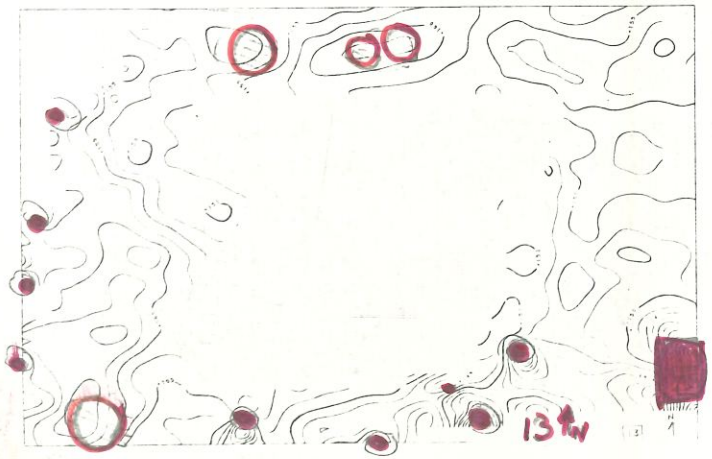
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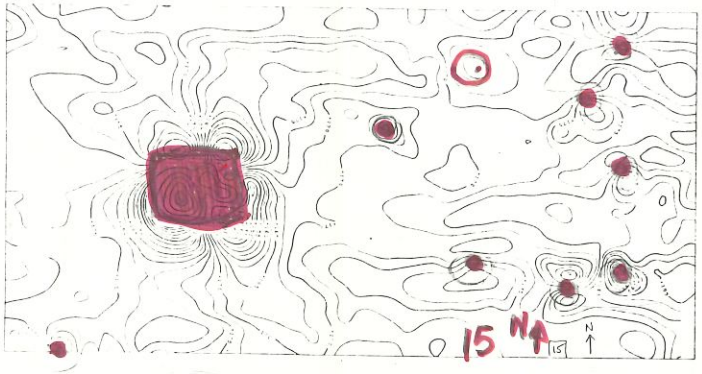

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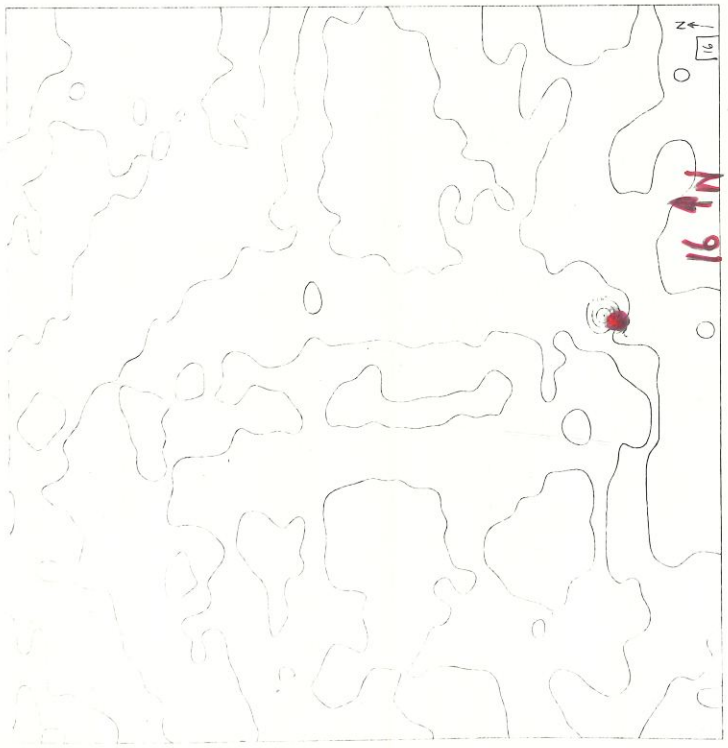

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December 5, 1972

Dear Shelly:

We are returning the slide herewith, with much thanks.

