Frontier Analysis, Ltd

TECHNICAL SERVICE RESPONSE NO.: UT090

Subject: Analysis of Two Metallic Parts Purportedly from a Crashed Unidentified Aerial Object (San Antonio, New Mexico August 16, 1945)

Date: October 31, 2015

Requested By: Jan C. Harzan
Executive Director
Mutual UFO Network
3822 Campus Drive
Suite 201
Newport Beach, CA 92660

Reported By: P. A. Budinger
Analytical Scientist

ICP Analyst: A. W. Varnes, Ph.D.
ICP and ICP—MS Services

Background/Objective:

Two boys ages 9 (Jose Padilla) and 7 (Remigio Baca) set out on a search to find a cow that was calving. After locating the cow, which was fine and nursing her healthy newborn, they sat down to a small lunch when they noticed smoke coming from a draw. They headed toward it, and as they topped a rise saw a gouge in the earth and circular object at the end of it. Reme said, “It was the color of the old pot my mother was always trying to shine up, a dull metallic color.” Moving closer, they found intense heat from the wreckage which had ignited the greasewood nearby. They retreated from the heat to wait for it to diminish.

Around the periphery they picked up a piece of thin, shiny material which was folded up and lodged underneath a rock. It was reminiscent of the purported Roswell material, which had a memory. That is Reme said: When I freed it, it unfolded all by itself. I refolded it, and it spread itself out again.”

They worked their way back to the wreckage. As they approached they saw entities inside under stress. Jose said: “They were running back and forth looking desperate. They were like children. They didn’t have hair.” Frightened, they quickly left the scene and told Jose’s father about the crash. Two days later a state policeman friend and Jose’s dad went to the crash site. The crashed UAO was there without entities.

Subsequently, the military began to remove the wreckage, while Jose and Reme spied on them with binoculars. This took a number of weeks. At one time the site was unguarded for a short time. The two boys took advantage of this, and went inside the craft. There was a piece protruding from the inside wall, and the boys used a crowbar to break it loose. They hid the piece under the house by burying it. They did not tell Jose's father. The military did ask the father if he knew about the missing piece which he did not.

The metal piece had been in Reme's possession for many of the 70 years since, and a year ago Reme gave it to Jose who has kept it hidden at his home in San Antonio, NM. Two samplings of it were submitted to Frontier Analysis for analysis. The object is to see if there are any anomalies which could be related to an extraterrestrial craft. Anomalies would be an alloy composition unknown on earth and elements that have different isotopic ratios then their terrestrial counterparts.[1]

Conclusions:

●The two metal samples have identical compositions. They are aluminum primarily alloyed to copper and silicon. Small amounts of other elements are present. This composition is known and compares with cast aluminum in the 3XX.X series (possibilities: 301, 302, 308, 318, 319, 320, 328 322) and the 2XX.X series (possibilities: 208, 222, 238, 296).

●These alloys have a wide variety of uses. Some include: engine crankcases, gas and oil tanks, engine oil pans, typewriter frames, and engine parts.

●Isotopic ratios determined for nickel, copper and zinc compare to terrestrial values.

●Even though the isotopic ratios are terrestrial, an extraterrestrial source for the metals is not ruled out. Following are reasons that they are normal values.

1.) The aliens may be time travelers. So if they are from Earth's future, their craft are "Earth-made" and there would be no isotopic differences.

[1] Isotopic (measurements) ratios of the elements can be taken by ICP-MS (Inductively Coupled Plasma/Mass Spectrometry) to see if they differ from terrestrial values. An element is defined by the number of protons in its nucleus. Most elements have two or more isotopic forms. That is, the element may have more or less neutrons. Each neutron has a weight of one. So an isotope with more neutrons weighs more than an isotope with less. The ratios of isotopes for any given element on Earth will always be the same, i.e. it is a constant. The theory is that these isotopic ratios might be a result of the elements formation in the earliest phase of our solar system, i.e. they are unique to this system. It is thought that these ratios might vary in other solar systems because the elemental formations may have been different. So, if we find the ratios are not normal as compared to terrestrial elements, then the sample may have an extraterrestrial origin.

2.) The aliens may have bases on Earth and construct their craft from materials found on Earth.

