

PROJECT 1947

A PRELIMINARY CATALOGUE OF ALLEGED “FRAGMENTS” REPORTEDLY ASSOCIATED WITH SIGHTINGS OF UNIDENTIFIED AERIAL PHENOMENA WHERE ANALYSIS(ES) WAS/WERE CONDUCTED

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Background

Over the years, there have been a number of individuals who have come forward submitting “fragments” which they have alleged, are associated with sightings of Unidentified Aerial Phenomena (UAP.) In more recent times “To The Stars Academy” (TTSA) has initiated the A.D.A.M. project to collect and analyse such items.

In attempting to follow and understand the discussions on various “fragments,” I have been hampered by a lack of a centralised list, or catalogue of such material.

Introduction

The purpose of this preliminary catalogue is to take a first pass at bringing together the diverse accounts of physical “fragments” which are scattered throughout the UAP literature.

The catalogue entries do not include “fragments”:

- Which have reportedly come from within the human body, i.e. so called “alien implants”
- Found in crop circles; stains on clothing of abductees; soil samples; liquid samples or samples of vegetation; or pancakes.

Instead, the catalogue focuses on samples of materials said to have been ejected by/dropped from UAP, or have been found after a UAP sighting.

Catalogue format

Each entry has seven sections:

1. **Location** - Location of the UAP sighting.
2. **Date** - The date of the sighting.
3. **Link** - The reported link between the object found and the UAP sighting.
4. **Specimen description** - A description of the item(s) found.
5. **Analysis** - Details of any analysis (es) conducted.
6. **Image** - Whether or not there are any images/photographs of the sample.
7. **Reference(s)** - Reference(s) for the information above.

Disclaimer

This is a work in progress, with version 2.3 simply being a starting point. Information references provided here may not yet tell the full story of any individual sample. I welcome corrections; additional sources etc. Please forward these to: keithbasterfield@yahoo.com.au

Material new to this version:

Since version 1, I have:

1. Amended the date of the Ubatuba, Brazil, event previously dated as 1933/34, to September 1957, based on a reading of an English translation of the original newspaper report.
2. Added a note to the 2014 Claymont event, which turns it into an Identified Flying Object.
3. Added an addendum 2 which provides notes on an unusual sample, which involves the possibility of a reengineered sample.
4. Added further comments about analyses undertaken on the Ubatuba specimens from Sturrock, P A. 2001. "*Composition Analysis of the Brazil Magnesium.*" Journal of Scientific Exploration, Volume 15, Number 1, pp69-95.
5. Added comments from Kaufman, P & Sturrock, P A. 2004. "*On events possibly related to the 'Brazil magnesium.'*" Journal of Scientific Exploration, Volume 18, Number. 2, pp283-291 about efforts to locate witnesses to the 1957 event.
6. Added notes about various analysis methodology.
7. Added material to the Maury Island; Vaddo Island and Maumee cases.
8. Added new cases, namely 1986, Dalnegorsk; and 1993, Kadima, Israel.

Some notes on analysis methodology.

1. **Energy dispersive spectrometry (EDS)** is one analytical technique used for the elemental analysis of a sample. A high energy beam of charged particles is focussed on to the sample. Energy is released from the sample in the form of x-rays. The number and energy level of these emitted x-rays are measured by an energy-dispersive spectrometer. Thus the elemental composition can be determined.
2. **(Scanning) secondary ion-mass spectrometry (SIMS)** is a technique used to analyse the composition of solid surfaces and thin films by sputtering the surface of a specimen with a focussed primary ion beam and collecting and analysing ejected secondary ions. The mass/charge ratio of these secondary ions is measured with a mass spectrometer to determine the elemental, isotope or molecular composition of the surface to a depth of 1-2 nano metres.
3. **Scanning electron microscope (SEM)** is an electron microscope in which the surface of a specimen is scanned by a beam of electrons that are reflected to form an image.
4. **Inductively coupled plasma mass spectrometry** is a type of mass spectrometry which is capable of detecting metals and several non-metals at concentrations as low as one part in 10 to the 15 power on non-interfered low-backing isotopes.

Definitions

1. **Isotope.** Each of one or more forms of the same element that contain equal numbers of protons but different numbers of neutrons in their nuclei and hence differ in relative atomic mass but not in chemical properties. For example, the element hydrogen has three isotopes, namely hydrogen, deuterium and tritium.
2. **Isotopic ratios.** The ratio of one isotope of an element to another isotope of the same element.
3. **Why is an unusual isotopic ration of interest?** Simply put, the solar system, including the Earth formed from elements which had specific isotopic ratios. If an element comes from outside the solar system you wouldn't expect it to have the same isotopic ratios.

Acknowledgements

I would like to thank the following individuals, for their kind assistance in the preparation of this catalogue:

- Rod Dyke for information about the Maury Island material
 - Thomas R Morrison for pointing me to a relevant YouTube video
 - Theo Pajmans for information on the 1993, Kadima, Israel event
 - Bob Spearing for information concerning the 2014, Claymont case
 - Clas Svahn, and Frank J Schapel, for data on the 1956, Vaddo Island incident
 - Jacques Vallée for comments about the 1986, Dalnegorsk event.
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THE CATALOGUE

1. Location: Aurora, Texas, USA.

2. Date: 17 April 1897.

3. Link: A UAP is said to have sailed over the public square and collided with a windmill, exploding into pieces. A re-investigation was conducted in 1973, by Journalist W Case and McDonnell Douglas aircraft company personnel. Fragments found by Case et al.

4. Sample description:

"Fragments."

5. Analysis: By: McDonnell Douglas aircraft company personnel.

Methods: Not stated.

Conclusion: 83% aluminium; 16% Ca; zinc with possible traces of manganese and copper. Could have originated with post 1908 common aluminium alloys.

6. Image: No.

7. Reference:

Holliday, J E. McDonnell, report on the Aurora case. Unpublished. 13 August 1973. On site investigators were Ronald, A and Gurney, N J (12 May 1973.) Cited in Vallée, J F. "*Physical analyses in ten cases of Unexplained Aerial Objects with material samples.*" Journal of Scientific Explanation, Volume 12, number 3, pp359-375.

1. Location: San Antonio, New Mexico, USA.

2. Date: 16 August 1945.

3. Link: Jose Padilla (aged 9) and Remigo Baca (7) found a gouge in the earth and a circular object at the end of it. They picked up an artifact, which remained in Remigo's possession for a long time, then Padilla's for one year (in a house in San Antonio.) Two samples given to Frontier Analysis Ltd. By MUFON, in October 2015.

4. Samples description:

- a. A piece of thin, shiny material, which could unfold itself when folded.
Sample not available.
- b. Two pieces of metal from the inside wall of the crashed object.

5. Analysis of b:

By: Frontier Analysis Ltd. 2015.

Methods: Microscopic examination; infrared analysis; Inductively Coupled Plasma (ICP)/Mass spectrometry (MS); isotopic ratio analysis.