Sincerely,

Froelich Rainey
Director

Mr. Sheldon Breiner
President
GEOMETRICS
914 Industrial Avenue
Palo Alto, California 94303

geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Cable: "GEOMETRICS" Palo Alto
Telex No. 345525

Remote Sensing and Interpretation

For Dr. Rainey
8 x 10 Photos

November 21, 1972

Dr. Froelich Rainey
Director
The University Museum
University of Pennsylvania
Thirty-Third and Spruce Streets
Philadelphia, PA 19104

Dear Fro:

Enclosed is a slide (not the same view you requested) from which you can make a print for your publication. Please return the enclosed slide when you are through with it. Meanwhile, we are having a black and white print made from the slide which was used to prepare the figure of the large head in the American Scientist article. It will take 10 days or more for us to get the print back from the photographer, considering holidays, etc. Perhaps Jane Olsen already has a colored print from that picture which you can use, but you will have to check with her on that possibility.

If you need more reprints of the American Scientist article, please let me know.

Best regards,

Sheldon Breiner
President

Bert Ralph
6- 8X10

SB:sk
Enclosure

geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Cable: "GEOMETRICS" Palo Alto
Telex No. 345525

Remote Sensing and
Interpretation

11 June 1973

Dr. Elizabeth K. Ralph
The University Museum
University of Pennsylvania
Thirty-third and Spruce Streets
Philadelphia, Pennsylvania 19104

Dear Beth,

Here are some computer outputs from some of the tests we made on the carbon 14. These are the dendrochronological dates that you have collected. The first set of runs show the carbon 14 dates corrected to 1950 reference together with the dendrochronological dates, the computed fit to these dates and the residual from these dates. I have explained all of these in the computer output.

The residual indicates a standard deviation of approximately 90 years which is significantly above the experimental error for the carbon 14 dates or at least the average of the experimental error which we take to be about 50 to 60 years. Thus, there must be something else operative along the relationship between the carbon 14 and the dendrochronological dates. To test whether this was a periodic phenomena, we took the residual from the cubic polynomial fit, and tried some statistical analyses which are indicated in the second group of data on the computer run. These tests were inconclusive due principally to the great amount of averaging necessary and the sparcity of data during certain eras or epics.

Still pursuing the idea of looking for periodicity, we tried a third attempt which is to generate the periodogram or essentially the power spectrum of the residual averaged over a fifty year interval. We had a bit more success here and it indicated

that there were indeed peaks shown on the periodogram which seemed to be relatively significant, although again the averaging required to get this data into a reasonable form and the sparcity of data, tend to lead one to suspect these results. In any event, we do see fairly significant peaks in the power spectrum of 400, 355 and 457 years duration. These undoubtedly are some sort of beading phenomena whereby a longer period disturbance is modulating a higher frequency disturbance yielding multiple peaks at about the 400 year period level. It does seem to confirm some of the observations you made on the residuals of this data, in that there did appear to be some definitive 400 year periodicity in these residuals. I still don't think that these results are significant, at this point, however they are included for your edification and perhaps insight.

Sincerely,

Douglas P. O'Brien
Chief Geophysicist

DPO'B:rlm
enclosures

geoMetrics

914 Industrial Avenue
Palo Alto, California 94303
(415) 321-7610

Cable: "GEOMETRICS" Palo Alto
Telex No. 345525

Remote Sensing and Interpretation

August 15, 1973

Re: Cesium Magnetometer

Ms. Beth Ralph
The University Museum
University of Pennsylvania
Thirty third and Spruce Streets
Philadelphia, PA 19104

Dear Ms Ralph:

I thought I should drop you a note and explain our position regarding your work request. As I believe Neil Hickman explained to you, we basically have no continuing interest in your project from a product standpoint and since our engineering people are very busy working on projects which lead to products, it would not be in GeoMetrics' best long term interest to do your work. The thought occurs to me that perhaps you could locate a graduate student in the EE department who is looking for a meaningful project. Your project is certainly meaningful and may get an EE student interested in your overall work.

We would still like to have you try a couple of our portable proton magnetometers (Model G-816)at a time that is mutually convenient. I must admit that the demand has been so great for these instruments that we have had difficulty keeping our order backlog down, let alone having instruments for demonstration purposes. I do think if you had some field experience with the G-816 that you would find it to be an interesting price/performance compromise to your presently used alkalie vapor magnetometers.

Thank you for thinking of GeoMetrics for your project. I do apologize for our inability to respond to your request at this time and do hope that you find a satisfactory solution.

Very truly yours,

R.A. McBride
Vice President & Manager
Engineering & Production

ml

Negative Bid