3.) The physical processes involved in the formation of elements in other worldly solar systems may be exactly the same as in our solar system. So the isotopic ratios of the elements would be the same.

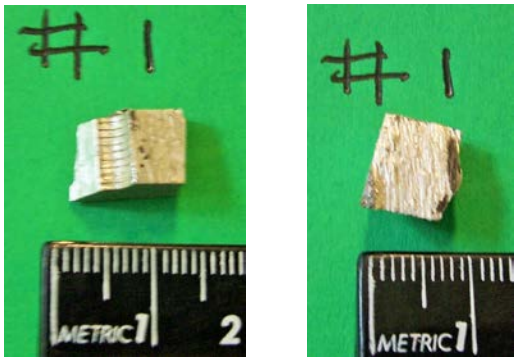
4.) Finally, the metals could be from 'our' craft.

● The metal pieces were coated with environmental debris (dirt). Sample 1 had humate (organic soil component) with smaller amounts of minerals such as silicate and calcium carbonate (calcite) on its surface. Sample 2 also had typical dirt components on its surface, i.e. humate, calcium carbonate (calcite) and silicate mineral. In addition, there was a mineral resembling sanidine.

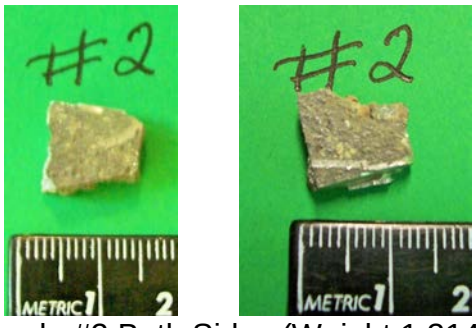
● The purposes of the metal pieces are unknown. Sample 1 is reminiscent of a fastener. The coarseness of a grooved surface on this piece indicates very fine machining was not required.

Procedure:

Sample: Two metal samples identified as "Sample 1" and "Sample 2" were received on 14 August 2015. Photographs of them follow.



Sample #1 Both Sides (Weight 0.9050g)



Sample #2 Both Sides (Weight 1.3141g)

Optical microscope photographs were obtained of the samples using a Canon A520 digital camera interfaced to a Leica GZ6 microscope.

Infrared spectra were then taken of scrapings from the surfaces of the samples. The FT-IR (Fourier Transform-Infrared) spectra[2] were acquired on the Thermo Electron Avatar 360 spectrometer using the Smart Herrick diamond sampling accessory.

The surfaces of the metal were then cleaned because infrared analysis (discussed in the results) indicated dirt minerals were on the surfaces. This was done by both scraping and washing with distilled water followed by spectroscopic grade acetone in an ultrasound. This procedure was necessary to prevent mineral interference in the final ICP/MS analysis.

Both samples were prepared for ICP/MS elemental analysis by dissolving them in a nitric acid/hydrochloric acid mix. From this analysis elements (nickel, copper, zinc) were selected for isotopic analysis. Both samples had similar compositions. Thus there was no reason to suspect they would have differing isotopic ratios. So a 1:1 mixture of the two solutions previously prepared for elemental analysis was used for the isotopic ratio analysis.

Results:

The results of the individual tests one on the metals follow. These results are summarized in the conclusions section on pages 2 and 3.

Microscopic Examination

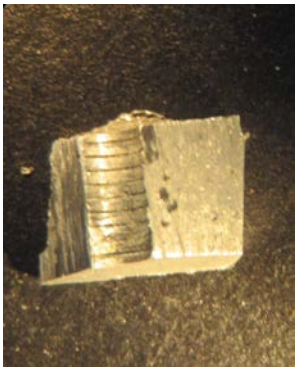
Sample 1

Microscope photographs taken of sample 1 display interesting grooves on side 1. It was obviously machined, though the coarseness of the grooved surface indicates that very fine machining was not required for this piece. The grooves are approximately 1 mm wide. The diameter (around whatever it enclosed) is estimated to be 5-6 mm. Pitting seems apparent, and there are possible bubble-like occlusions in the metal.

Very small amounts of surface debris are obvious. There is much less than in Sample 2. This includes a black residue on both sides of the sample. There is possibly brown material in in the groove area. The microphotographs follow.