Conclusions:

- The two samples have identical compositions – aluminium primarily alloyed with copper and silicon
- They compare with cast aluminium in the 3XXX X series – these alloys have wide use in engine crank cases; gas and oil tanks etc.
- Isotopic ratios for nickel, copper and zinc compare to terrestrial values.

6. Image: Yes.

7. Reference:

Technical service response number UT090. Frontier Analysis Ltd. P A Budinger, dated 31 October 2015.

1. Location: Roswell, New Mexico, USA

2. Date: 1947

3. Link: Fragment found by Frank Kimbler, in the Roswell "crash debris field."

4. Sample description:

- Irregular shape
- Silvery metal
- 10mm long.

5. Analysis:

(A) By: New Mexico Tech, Socorro, New Mexico.

Method: Microprobe.

Conclusions: Aluminum; silver; magnesium; copper alloy. Not unknown, used in construction but not usually found as foil.

(B) By: Unnamed laboratory.

Methods: Unstated.

Conclusions: The ratio of isotopes Mg25/Mg24 was about 0.1277 and Mg26/Mg24 was about 0.1365, which according to Kimbler was unusual.

6. Image: Yes.

7. Reference:

<http://www.openminds.tv/test-confirms-roswell-debris-733/10835>

1. Location: Roswell, New Mexico, USA

2. Date: 1947.

3. Link: Science journalist Andrew Von Retyi was told that NASA was in possession of physical evidence.

4. Sample description:

"Odd metallic-and-plastic-like material"

5. Analysis:

By: (1974). 'Dr Cris.' Polish biophysicist and engineer, a NASA contractor.

Method: Electron microscope.

Conclusions:

- Outer part of metallic material was very smooth and shiny
- Microscope – small pyramidal structures in nanometre range
- "The metallurgical experts found alloys that could only have been made in weightless conditions"
- Appeared to have been made in early 1950's
- "Foamed metals didn't exist then."
- Melting point greater than 2000 degrees C
- "Foil seemed to possess a 'memory.'"

6. Image: No.

7. Reference:

Good, T. 2007 "*Need to know.*" Pegasus Books. New York. Page 61.

1. Location: Roswell, New Mexico, USA.

2. Date: 1947.

3. Link: On 24 March 1996 sample taken to the International UFO Museum and Research Centre. Source reported to be from a GI present at the Roswell crash.

4. Sample description:

- Few inches long
- Twisted
- Roughly triangular with a large hole in the Centre

- Thin material
- Raised lines on it.

5. Analysis:

By: New Mexico Institute of Mining and Technology, Socorro, New Mexico. Chris McKee.

Methods: Not stated.

Conclusions:

- Copper and silver
- Traces of sodium, aluminium, silicon, iron, chromium, sulphur and chlorine
- McKee pointed out that the sample had not been cleaned prior to testing so elements could be from soil.

6. Image: No.

7. Reference:

Baker, A. 1997. "UFO Sightings." TV Books. New York. Pp73-75.

Note:

A Utah based artist Randy Fullbright claimed that the fragment was a piece of jewellery scrap from his studio. Miller Johnson of the RUFOMARC compared samples from the studio with the fragment and concluded Fullbright was correct.

1. Location: Between San Mateo Mountains and Sierra Blanca, West of Roswell, New Mexico, USA.

2. Date: 1947.

3. Link: In April 1996, Art Bell and Linda Moulton Howe, received a series of five typed letters from an anonymous source, plus two shipments of metal pieces through the post, reportedly about a crash at Roswell. The letters were postmarked South Carolina. The source stated that the account came from his grandfather's diary; and the pieces from a box belonging to his grandfather.

4. Specimen description:

- From the second letter – several pieces square cut. Grey metal.
- From the third letter – six pieces of metal different from the first batch. Said to have come from the external outside of the crashed disc. Layered metal.

5. Analyses:

(A) a. several pieces square cut. Grey metal.

By: Scientist at major Midwestern University

Methods: scanning electron microscope. Energy dispersive spectroscopy.

Conclusions: Greater than 99% aluminium of normal density

b. Two pieces of metal different from the first batch

By: Scientist at major Midwestern University

Method: Energy dispersive spectroscopy (EDS.)

Conclusions: shiny side contained greater than 95% magnesium; 2-3% zinc, layers – Mg and small Zn separated by thin layers of high bismuth content. Thin, wavy layers of bismuth 1-4 microns thick; the Mg/Zn layer was 100-200 microns thick. 26+ alternating layers.

(B) By: Eric Hauri PhD, Ion microprobe technician, Carnegie Institution of Washington, DC. 20 July 1996.

Methods: Not stated.

Conclusions:

- “The Bi-Mg sample gave count rates of positive magnesium ions, which were enhanced sixty times more than in the pure magnesium metal standard”
- 11% more Mg²⁶ in the sample but not outside terrestrial range.

(C) Sample of the bismuth-magnesium-zinc material.

By: Hal Puthoff, EarthTech International on 7 January 1999.

Methods: Not stated.

Conclusions: Linda Moulton Howe posed a series of questions to Puthoff. Howe states that a couple of months later the sample was returned but no definitive answers to her specific questions were given.

Note: Howe states that she contacted – Director of National Sciences at MIT; National Science Foundation; metallurgists at Sandia National Laboratories; aerospace and exotic metal manufacturers; and “No=one had any knowledge of such a layered material.”

(D) By: Hal Puthoff, EarthTech International in 2012.

Methods: Not stated.

Conclusions: No interesting/anomalous outcomes in tests involving fields. Bi channels of the size seen in the sample layered between Mg layers of the size seen in the sample closely match a waveguide structure that permits sub-wavelength THz (terahertz) signals to propagate freely...

6. Image: Yes.

7. Reference:

Howe, Linda Moulton Earthfiles website: <https://www.earthfiles.com>

1. Location: Roswell, New Mexico, USA.

2. Date: 1947.

3. Link: On 4 July 1997 at Roswell, New Mexico, Dr Russell VernonClark announced test results, on a sample given to Dr. Roger Leir in August 1995, by an individual who stated they were pieces of a disc from the 1947 Roswell crash.

4. Sample description:

- 1-1.5 inches across and 5/8 inches thick
- Frontal curvature – curves on two levels
- Temperature discolouration.

5. Analysis:

By: Dr Russell VernonClark, chemist

Methods: Inductively coupled plasma/mass spectrometry; secondary ion mass spectroscopy.

Conclusions: significant variations from normal isotopic composition found on Earth; extra-terrestrial in origin; manufactured. Specifically:

Nickel isotopes – Ni60 26.1%; Ni61 1.13%; natural abundance on Earth. Ratio is about 23:1. In the sample the ratio is 5:1.

Zinc isotopes – Zn64 48.6%; Zn66 27.9% natural abundance on Earth. Ratio is 7:4. In the sample ratio is 4:9.

Silver isotopes – Silver107 and Silver109. Ratio on Earth is 1:1. In the sample 1:2.

