Part 3: Roswell Rock Lab Analysis

"The pattern is remarkable. Obviously, it is something that took a lot of care and knowledge to produce because this hard, iron-rich sandstone with magnetite is not easily worked."
- James Constantopoulos, Ph.D., Geologist

Left: Mysterious 1.96 inches (5-centimeters) by1.69 inches (4.3-centimeters) diameter rock that weighs 50.78 grams, measured on July 15, 2008, in Physical Sciences Department at Eastern New Mexico University. The carved rock was found by Roswell auto repairman, Robert Ridge, 50, during his September 4, 2004, deer hunting trip near Capitan, New Mexico, 17 miles southeast from the July 1947 UFO crash site between Corona and Roswell. Image by Robert Ridge. **Right:** Wheat formation, 120 feet long, reported August 2, 1996, below the Liddington Castle hill fort in Chisledon, near Swindon, Oxfordshire, England, on Wiltshire County border. Aerial image © 1996 by **Steve Alexander.** Also see: **Cropcircleconnector.com.**

Roswell is larger red circle on far right. Cedar Hill deer hunting trail is smaller red circle on Highway 246 (Pine Lodge Road) just west of Chavez and Lincoln County borders northwest of Roswell. Capitan is middle red circle and Corona is top center of map. Cedar Hill deer trail is 17 miles southeast of the July 4, 1947, crash site between Corona and Roswell.

Return to **Part 1**

July 18, 2008 Portales, New Mexico - I contacted the original geologist in Portales who did the first February 2005 energy-dispersive X-ray fluorescence spectroscopy on the rock for Robert Ridge. I learned that all the original test results had been lost a couple of years ago in a computer hard drive crash. So, on Tuesday, July 15, 2008, I drove to Portales, New Mexico, to meet Robert for a second round of testing of the mysterious carved rock at the Physical Sciences Department of Eastern New Mexico University. The Chair of that department is Geology Professor James Constantopoulos, Ph.D., who has taught at ENMU for nearly twenty years. Prof. Constantopoulos began by examining the rock using a binocular microscope.

James Constantopoulos, Ph.D., Professor of Geology and Chair, Physical Sciences Department, Eastern New Mexico University in Portales, began his July 15, 2008, examination of the mysteriously carved, iron-rich rock that Robert L. Ridge (right) found in the Capitan Mountain region while deer hunting at Cedar Hill on September 4, 2004. Image © 2008 by Linda Moulton Howe.

The rock is a dark chocolate color with a touch of red and has a satin-smooth finish. The rock is a bit heart-shaped, measuring 1.96 inches (5-centimeters) by 1.69 inches (4.3-centimeters) and weighs 50.78 grams. One end is twice as thick as the other. The thickest part of the rock is where one of the circle and crescent patterns are enclosed inside a circle. Below that encircled pair is another crescent and circle enclosed inside a circle at the thinnest part of the rock. The pattern is refined with beveled edges and seems to rise more than an eighth of an inch up from the surface of the rock. Adding to the mystery, the rock pattern is a match to the extraordinary August 2, 1996, crop formation at Liddington Castle in Wiltshire, England, except that the circles and crescent moon patterns in England were created by standing wheat. In the mysterious rock, the circles and crescents are the opposite – not raised, but beveled into the raised pattern on the rock.

True color of the iron-rich sandstone rock and its raised pattern, which matches the August 2, 1996, wheat pattern found at Liddington Castle.

Prof. Constantopoulos first used his binocular light microscope to examine the rock on both the pattern side and back side to look at grain sizes.

Back side of rock under lab light. Three pits were likely where larger grains fell out. X-pattern in foreground is series of embedded calcite-like crystals.

The professor also experimented with a pencil magnet which was clearly attracted to the rock, which confirmed the presence of magnetite. The later energy dispersive X-ray fluorescence spectrometer (EDXRF) simply confirmed the presence of iron. Robert Ridge also demonstrated with his own auto shop magnet-on-a-stick. When he holds the magnet over the crescent and circle at the thickest end of the rock, the rock turns counterclockwise. When he moves the magnet to the lower crescent and circle in the thinnest end of the rock, the rock reverses and turns clockwise.