[2] **FT-IR (Fourier Transform Infrared Spectroscopy):** Infrared spectroscopy is used for the molecular structure identification and quantification of solids, liquids, and gases. An infrared spectrum is the result of light (in the 2 to 25 micron wavelength range) interacting with the vibrations of molecules. The particular set of vibrations of a molecule gives rise to specific spectral absorption bands, often referred to as the “fingerprint” spectrum.

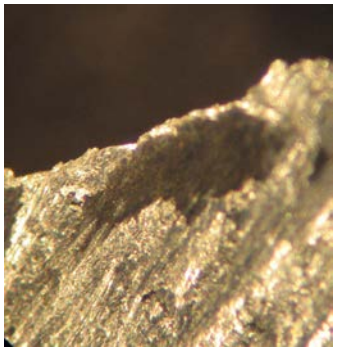
Side 1

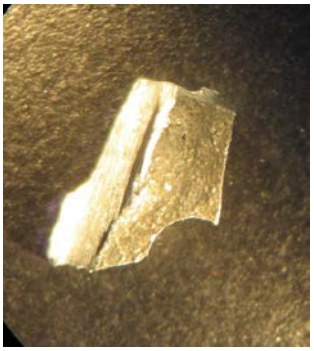

Grooves


Close up of grooves


Black material beside grooves.

Side 2


Black material on shiny metal

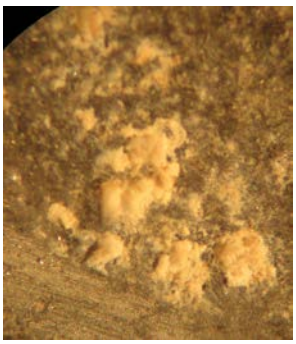

Shiny metal with top view of groove area (lower right)

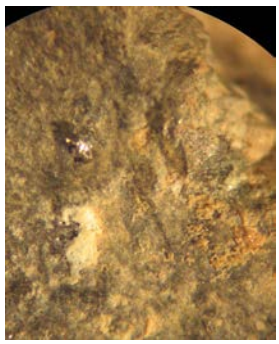
Sample 2

The microscope photographs of sample 2 show a coating of tan surface debris. There is much more than on Sample 1. It appears to be pitted with possible bubble-like occlusions in the metal. The photographs follow.

Side 1

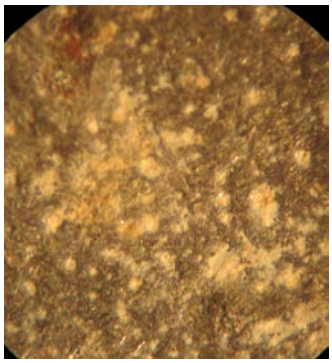

Tan material on on surface


Close up of tan material


Close up of lighter tan material and black speck

Side 2

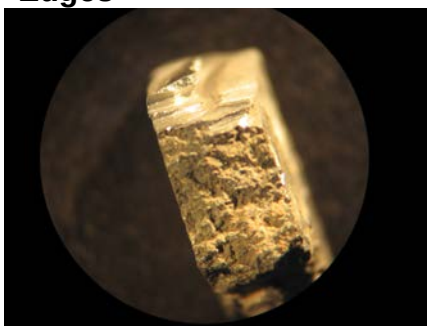
Tan material on Surface



Close up of tan material

Edges

Tan material on edge

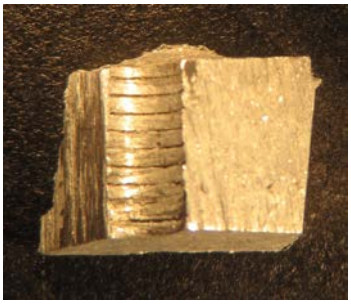


Tan material on another edge

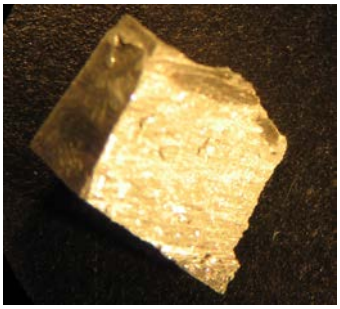
Samples After Cleaning

Microphotographs show that most of the surface debris was removed with water and acetone cleaning. The black material is gone from sample 1. Also most of the debris is gone from Sample 2, though there is a brownish cast.