Germanium isotopes – Germanium72 isotope – 94% of in sample. Natural terrestrial is only 27%.

Composition of material is greater than 99% silicon.

6. Image: Yes.

7. Reference:

"Artifact analysis by Dr Russell Vernonclark." CNI news O S Culbern.

<http://www.ufocrashbook.com/pdfs/Artifact%20Analysis%20by%20Dr.%20Russell%20Vernon%20Clark.pdf>

Notes:

1. The testing was arranged by television producer Christopher Wyatt.

2. 25 July 1997. <https://lasvegassun.com/news/1997/jul/25/vernonclark-stands-by-uneearthly-fragment-conclusio>

"VernonClark stands by unearthly fragment conclusion. But VernonClark of the US San Diego acknowledged Friday that he cannot be 100 percent certain... He had been quoted then as saying of the fragment: "It is impossible for it to be from Earth." But on Friday VernonClark insisted that he had been misquoted. "I cannot imagine my having said that," he said..."In retrospect, with 20-20 hindsight, I would have preferred to have more work done (on the sample before releasing conclusions) but I stand by my conclusions..."

3. 1997. CNI News website, Michael Lindemann, 1997, as cited by <http://ufologie.patrickgross.org/rw/a/debrisvc01.htm>

States that Vernonclark was employed as an Environmental Health and Safety specialist in the chemistry department UCSD, with a PhD in chemistry gained in 1993. His Cv is said to show publication of eight scientific papers since 1993. He states that there was a second independent set of tests undertaken by an unnamed organisation which showed roughly the same unusual isotopic ratios.

CNI News had contacted a number of scientists including at Lawrence Berkeley Laboratory and the California Institute of Technology : "...all of them agreed on two things..the findings, if true, would be astounding..and the findings were very unlikely to be true."

4. 2007. <http://kevinrandle.blogspot.com/2007/04/more-roswell-debris.html>

"Other scientists when contacted by reporters, said that the isotopic values described by VernonClark, while not natural, could easily be produced in a university laboratory."

Journalist John Fleck in an Albuquerque Journal article quoted a University of Kentucky chemist Bob Toreki who said "You can do it here."

Kevin Randle interviewed VernonClark by telephone "...he said it could be done so that the isotopic ratios, while not naturally occurring, could be produced in a lab. He added that it was an expensive proposition."

"Other scientists suggested there were huge mistakes in the original testing. They pointed out that one of the elements Germanium-75, a radioactive isotope has a very short half-life and would decay into other elements in less than a day."

"In the ten years that follow, there has been nothing more about this. No reports from other labs."

1. Location: Maury island, Washington State, USA.

2. Date: 21 June 1947.

3. Link: Witness reported six large flat doughnut shaped objects. One descended, there was a dull explosion heard and sheets of light, thin material came from the object. At the same time witnesses were showered with hot, dark fragments.

4. Sample description:

Hot, dark fragments.

5. Analyses:

(A). Military and FBI "analysis of the fragments shows them to be from a Tacoma slag mill."

(B). Ray Palmer and Kenneth Arnold published an analysis – Calcium, iron, zinc and titanium. Also aluminium, manganese, copper, magnesium and silicon, nickel, lead, strontium and chromium. Traces of silver, tin and cadmium were reported .

(Source: Vallée, J F. "*Physical analyses in ten cases of Unexplained Aerial Objects with material samples.*" Journal of Scientific Explanation, Volume 12, number 3, pp359-375.)

6. Image: Yes. (Arnold 1952.)

7. References:

1. Arnold, K. 1952. "*The Coming of the saucers: A documentary report on sky objects that have mystified the world.*"

2. Vallée, J F. "*Physical analyses in ten cases of Unexplained Aerial Objects with material samples.*" Journal of Scientific Explanation, Volume 12, number 3, pp359-375.

Note:

For more detail on the event itself see "*Maury Island: What really happened?*" archived web page at:

<https://web.archive.org/web/20120114071527/http://www.seanet.com/~johnco/maury.htm>

1. Location: Plains of San Augustin, New Mexico, USA. (alternative spelling is Agustín)

2. Date: July 1947.

3. Link: Chuck Wade visited the site and found the fragment. Submitted 2014 to Paul Garver, ASD Mufon NM. Garver sent it to MUFON HQ then to Frontier Analysis Ltd., who received it on 27 March 2014.

4. Sample description:

- Garver divided it into two parts "A" and "B"
- Frontier Analysis designated "I-beam A"
- Weight 0.8337 grams
- 3.7mm thick
- "I-beam" shape.

5. Analysis of "I-beam A."

By: Frontier Analysis Ltd.

Methods: ICP-MS and ICP-AES elemental analysis; infrared analysis; microscopic analysis.

Conclusions:

- Consists mostly of aluminum coated with very small amounts of aluminum oxide corrosion
- Greater than 97% aluminium was alloyed with small amounts of magnesium, silicon and possibly iron
- This alloy is in the 6000 series of International Alloy Designations system – many commercial uses
- Internet search reveals many companies who manufacture I-beams of three aluminium grades of various sizes
- Isotopic analysis on nickel, copper and gallium consistent with terrestrial values.

6. Image: Yes.

7. References:

Technical service response number UT086. Frontier Analysis Ltd. P A Budinger. Dated 22 August 2014.

Note:

MUFON Case Mangement System case file is 52614.

1. Location: Plains of San Augustin, New Mexico, USA (alternative spelling is Agustín)

2. Date: Circa 1947.

3. Link: Chuck Wade visited the site and located a number of metal fragments and one sample of plastic-like material. Sample received by Frontier Analysis Ltd. 6 June 2005 via Brian Boldman.

4. Sample description:

Eleven pieces in all. Six were pliable foil-like metal; one was semi-pliable foil-like metal; one not pliable metal; one semi-pliable foil-like metal' one plastic-like material; and one not pliable foil-like metal.

5. Analysis:

By: Frontier Analysis Ltd.

Methods: Infrared analysis. Geiger counter.

Conclusions:

- No radiation beyond normal background
- Plastic identified as polyethylene
- Six samples are speculated to be aluminium foil
- Four other samples are thicker – not related to aluminium foil. “Their source remains unknown”
- Isotopic ratio tests cannot be done due to aluminium having only one isotope
- “The metal samples have been examined by other laboratories using energy dispersive x-ray spectroscopy, elemental analysis.”

6. Image: Yes.

7. Reference:

Technical service response number UT049. Frontier Analysis Ltd. P A Budinger dated 17 May 2006.

1. Location: 100 feet South-east of main Roswell 1947 “crash debris field”, New Mexico, USA.

2. Date: July 1947.

3. Link: Frank Kimbler visited the site and located a fragment in 2014. Sample received by Frontier Analysis Ltd. on 23 May 2014.

4. Sample description:

- Fragment measured about 11 X 5 X 9 x7mm and 1.42mm thick
- Weighed 0.1504 grams
- Has a “black” side and a “red side.”

5. Analysis:

By: Frontier Analysis Ltd.