Click here to see Earthfiles video of rock turning beneath magnet.

Varying clockwise and counter-clockwise plant lays are a fundamental characteristic of worldwide crop formations. Since the pattern carved on the iron-rich sandstone rock matches the pattern on the August 2, 1996, Liddington Castle pattern in England, I discussed with Prof. Constantopoulos the possibility that whoever, or whatever, made the pattern on the rock might have intended to link the upper circle and crescent to a counter-clockwise rotation and the lower circle and crescent to a clockwise rotation by utilizing the magnetite distribution in the rock or the pivot points of its peculiar shape.

Interview:

James Constantopoulos, Ph.D., Professor of Geology and Chair of the Physical Sciences Department, Eastern New Mexico University, Portales, New Mexico: "I think the rock's rotation changes relate to selective positioning of the magnet due to irregularities in the shape of the sample.

HAVE YOU SEEN A VARIATION IN CLOCKWISE AND COUNTER-CLOCKWISE ROTATION IN OTHER MAGNETITE ROCKS BASED ONLY ON THE SHAPE OF THE ROCK?

No, because it's not really something we do. As a geologist, we're only concerned with questions such as: is it magnetic or not? Is it strongly magnetic and therefore suggestive of magnetite? Or is it weakly magnetic and suggestive of titanium or one of the other iron-bearing minerals?

Also, I wanted to look at the carving itself in detail to look for any evidence of tool marks or mechanical work.

OR EVEN HEATING FROM SOMETHING LIKE A LASER?

Yes, exactly, and the rock did not appear to have been formed by a laser. The rock pattern is too perfect to have been done by hand and the material is too hard. It does not really lend itself well to hand working. But I could see someone with machining experience could possibly produce a pattern like this.

BUT YOU DID NOT FIND ANY EVIDENCE OF HOW IT WAS MADE?

No, no, I did not.

WHAT WAS YOUR OVERALL IMPRESSION OF A PATTERN LIKE THIS IN THE IRON-RICH ROCK?

Very unusual. Obviously, the pattern itself is intriguing because it's a duplication of that 1996 crop formation. Iron-rich sandstone is not very easily worked material. There are hundreds of other natural materials that would be more easily worked than this particular material.

IN YOUR PROFESSIONAL CAREER AS A GEOLOGIST AND NOW CHAIR OF THE PHYSICAL SCIENCES DEPARTMENT AT EASTERN NEW MEXICO UNIVERSITY, HAVE YOU EVER SEEN AN IRON-RICH ROCK SIMILAR TO THIS ONE IN WHICH ANY CARVING HAD BEEN DONE IN THIS 3-DIMENSIONAL RAISE FROM THE ROCK'S SURFACE?

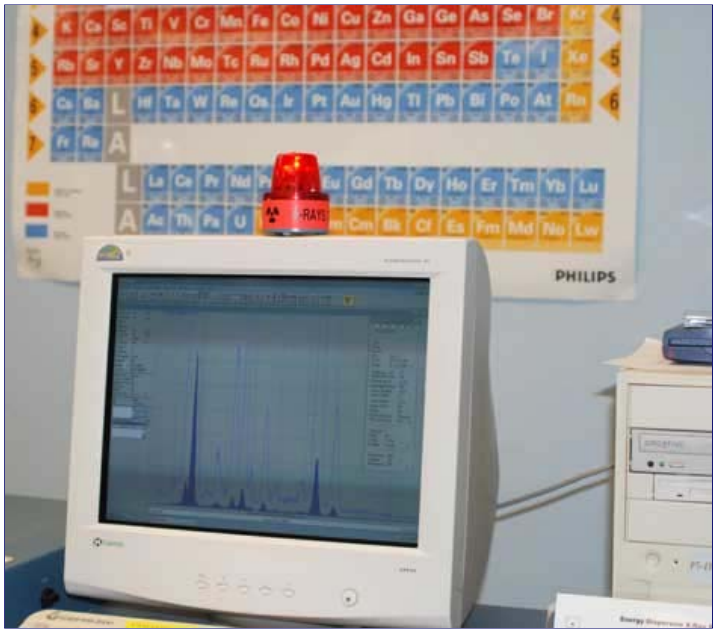
No, I haven't. And as I mentioned the other day when we visited, there is lots of alabaster in that part of New Mexico out on the flats closer to the Pecos River. So, if someone was going to look for a rock to carve, alabaster would be the logical choice.