Sample 1

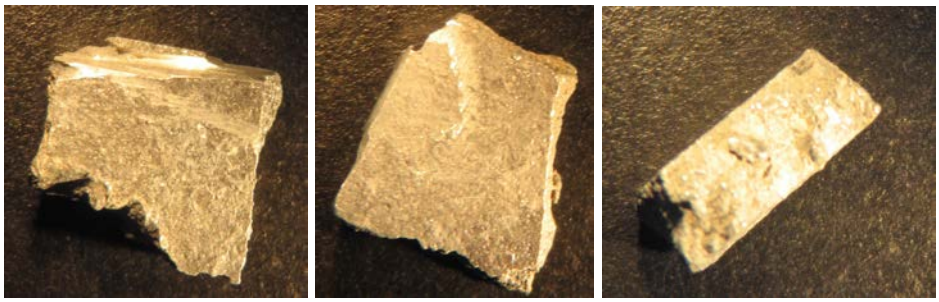


Side 1



Side 2

Sample 2



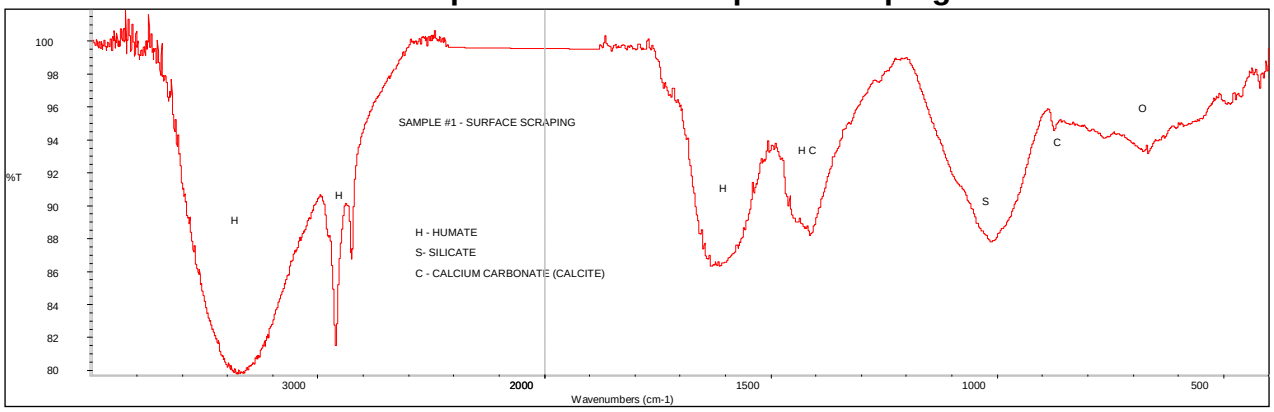
Side 1 Side 2 Edge

Infrared Analysis

Scraping from Sample #1 Surface

There was only enough surface material from sample 1 to permit one spectrum. The spectrum shows it consists of soil components. There is a prominence of humate (organic soil component) with smaller amounts of minerals such as silicate and calcium carbonate (calcite). The spectrum follows.

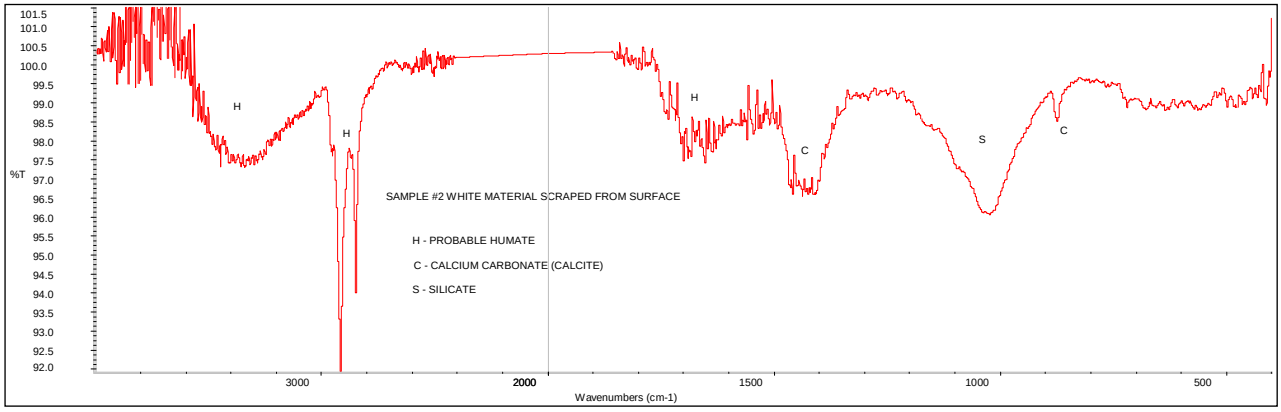
Infrared Spectrum from Sample 1 Scraping