Methods: Microscopic examination; infrared spectroscopy.

6. Conclusions:

- Previous SEM-EDS analysis detected Al, Si, Mg, Ca, Fe and Ti. Ti only on “red side”
- Very brittle
- Composed of an epoxy resin ester based on bisphenol-A with quartz filler. It has red paint on it
- Materials like these are used as insulating components for electrical and electronic industries
- Elemental analysis results typical of elements in dirt/soil.

6. Image: Yes.

7. Reference:

Technical service response number UT084. Frontier Analysis Ltd. P A Budinger dated 7 July 2014.

1. Location: Abbiate Guazzone, Italy.

2. Date: 24 April 1950.

3. Link: Bruno Focchim reported seeing a UAP and entities. Next day he found a few pieces of metal at the site.

4. Sample description:

Three pieces of shiny metal.

5. Analysis:

By: Not stated.

Methods: Not stated.

Conclusions:

- Shiny metal
- Granulous surface
- Yellow-white colour
- Weight 1.64 grams
- 74.33% Copper; 19.38% tin; 4.92% lead. Traces of antimony; zinc; nickel; iron; silver; aluminium
- "It is very probable that the fragments presented to us for examination come from a packing bed of a bearing that has had very heavy wear."

6. Image: Yes.

7. Reference:

Good, T. 1999. "Alien Base." Harper Perennial. NY. Citing "*Examination of some metallic fragments attributed to a flying saucer.*" Report no ISML N530954/4157. Istituto Sperimentale dei Metalli Leggeri, Novara, 30 September 1953.

1. Location: Washington, DC, USA.

2. Date: 1952.

3. Link: Journalist Frank Edwards, reported an object fell to the ground when a Navy pilot chased a flying disc. Object was recovered an hour later.

4. Sample description:

- Metallic fragment
- One inch in size
- Remarkably hard.

5. Analysis:

By: Mr Wilbert Smith.

Methods: Not stated.

Conclusions: Matrix of magnesium orthosilicate composed of particles of 15 microns.

6. Image: No.

7. Reference:

Edwards, F. 1966. *"Flying Saucers Serious Business."* New York. Bantam. Cited in Vallée,, J F. *"Physical analyses in ten cases of unidentified aerial objects with material samples."* Journal of Scientific Exploration, Volume 12, number 3, pp357-375.

1. Location: USA.

2. Date: 1952.

3. Link: CIA had custody of a strange piece of metal which fell from the sky during the 1952 UFO flap.

4. Sample description:

- Piece of metal
- Smooth on one side, bubbly on the other.

5. Analysis:

By: National Bureau of Standards.

Methods: Not stated.

Conclusion – an "uncommon alloy."

6. Image: No.

7. Reference:

Vallée,, J. 2017. *"Forbidden Science – Volume three."* Anomalist Books, San Antonio, Texas. p432, citing interview between Vallée, and Arthur Lundahl.

1. Location: Campinas, Brazil.

2. Date: 14 (13th?) December 1954.

3A. Link: Journalist Frank Edwards – numerous witnesses saw three discs. One wobbled and descended. Emitted thin stream of silvery liquid.

4A. Sample description: Not stated.

5A. Analysis:

By: Dr Risvaldo Maffei - Unnamed Brazilian laboratory.

Methods: Not stated.

Conclusions: Tin was the main component. 10% of material composed of other substances.

The above information from Vallée,, J F. *"Physical analyses in ten cases of unidentified aerial objects with material samples."* Journal of Scientific Exploration, Volume 12, number 3, pp357-375.

The information below from Maney, C A. *"The Campinas sighting."* FSR Volume 8, number 3 pp 3-6. (May/Jun 1962.) Cites date as 13 December 1954.

3B. Link: A woman saw three objects in the sky. One object, round-shaped, dull-grey in colour, like two plates inverted and stuck together. A liquid dropped from it. She went to spot and found a brilliant stain 10cm in diameter on concrete. Her friend Prof. Benedito G Nascimento collected the sample and took it to a chemist.

5B. Analyses:

(A). By: Young Laboratories – Chief chemist Dr Visvaldo Maffei.

Methods: Not stated.

Conclusions:

- 88.91% tin
- 11.09% oxygen
- No other trace elements
- Weight was 1.30 grams.

(B). By: Brazilian Air Force.

Conclusions: Results of their tests not released. However, "I was informed that exhaustive tests performed by the Air Force chemists only confirmed the results obtained by Dr Maffei."

6. Image: Yes, in *FSR*.

7. References:

1. Maney, C A. "*The Campinas sighting.*" *FSR* Volume 8, number 3, pp 3-6. (May/Jun 1962.)
 2. Vallée,, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" *Journal of Scientific Exploration*, Volume 12, number 3, pp357-375.
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1. Location: Vaddo Island, 90 kms NNW of Stockholm, Sweden.

2. Date: 17 November 1956.

3. Link: Stig Ekberg and Harry Sjoberg sighted an eight metre by three metre flattened sphere which approached to within 100metres of them and one metre off ground. They found a shiny rock at the landing site.

4. Sample description:

- Shiny rock
- Originally hot to touch
- Three sided piece of metal – size of a matchbox
- Heavy.

5. Analysis:

(A) By: SAAB airline manufacturing company. Mr Sven Schalh. Also laboratories in Sweden, Denmark and Germany.

Methods: Not stated.

Conclusions: Composed of tungsten carbide and cobalt consistent with manufactured products. [Luidwiger]

(B) By: Sandvik Rock Tools, Stockholm (arranged by Clas Svahn.)

Methods: Not stated.

Conclusions: "...ordinary metal (tungsten carbide and cobalt) made in the 1950's with the same impurities that were common at that time." [Svahn.]

6. Image: Yes.

<https://www.ufo.se/index.php/svenska-rapporter/1289-metallbiten-fran-vaddo>

7. References:

1. Von Luidwiger, I. "*Investigating Mysteries.*" Unpublished book manuscript. Personal communication, courtesy of NIDS. Cited in Vallée,, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" Journal of Scientific Exploration, Volume 12, number 3, pp357-375.
2. Svahn, C. Personal communication to the author November 2018.

Note: For those readers who can read German, see Von Ludwiger, L. (ed) 1995. "*UFOs-Zeugen und Zeichen*" for a more detailed analysis.

1. Location: Ubatuba, near Sao Paulo, Brazil.

2. Date: September 1957.

3. Link: Story emerged in a newspaper article dated 14 September 1957, and refers to an event "just a few days ago." Witnesses reported seeing a disc which exploded, showering bright, metallic fragments. A few fragments were recovered.

4. Sample description 1:

- Bright, metallic fragments.

5. Analysis 1:

(1A). By Dr Luis Barbosa (Brazil)

Conclusion: Major component – highly pure magnesium.

(1B). By Dr Peter Sturrock (USA)

(1C). By French laboratories including Prof Lorin, Oray University.

Conclusions for b and c: Magnesium and magnesium oxide with very small amounts of aluminium, calcium and iron.