AS BOTH A SCIENTIST AND A HUMAN HANDLING THE ROCK AND WORKING WITH IT IN YOUR LAB, WHAT RESIDUE IS LEFT IN YOUR MIND?

One of mystery, I guess. It's a normal rock, but the pattern is remarkable. Obviously, it is something that took a lot of care and knowledge to produce because this hard, iron-rich sandstone with magnetite is not easily worked.

Natural magnetite on left compared to iron-rich sandstone mystery rock on right that has enough magnetite to rotate clockwise and counter-clockwise beneath a stick magnet. Image © 2008 by Linda Moulton Howe.

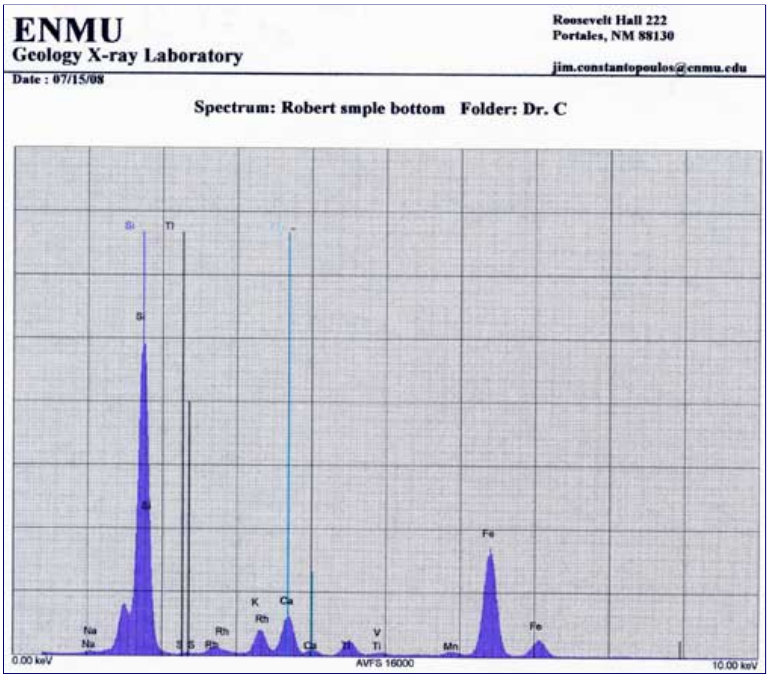
Energy-Dispersive X-Ray Fluorescence Spectroscopy



Prof. Constantopoulos ran energy-dispersive X-ray fluorescence spectroscopy to analyze both the back and front sides of the carved iron-rich rock on July 15, 2008, in the Dept. of Physical Sciences, Eastern New Mexico University, Portales, New Mexico. Image © 2008 by Linda Moulton Howe.

What we did was energy-dispersive X-ray fluorescence spectroscopy. Very simply, this is an instrument that uses X-rays to determine the chemical character of material. It's a standard analytical technique used in geology and in various industries, such as cement production and metallurgy. It's non-destructive, so we were able to place the rock in the sample chamber without cutting into it. I looked at both the back side and top side of the sample for any differences in chemistry. We did not see any differences.

Spectrometry Results



Back of carved rock was tested first in ENMU Geology X-ray Laboratory
and its spectra above is very similar to the front carved side of the rock. Na is Sodium.
Si is Silicon. Rh is Rhodium. K is Potassium. Ca is Calcium. Ti is Titanium.
V is Vanadium. Mn is Manganese. Fe is Iron.