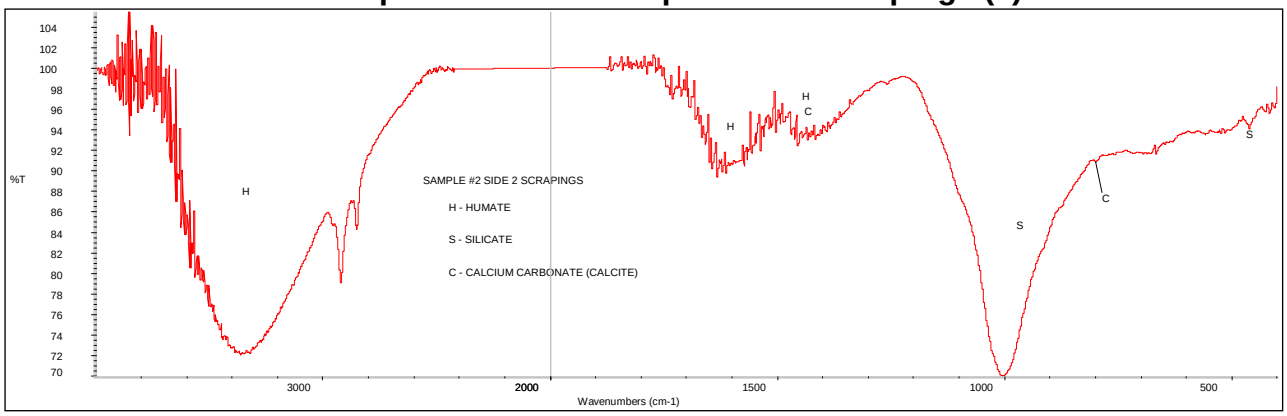
Scrapings from Sample 2 Surfaces

The quantity of the surface materials on this sample was sufficient for three spectra. The first two spectra from scrapings of both sides are similar in composition though the components vary in respective concentrations. These consist of typical soil component including humate, calcium carbonate (calcite) and silicate mineral. These spectra follow.

Infrared Spectrum from Sample 2 Side Scrapings (1)

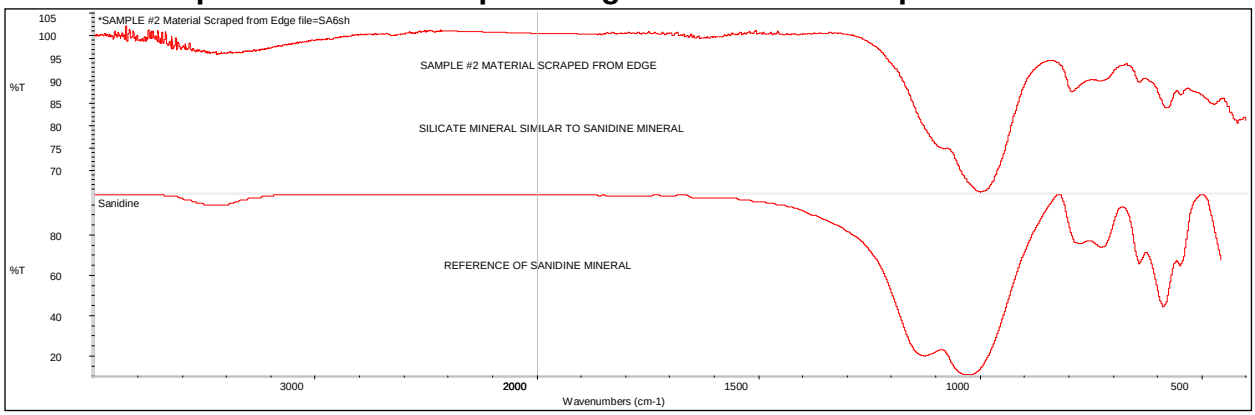


Infrared Spectrum from Sample 2 Side Scrapings (2)



The third spectrum of material from the edge is different. It shows a mineral similar to sanidine, which is a potassium aluminum silicate. Following is the spectrum along with a reference spectrum of sanidine for comparison.