The above information is from Vallée,, J F. "*Physical analyses in ten cases of Unexplained Aerial Objects with material samples.*" Journal of Scientific Explanation, Volume 12, number 3, pp359-375.

The following information is from Clark, J. "*The UFO Encyclopaedia*" Volume 2. Apogee Books. Detroit. pp 353.

Sample description 2:

Sighted by Dr Olavo T Fontes 1957

- Three pieces
- Metallic looking
- Dull grey colour
- Irregular surfaces
- Surface of all samples covered with scattered areas of white material.

Analysis 2: Via Fontes. As set out in "Physical evidence" APROB March 1960, 1, 3.

By: Mineral Production laboratory. Chemist Luisa Maria A Barbosa.

Methods: Chemical, spectrographic and x-ray tests.

Conclusions:

- Magnesium of high degree of purity
- Chemist Barbosa spectrographic analysis –“not even the so-called trace elements usually detected were apparent.”
- Chemist Elson Teixeira – second spectrographic analysis.

a. Brazilian army did tests.

b. Laboratory of crystallography did additional x-ray diffraction tests. One sample density 1.8666; whereas pure magnesium is 1.741.

c. The testing procedure destroyed one of the three samples.

Analysis 3: As reported in the APRO Bulletin, Jul/Aug 1970 pp 1, 5.

By: APRO via Walter Walker Metallurgical Engineer, University of Arizona.

Methods: Microstructural studies; x-ray diffraction analysis; microstructural studies; dislocation etch-pit studies.

Conclusions:

- Directionally solidified castings
- “Nowhere in our present technology is there a use for oriented, cast, coarse-grained material such as observed in this study.”

Analysis 4: 1968. As described in Craig, R. 1995. “UFOs: An insider’s view of the official quest for evidence.” University of North Texas. Denton, Texas. Roy Craig, physical chemist with Condon Committee. Got piece from APRO.

By: Tested at National Office Laboratory, Alcohol and Tobacco Tax Division.

Other tests at Dow Chemical’s Metallurgical Laboratory came to the same conclusion.

Methods: Unstated.

Conclusions:

“Claimed UFO fragment is not nearly as pure as magnesium produced by known earthly technology prior to 1957...”

Analysis 5: As described in Sturrock, P A. 2001. “Composition Analysis of the Brazil Magnesium.” Journal of Scientific Exploration. Vol. 15. No. 1pp69-95.

By: Charles Evans and Associates of Redwood City, California.

Method: Scanning ion mass spectroscopy.

Conclusions by Sturrock from their data:

- “We see that the Brazilian specimen SU-A is the furthest from normal composition. (By comparison with several samples of terrestrial magnesium – KB). One may therefore infer that a specimen with the same isotopic composition as SU-A could be produced from normal magnesium by multiple sublimations. Hence this anomaly does not point to a non-terrestrial origin for the specimen SU-A.”
- “As far as one can tell from analyses carried out to date, there is no case for believing that the Brazil magnesium specimens had an extra-terrestrial origin. On the other hand it has not proved possible to identify where the material was produced.”

Note:

In Kaufman, P & Sturrock, P A. 2004. "On events possibly related to the 'Brazil magnesium.'" *Journal of Scientific Exploration*. Volume 18, Number 2, pp283-291, the authors advised that journalists who tried to locate witnesses to the 1957 event, failed to do so. The two authors visited Ubatuba. They located an individual who recalled a bolide which crashed in 1933/34; and a woman who described an event, around 1955-1959, at night, which involved the apparent crash of a superbolide.

Analysis 6:

Vallée, 2018. "I was in Argentina six months ago on another case and I saw two, large, fairly large samples the size of a walnut, which is pretty large. We don't need that much material to do an isotope analysis. People in Argentina were kind enough to give me a part of that so we are going to be redoing those experiments that doctor Sturrock did. We have plenty of material and we are ready to share it with anyone who wants to, it is the kind of thing where you share the results with your colleagues wherever they are. I am trying to find another French lab that would be willing to share the material with us..."

Thomas R Morrison pointed me to the following as a reference for the above quote:
<https://youtu.be/wJGttcIQjCA?t=5166>

I then visited Vallée's talk "What do we know about the material composition of UFOs?" given at the "Contact in the Desert" conference available at:
<https://www.youtube.com/watch?v=CnPHt7zfd0I>

and found that the Argentinian reference was as follows. In September 2016 Vallée, visited the UFO museum in Victoria, Argentina. Whilst there he saw two pieces of material which he called Muestra A and Muestra B. A was sourced to Dr Fontes and B to an Argentinian sailor named Hercete. Vallée took shavings of both samples back to the USA and conducted tests.

By: Jacques Vallée.

Methods: Secondary ion mass spectroscopy.

Conclusions:**Muestra A**

- Isotope Mg 24; natural % is 78.9; shard 1 % 80; shard 2 % 80.
- Isotope Mg 25; natural % is 10; shard 1 % 9; shard 2 % 9
- Isotope Mg26; natural 5 is 11.1; shard 1 % 11; shard 2 % 11.
- Normal terrestrial ratios.

Muestra B

- Isotope Mg 24; natural 78.9; shard 1 % 66; shard 2 % 67.
- Isotope Mg 25; natural % 10; shard 1 % 15; shard 2 % 16.
- Isotope Mg 26; natural %11; shard 1 % 20; shard 2; % 17.
- Variation from normal terrestrial ratios.

6. Images: In Craig, 1995.

7. References:

1. "APRO metal extra-terrestrial?" NICAP Special Bulletin, May 1960:3.
2. "APRO's new finding on Ubatuba magnesium." APROB Jul/Aug 1970: 1, 5.
3. Craig, R. 1995. "UFOs: An insider's view of the official quest for evidence." University of North Texas. Denton, Texas. p 136 and chapter 8.

4. Kaufman, P & Sturrock, P A. 2004. "On events possibly related to the 'Brazil magnesium.'" Journal of Scientific Exploration. Vol. 18. No. 2. Pp283-291
 5. "Physical evidence" APROB March 1960, 1, 3.
 6. Sturrock, P A. 2001. "Composition Analysis of the Brazil Magnesium." Journal of Scientific Exploration. Vol. 15. No. 1pp69-95.
 7. Vallée, J F. "Physical analyses in ten cases of Unexplained Aerial Objects with material samples." Journal of Scientific Explanation, Volume 12, number 3, pp359-375.
 8. Vallée, J. 2018. Talk at "Contact in the Desert." Available at:
<https://www.youtube.com/watch?v=CnPHT7zfd0I>
-

1. Location: Maumee, Ohio, USA.

2. Date: 13 July 1967.

3. Link: Collision between a car and an unidentified light. The driver later reported finding two metal samples in the middle of the road and "fibrous" material on the car.&(Vallée.) Robert Richardson reported collision between his car and a brilliant blue-white light (8ft tall and 22 foot wide) which blocked the road forcing them to break, before hitting it. (APROB.)