Spectrum: Folder: Caliche

Energy keV	Gross Counts in Max	Gross Area	FWHM eV	Possible Element
0.466	61	1461	132	
1.043	158	3209	96	Na-Ka1, Na-Kb1,
1.749	9656	167665	149	Si-Ka1, Si-Kb1,
2.342	101	2246	112	S -Ka1, S -Kb1,
2.698	250	6322	191	Rh-La1, Rh-Lb1,
3.321	827	15261	157	Rh-Ln , K -Ka1,
3.697	1293	23934	166	Ca-Ka1,
4.030	218	4361	129	Ca-Kb1,
4.514	473	9715	173	Ti-Ka1,
4.953	119	3187	166	Ti-Kb1, V -Ka1,
5.882	152	3911	202	Mn-Ka1,
6.404	3199	64205	188	Fe-Ka1,
7.064	546	11059	199	Fe-Kb1,

We saw a strong iron peak, which would be consistent with the presence of magnetite. I'm sure there were at least two other iron-bearing minerals, too, such as hematite and an iron hydroxide mineral called goethite.

There was a strong silica peak, which would be consistent with the presence of quartz as well as feldspars. There were minor peaks of potassium, sodium and calcium and those are contributed by the feldspars. There were also titanium peaks and those are probably the result of trace minerals such as ilmenite (a weakly magnetic titanium-iron oxide mineral which is iron-black or steel-gray).

So, in terms of the chemistry, it was consistent with what you would expect in an iron-rich sandstone.

YET, YOU COULD NOT FIND ANY PHYSICAL EVIDENCE OF HOW THAT SPECIFIC PATTERN HAD BEEN CARVED SO THAT IT IS ALMOST EMERGING FROM THE SURFACE OF THIS HARD, FERRUGINOUS IRON ROCK.

Yes, there was no difference in the body of the rock itself and the carving. It's all one piece. It doesn't look like it was stamped in any way like a metal stamping mill or anything like that. That area of the carving was completely consistent with the rest of the rock, and there was no evidence of how the rock pattern was made. Maybe a professional machine shop with the right tools could do it.

BUT HAVE YOU EVER SEEN AN IRON RICH ROCK WITH MAGNETITE LIKE THIS ONE BE CUT BY MACHINE TOOLS?

No, and what lends its very unique nature is the fact that it is a unique material to have been carved like this. It's a very well done carving with sharp edges.

AND BEVELED.

Yes. It's precision work.

AND NOT KNOWING HOW IT WAS DONE IN A ROCK THAT NORMALLY NO ONE WOULD EVER CARVE, LEAVES YOU THINKING WHAT?

Wondering about the mystery of it. This rock certainly has me baffled.

Beyond X-ray Fluorescence Spectroscopy

I would want to do some X-ray diffraction to confirm that they are normal terrestrial minerals that are making up this rock. But this is a destructive test. If I were to obtain a sample, I would use a precision diamond saw to carefully remove a slice of sample and that would be the destructive part of the test.

But if a slice could be obtained, I would want to look at a thin section under a microscope. These are standard techniques that we use in the laboratory when we are looking at rocks and minerals.

IF ROBERT RIDGE DOES NOT WANT TO DO THAT, WOULD THE NEXT CATEGORY OF SCIENTIFIC RESEARCH BE TO STUDY MAGNETIC FIELD INTERACTIONS BETWEEN THE ROCK AND MAGNETS?

Sure, This rock is too interesting and that might be worthwhile to investigate with a geophysicist."

Mysterious 1.96 inches (5-centimeters) by1.69 inches (4.3-centimeters) diameter rock that weighs 50.78 grams, measured on July 15, 2008, in Physical Sciences Department at Eastern New Mexico University. Image © 2008 by Linda Moulton Howe.