Infrared Spectrum from Sample 2 Edge and Reference Spectrum of Sanidine



ICP/MS Analysis

The ICP-MS semi-quantitative elemental results are the same for both samples. The results follow.

Concentration	Sample 1	Sample 2
>50%	Al	Al
2-10%	Cu, Si	Cu, Si
0.5-2%	Fe, Zn	Fe, Zn
0.04-0.5%	Ni, Mg, Mn, Pb, Sn	Ni, Mg, Mn, Pb, Sn
0.01-0.04%	Ti	Ti
<0.01%	Ag, As, Au, B, Ba, Be, Bi, Br, Ca, Cd, Ce, Co, Cr, Cs, Dy, Er, Eu, Ga, Gd, Ge, Hf, Hg, Ho, I, In, Ir, K, La, Li, Lu, Mo, Nb, Nd, Os, Pd, Pr, Pt, Rb, Re, Rh, Ru, Sb, Sc, Se, Sm, Sr, Ta, Tb, Te, Th, Tl, Tm, U, V, W, Y, Yb, Zr	Ag, As, Au, B, Ba, Be, Bi, Br, Ca, Cd, Ce, Co, Cr, Cs, Dy, Er, Eu, Ga, Gd, Ge, Hf, Hg, Ho, I, In, Ir, K, La, Li, Lu, Mo, Nb, Nd, Os, Pd, Pr, Pt, Rb, Re, Rh, Ru, Sb, Sc, Se, Sm, Sr, Ta, Tb, Te, Th, Tl, Tm, U, V, W, Y, Yb, Zr
Not detected – Large Interference	Na, P, S	Na, P, S

The above data indicate the fragment is >50% aluminum. The fact that it is alloyed with smaller amounts of copper and silicon suggests the alloy may be in the cast aluminum 3XX.X series (possibilities: 301, 302, 308, 318, 319, 320, 328 322) and the 2XX.X series (possibilities: 208, 222, 238, 296) by the International Alloy Designation System. So the alloy is of a known composition.[3]

These alloys have a wide variety of uses. Some include: engine crankcases, gas and oil tanks, engine oil pans, typewriter frames, and engine parts.[4]

Isotopic ratios were determined for three elements. They were carefully selected from the above elemental data. These were nickel, copper and zinc. Following are the values. All results are reported as percent abundances.

[3] www.matweb.com/search/CompositionSearch.aspx
[4] www.lbfoundry.com/319-aluminum-sand-castind.html; Mid-Atlantic Casting Services, "A Guide to Aluminum Casting Alloys"

Isotope	Terrestrial Reference, %	San Antonio Crash Site, %	Accepted Value
Ni-58	67.7 ± 0.2	67.7 ± 0.2	6
Ni-60	26.3 ± 0.1	26.3 ± 0.1	2
Ni-61	1.15±0.05	1.15±0.05	1.2
Ni-62	3.7 ± 0.05	3.7 ± 0.05	3.66
Ni-64*	Not Determined	Not Determined	0.93
Cu-63	69.4 ± 0.3	69.3 ± 0.3	69.2
Cu-65	30.7 ± 0.2	30.7 ± 0.2	30.8
Zn-64*	Not Determined	Not Determined	48.6
Zn-66	27.8 ± 0.1	27.7 ± 0.2	27.8
Zn-67	4.1 ± 0.05	4.1 ± 0.05	4.1
Zn-68	18.9 ± 0.1	18.9 ± 0.1	18.8

*Ni-64 and Zn-64 peaks cannot be resolved, so it is not possible to determine Ni-64 or Zn-64 because of their mutual interference.

The data show that the isotopic values compare to terrestrial values.

File: UT090

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Phyllis A. Budinger