4. Sample description:

Two metal samples plus "fibrous metal." (Vallée.) Two metal pieces found on road and "odd strip of material" on the car's bumper bar. (APROB.)

5. Analyses:

(A) By: Not stated.

Fibrous sample was 92% magnesium. (Vallée.)

(B) (Condon 1969.) By: Not stated.

Methods: Not stated.

Conclusion:

"...two metal samples were submitted, through APRO headquarters, ... one of these, a tiny piece of thin, rolled metal, was shown by analysis to be an alloy of magnesium, aluminium and zinc. The other sample weighed several grams was an iron - chromium - manganese alloy, in unworked crystalline state. Large crystals extending from one surface suggested this sample had solidified at the edge of a vessel from which the rest of the melt had been poured. Both of the materials could be produced by conventional technology." (Condon 1969.)

6. Image: No.

7. References:

1. APRO Bulletin, Jul/Aug 1967, pp1, 3. Mentions samples being analysed, but I cannot find any details of this analysis in subsequent issues of the Bulletin.
2. Condon, E. 1969. "Scientific Study of Unidentified Flying Objects." E P Dutton. New York. P93.
3. Vallée, J F. "Physical analyses in ten cases of unidentified aerial objects with material samples." Journal of Scientific Exploration, Volume 12, number 3, pp357375.

1. Location: Kiana, Alaska, USA.

2. Date: Early 1970's.

3. Link: An Eskimo is reported to have found two pieces of material on a river bank following an aerial phenomenon. Professor Peter Sturrock acquired one piece.

4. Sample description:

- Silvery
- Light weight
- Looks as if poured from a source close to the ground.

5. Analysis: Details unstated.

6. Image: No.

7. Reference:

Vallée, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" *Journal of Scientific Exploration*, Volume 12, number 3, pp357-375. Citing personal communication to the author. Quoted with permission.

1. Location: Barborton, Ohio, USA.

2. Date: July 1972.

3. Link: Edward Lunguy saw a hovering orange ball of light in the sky. Stationary at first, it moved north-east then all of a sudden blew up silently. Three weeks later while mowing his mother's lawn he found an object. Two years later his wife suggested it be tested.

4. Sample description:

- Black, shiny, roughly oblong
- 13 pound in weight
- 13 x 9 x 4 inches in size.

5. Analyses:

(A) By: Robert Oldrieve (worked at NASA) – September 1974.

Methods: Spectroscopic diffraction tests.

Conclusions:

- Hardness 7/10
- Insoluble in acids
- Had characteristics of type of glass being researched by NASA for use as rocket liners or heat shields
- Melted at very high temperatures.

(B) By: David Burns – August 1974, Assistant professor of Geology, Kent State University.

Thoughts: Volcanic rock?

6. Image: Yes.

7. References:

1. ERA, Bradford, Pennsylvania, 25 December 1978.
 2. Schwarthberg, R. "*The day black glass fell from the sky.*" "Beyond Reality" Magazine, December 1979. pp34-35 & 58.
-

1. Location: Bogota, Columbia.

2. Date: 1975 or 1976.

3. Link: Two students heard a metallic sound overhead. Twelve foot disc in air. Four other objects appeared. Spouts of liquid from original disc. Objects left. After letting material cool for 10 minutes witnesses recovered two metal chunks.

4. Sample description:

- Two metal chunks
- 4 inch by 1.25 inch thick
- One side showed evidence of violent bubbling. Other side was flat.

5. Analyses:

(A) By: Mechanical engineering petroleum company, Central America.

Methods: Not stated.

Conclusions: Aluminum alloy with magnesium and tin. Non-magnetic. Contained traces of unidentified material. Easy to cut – presented very fine granulation.

(B) By: Vallée, J and Puthoff, H.

Method: Scanning electron microscopy.

Conclusions: 93.7% aluminium; 4.8% phosphorous; 0.9% iron; with traces of sulphur and an unexplained oxy-carbide layer. No fluoride and no water contrary to most aluminium samples.

Also used scanning ion mass spectroscopy (SIMS). Found surface layer of carbon, oxygen and nitrogen, beyond this aluminium and magnesium with potassium, sulphur, sodium and silicon. Trace amounts of phosphorous and iron.

6. Image: Yes. (Vallée "Contact in the Desert talk.")

7. Reference:

Vallée, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" Journal of Scientific Exploration, Volume 12, number 3, pp357-375.

Note:

In Vallée, J. 2014. "*Confrontations.*" Anomalist Books. Pp42-45, Vallée states he was given the sample on 18 October 1985 and that the specimen was "subjected to extensive test at the University of Texas. The major component was aluminium, which had clearly been exposed to extremes of temperature."

1. Location: Council Bluffs, Iowa, USA.

2. Date: 17 December 1977.

3. Link: Two residents reported seeing an object which crashed to the ground in the vicinity of a park. A bright flash was seen plus flames seven-ten feet high. Witnesses then found a large area covered with a mass of molten metal that glowed red/orange. Police and firefighters arrived within minutes. Two independent witnesses saw hovering red light.

4. Sample description:

Originally molten mass running over ground in a six feet by four feet area. Secondary patch was two feet by four feet.

5. Analysis:

By: Iowa State University and Griffin Pipes Product Company.

Methods: X ray fluorescence; electron beam microprobe; emission microscopy techniques.

Conclusions:

"The material is chiefly iron with very small amounts (less than 1%) of alloying materials such as nickel and chromium. The slag is a foam material containing metallic iron and aluminium with smaller amounts of magnesium, silicon and titanium." The white ash was found to be calcium with some magnesium.

6. Image: Yes. (Vallée – "Contact in the Desert" talk.)

7. Reference:

Vallée, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" Journal of Scientific Exploration, Volume 12, number 3, pp357-375.

Note:

Vallée in 1997 stated "Origin remains unknown." Not a meteorite. No local firms in operation which could have produced it. Not a hoax. Not a piece of equipment from an aircraft.

1. Location: Jopala, near Puebla, Mexico.

2. Date: 1978.

3. Link: Vallee was in Mexico in November 1978 and local authorities told him of a fall and recovery of a metallic residue following the observation of an unknown aerial phenomena in the mountains near Puebla.

4. Sample description:

Metallic residue.

5. Analysis:

"Reportedly composed of iron with silicon (1.13%) and traces of magnesium (0.8%); chromium (0.77%) and carbon (0.28%.)

6. Image: Yes.

7. Reference:

Vallée, J F. "*Physical analyses in ten cases of unidentified aerial objects with material samples.*" Journal of Scientific Exploration, Volume 12, number 3, pp357-375.

Note:

<http://inexplicata.blogspot.com/2017/10/mexico-remembering-1977-ufo-crash-in.html>

Has the date of the "crash" as 29 July, 1977.

1. Location: Rendlesham Forest, England.

2. Date: 1980.

3. Link: No knowledge of this particular sample or how collected. Sent by Bennie Foggin.

4. Sample description:

Collection of relatively fine shavings on the order of 1mm.