Return to **Part 1**

More Information:

For further information about global crop formations, please see my books *Mysterious Lights and Crop Circles* and *Glimpses of Other Realities, Vol. I: Facts & Eyewitnesses* in the **Earthfiles Shop** and also see **Earthfiles Archive** from which only a few of dozens of crop formation reports are listed below:

- 07/12/2008 — Part 2: Roswell "Rock" Matches August 2, 1996, U. K. Crop Pattern
- 07/11/2008 — Part 1: Roswell "Rock" Matches August 2, 1996, U. K. Crop Pattern
- 06/12/2008 — Barbury Castle Pi Formation: "Perfectly Clean" in Muddy, Rain-Soaked Field
- 06/08/2008 — 2008 Barbury Castle Pattern is Pi to 3.14159265358
- 10/04/2007 — 070707 East Field Wheat Formation: Lab Analysis

• 08/25/2007 — Woodborough Hill Wheat Pattern Made for Rock Band Video
• 08/21/2007 — More News About August 2007 Woodborough Hill Formation
• 08/17/2007 — Latest 6-Fold Wheat Geometry in Wiltshire, England
• 08/13/2007 — Another U. K. Wheat Formation in August 18th Countdown
• 08/06/2007 — Crop Circle Research and Photography by U. K.'s Lucy Pringle
• 07/28/2007 — Clarifications and Comments by Isaac (CARET Document)
• 07/27/2007 — Updated Part 2: Military Helicopters Over East Field Wheat Formation
• 07/27/2007 — Updated: Part 1: 1,033-Foot-Long East Field Wheat Formation "Happened Within 90 Minutes."
• 07/23/2007 — 070707 East Field Wheat Formation: Viewer Comments
• 07/11/2007 — Professional Computer Engineers Comment About "Isaac" and CARET Document
• 07/07/2007 — Swiss Army Pilot Discovers "Perfect Geometric Figure" and U.K.'s East Field Gets At Least 90 Circles!
• 06/26/2007 — Part 1: Explanation of the Recent "Strange Craft" Sightings (Isaac and CARET)
• 06/26/2007 — Part 2: Documentation, Palo Alto CARET Laboratory Q4-86 Research Report
• 06/18/2007 — Crop Circles On Rings and Three Mysterious Aerial Lights in Slovenia
• 06/18/2007 — Writing In Chad "Drone" Image - A Link to NASA Clementine 1 Moon Mission?
• 06/15/2007 — Part 1: Yosemite National Park and Northridge, California, Aerial Dragonfly "Drones"
• 06/08/2007 — More Drone Photos and Other Eyewitnesses
• 06/08/2007 — Part 3: U. S. Crop Formations, Wheat Pictogram in Madisonville, Tennessee
• 06/07/2007 — Bird Eggs Undamaged in Slovenia Crop Formation
• 06/06/2007 — Part 2: Yatesbury, England and Madisonville, Tennessee - A Mayan Link?
• 06/05/2007 — Part 2: U. S. Crop Formations, Two Mysterious Grass Circles in Mission, Kansas
• 06/04/2007 — Part 1: Yatesbury Spiral - Viewer Comments on Spiral Math
• 05/30/2007 — Part 1 - U. S. Crop Formations Near Indian and Ancient Earth Mounds
• 05/01/2007 — Scientific Analysis of Chandler, Arizona, Sorghum Formation
• 04/12/2007 — First 2007 Crop Pattern in United States
• 03/13/2007 — Part 4: Mysterious Events At 2005 Tawsmead Copse "Insectogram" Crop Formation
• 02/27/2007 — Part 1: Mysterious Events At 2005 Tawsmead Copse "Insectogram" Crop Formation

---

Websites:

English Crop Circles, Current and Archived: http://www.cropcircleconnector.com

Lucy Pringle: http://www.lucypringle.co.uk

Andreas Mueller, Germany: http://www.kornkreise-forschung.de/
(Cropcirclescience.org)

American Crop Circles, ICCRA: http://www.cropcirclenews.com/

Canadian Crop Circles, CCCRN: http://www.cccrn.ca/

Dutch Crop Circles, DCCA: http://www.dcca.nl

"Isaac" and CARET Document: http://isaaccaret.fortunecity.com/

http://www.temporarytemples.co.uk/

http://www.cropcircleresearch.com

http://www.x-cosmos.it

http://www.bertjanssen.nl

http://www.swirlednews.com

http://www.heramagazine.net

http://www.CropCircleAnswers.com

Credits

www.earthfiles.com
earthfiles@earthfiles.com

prohibited without prior Earthfiles.com written consent.