5. Analysis:

By: Not stated.

Methods: scanning electron microscope; energy dispersive spectroscopy.

Conclusions:

- Si 19.47% suggesting this alloy might have been used for casting
- Fe content typical level for trace impurity
- Mg and Cu levels likely due to addition but could be impurities
- "Overall we can say that this metal alloy does not represent a common aluminium alloy. The high silicon content suggests this material was used to generate a casting, as high silicon is often used to accomplish this (series 4000.)

6. Image: No.

7. References:

<https://www.facebook.com/groups/AATIP/permalink/30863806972306/>

1. Location: Rendlesham Forest, England.

2. Date: 1980.

3. Link: In a YouTube video, Reserve Captain Lori Rehfeldt provides her recollections of a promotions ceremony where she spoke to a General Edmonson (phonetic spelling.) She asked him about Rendlesham UFO case. Then another man present, an electrical engineer USAF, said he couldn't help but overhear. He mentioned a plastic material being found which has now been refined. It was a "wad" or "stick."

4. Sample description:

"Plastic "wad" or "stick."

5. Analysis:

By: Not stated.

Conclusion: Man said it was "not indigenous to the Earth."

6. Image: No.

7. Reference:

https://youtu.be/0UmPRjFpf_E

1. Location: Rendlesham Forest, England.

2. Date: 1980.

3. Link: Material given to Ronnie Dugdale. Now held by John Hanson. Sample said to have been sent to USA for analysis.

4. Sample description:

Chunk of silver metal.

5. Analysis: Not reported.

6. Image: Yes.

7. Reference:

<https://www.facebook.com/groups/AATIP/permalink/30863806972306/>

1. Location: Colorado/Nevada border, USA.

2. Date: 1985. (Some references say 1987.)

3. Link: Bob White and friend were driving to Las Vegas. Large bright UAP seen. Flew into sky joined larger UAP. Glowing orange ember fell to the ground. Went to that place found a tear drop shaped metal, very hot at first.

4. Sample description:

- Tear shaped blob of light metal
- Eight inches long two inches across at the broad end
- Weighed less than two pounds.

5. Analyses:

(A) By: New Mexico Institute of Mining and Technology. 1996. Conducted for NIDS.

Methods: x-ray fluorescence; electron microscope.

Conclusions:

- Finger shaped piece of metal, about 30mm long; 7mm thick; 18mm wide at larger end and 10mm wide at smallest end
- Interior was silver-white, highly reflective
- Mass 5.11524 grams
- X-ray – 85%Al by weight; 9% Silicon; 2% Iron; 0.9%Ca; 0.7%Cl; 0.6%Na.
- Similar composition to 360 aluminum casting alloy
- Electron microscope – uniform microstructure
- Density 2.47g/cm³
- Hardness typical for aluminium alloys

- There were no anomalies in the results.

(B) By: Dr Robert Gibbons – 2003 – former NASA scientist.

Conclusions: Isotopic ratios – May 1999 – La Jolla, California showed ratio of isotopes of strontium was 0.712.

(C) Comments by Chris Ellis, solid state physicist, on a video “We found that the object is an aluminium alloy of unknown origin.”

https://www.metatube.com/en/videos/103730/Bob_white-case-ufo-hunters

6. Image: Yes.

7. References:

1. “Bob White case UFO object UFO Hunters.” UFO Hunters series 3 episode 7 (“UFO relics.”) Aired 6 May 2009 (NY History Channel.)
2. NIDS analysis available at: <https://rense.com/general53/piece.htm>
3. Robert Gibbons quote available at: <http://www.prweb.com/releases/2003/09/prweb81709.htm>

Note:

Article by Linse, P and Harrison E. “Bob White’s great artifact mystery solved.” Skeptics Oct 12 2011 at: <http://www.skeptic.com/e-skeptic/11-10-12/>

This article concluded that the object was “made of accreted grinding residue. It forms in a manner similar to a common stalagmite when metal castings are cleaned in large stationary grindings.”

1. Location: Dalnegorsk, Primorsky Krai, Soviet Union.

2. Date: 29 January 1986.

3. Link: Multiple witnesses reported seeing a red ball silently fall to the ground, and crash.

4A Sample description:

- “Tiny nets” (mesh)
- “Little balls”
- “Glass pieces.

5A. Analysis:

By: Not stated.

Methods: Not stated.

Conclusions:

- “Tiny nets” – contained torn and very thin threads
- “Little balls” – Iron, and a large mixture of aluminium, manganese, nickel, chromium, tungsten, cobalt.

Source: 4A and 5A Sudakov, D. 2010. “*The Dalnegorsk UFO crash: Roswell Incident of the Soviet Union.*” Available at http://www.pravdareport.com/society/anomal/05-02-2010/112049-dalnegorsk_ufo_crash_0/

4B Sample description:

- "Tiny nets" mesh
- "Little balls"
- "Lead balls"
- "Glass pieces."

5B Analysis:

1. By: Bor and Dalnopolimetal Industrial Enterprises

Methods: Not stated.

Conclusions:

- "Lead balls" – small diameter – alloy of lead plus 17 other elements
- "Little balls" compounds of chromium, nickel and aluminium
- "Tiny nets" – torn and very thin threads – amorphous carbon, surface of the net contained quartz threads.

2. By: The IZMIRAN Institute of Earth Magnetism, ionosphere and radiowaves propagation (Leningrad branch).

Methods: Not stated.

Conclusions:

"Lead balls" – made on Earth but the lead was not from Dalnegorsk deposit but from the Kholodnensky deposit.

(Source for 5B 1 and 5B 2 was "The Dalnegorsk UFO crash of 1986": Additional research and analysis by Paul Stonehill and Phillip Mantle, at:

<http://alienjigsaw.com/anomalies/Mantle-Stonehill-Dalnegorsk-UFO-Crash-1986.html>

6. Image: Yes.

7. References:

Sudakov, D. 2010. "*The Dalnegorsk UFO crash: Roswell Incident of the Soviet Union.*" Available at: http://www.pravdareport.com/society/anomal/05-02-2010/112049-dalnegorsk_ufo_crash_0/

"The Dalnegorsk UFO crash of 1986: Additional research and analysis" by Paul Stonehill and Phillip Mantle, at: <http://alienjigsaw.com/anomalies/Mantle-Stonehill-Dalnegorsk-UFO-Crash-1986.html>

Note:

In 1990 Jacques Vallée and Martine Castello visited the Soviet Union and met with Alexis Zolotov (geologist) and Alexander Kazantsev (writer) who arranged for Vallée and Castello to see a sample at the Cosmos UFO exhibition. Vallée writes "That examination, although obviously cursory and informal, reinforced my impression that the object in question was an ordinary piece of human technology, although it certainly was intriguing."

"It contained lead and also some metallic looking parts, that we were told resisted corrosion when exposed to acids. We could also see glass fibers with fine gold wiring, but none of that warranted a conclusion that we were dealing with an object manufactured by a higher intelligence." (Vallée, J. 1992. "*UFO chronicles of the Soviet Union.*" Ballantine, New York. Pp 103 & 127-128.)

1. Location: Shikmona Beach, South of Haifa, Israel

2. Date: 28 September 1987.

3. Link: A 27 year old mechanic saw a disc shape hovering over the beach. It emitted a red flash then disappeared. Two days later at the site he noted that "the sand contained a display in the image of the UFO."

4. Sample description:

- "a display in the image of the UFO"
- "the display material appears to melt at a very low temperature, ca.50 degree C."

5. Analysis:

By: Frontier Analysis Ltd.

Methods: Infrared spectroscopy; (an ESD elemental analysis was performed by another laboratory.)

Conclusions:

- EDS – rust greater than 50% by weight; paraffin wax was 20-35% by weight; lubricant base oil 14-15% by weight
- "The only known source of this material is from a refinery"
- The rust indicates some kind of rusted container or pipeline
- "This material is a toxic waste dump that coincidentally was present on the beach."

6. Image: Yes.

7. Reference:

Technical service response number UT009. Frontier Analysis Ltd. P A Budinger, dated 25 September 2000.

1. Near Kadima, Israel

2. Date: 20 March 1993.

3. Link: Zsiporet Carmel reported seeing to UAP on the ground. Later, three depressions were found in the area. Fragments were found in one of them.

4. Sample description:

"Deposits of silicon."

5. Analysis:

By: The Geological Survey of Israel.

Methods: Not stated.

Conclusion: "Deposits of silicon."

6. Image: Yes.

7. Reference:

Mantle, P. 2008. "UFO Landing in Israel." Outer Limits Magazine, issue 8. Available at:

1. Location: 40 miles east of Columbus, Ohio USA (south-east of Newark).

2. Date: Summer 1995 (Ref 1) 1996 (Ref 2.)

3. Link: Bennie Foggin heard a noise like "metal grinding on metal." Couldn't see anything. Looked again and then saw a very square looking, silent UAP in the sky. 300ft long with a 100ft wing. Travelled west to east. As he watched it he heard something hit the ground near him. He had a look around the area and found a specimen – off the road in moist, dirt area. The sample was misplaced till around 2006.

4. Sample description:

- Spear head shape about one inch long by half inch wide at non spear head end
- Density about 2.8g/cc³ (within normally range for aluminium alloys.)

5. Analyses:

(A) By: Unnamed party.

Bennie Foggin in early 2006 gave it to Joe Stets in Columbus. Unnamed party at his work conducted an informal analysis.

Methods: Unknown.

Conclusions: 89.1% aluminium; 9.9% silicon; 0.8% iron; 0.2% Mg.

(B) By: US Diagnostics – June 2007.

Methods: X-ray

Conclusions:

Primarily homogenous internal structure with some small (less than 1mm) spots or specks likely to be bubbles.

(C) By: Unnamed – June 2008

Methods: Scanning electron microscope and energy dispersive spectroscopy.

- "Bottom of the blob " 15mm diameter faint berry red stain
- Pink stain contains oxidised pieces of Al, Si, Ca, Na, P, Mg and S
- Metal blob that appears to have solidified in an unconfirmed manner from a molten state
- Not exotic or unearthly.

(D) By: Frontier Analysis Ltd.

Methods: Infrared spectroscopy; energy dispersive x-ray spectroscopy; Geiger counter.

Conclusions:

- No radioactivity beyond normal background
- Sample is an aluminium alloy
- High purity alloy with only silicon detected
- Category wrought 400 type alloy commonly used in welding wire and as cladding for brazing sheets

- Could have resulted from a broken weld.

6. Image: Yes.

7. References:

1. Technical service response number UT050. Frontier Analysis Ltd. P A Budinger dated 14 April 2007.
 2. Reiter, N A and Mason P. "*Two cases of unusual sky-fall aluminium metal from Ohio.*" <http://www.theavalonfoundation.org/docs/metal.html>
-

1. Location: Nevada, USA.

2. Date: 1996.

3. Link: NIDS investigation. Ejected material.

4. Sample description:

Not stated.

5. Analysis:

Al; with Si; C; Mg and Ca.

6. Image: No.

7. Reference:

Vallée, J. "*What do we know about the material composition of UFOs?*" Talk at "Contact In the Desert."2017. <https://www.youtube.com/watch?v=CnPHt7zfd0I>

1. Location: Needles, California, USA.

2. Date: 2008

3. Link: Emmett Hayes, UFO researcher and podcaster used a metal detector to find samples.

4. Sample description:

- Thin metal
- Appeared aluminium in nature.

5. Analysis:

Not stated.

6. Image: Yes.

7. Reference:

Punk rock and UFOs blog, 8 November 2018 at:

<https://www.punkrockandufos.com/blog/2018/11/1/exclusive-photos-of-alleged-wreckage-ufo-from-needles-calif-crash>

Notes:

1. At <http://kevinrandle.blogspot.com/2008/11/needles-ufo-crash-may-14-2008.html> George Knapp reported that he had interviewed witnesses who told him

that an object seemed to come down from the sky and "crash," and that within 20 minutes five helicopters turned up and a Skycrane took an object away.

2. http://www.thelivingmoon.com/49ufo_files/03files2/2008_Las_Vegas_Crash.html provides further reports from Knapp. Possibility of a UAV.

1. Location: Newtown, Pennsylvania, USA.

2. Date: 21 January 2014.

3. Link: MUFON case number 55131. A witness reported a "vortex in the sky" from which shiny, particles fell onto the ground. Submitted by Donna Luther MUFON SSD/FI Pennsylvania.

4. Sample description:

- Shiny particles

5. Analysis:

By: Frontier Analysis Ltd.

Methods: Infrared analysis; microscopic analysis.

Conclusions:

- Identified as common glitter
- Hexagon pieces about one mm wide
- Common polyester.

6. Image: Yes.

7. Reference:

Technical service response number UT083. Frontier Analysis Ltd. P A Budinger dated 10 June 2014.

1. Location: Claymont, Delaware, USA.

2. Date: 29 June 2014.

3. Link: MUFON case 57833. Multiple orange-red UAP up to 24 in number. Silent and floated irregularly. Moved of silently. One object dropped something that "burnt wildly down to the ground." Residual fragment found. Submitted by Dave Segal, MUFON FI-PA and DE. Received by frontier Analysis ltd on 21 July 2014.

4. Sample description:

- Two pieces. One was four cm by two cm; other irregular shape three cm wide at widest point
- Weighed 0.78 grams.

5. Analysis:

By: Frontier Analysis Ltd.

Methods: Infrared spectroscopy; microscopic examination.

Conclusions:

- Greater than 50 % of palmitic acid, dispersed in fine glass fibres.
- Trace amounts of quartz and an unidentified ester-type impurity.
- Fragment has the appearance of insulation. However, presence of palmitic acid is unusual.

6. Image: Yes.

7. Reference:

Technical service response number UT087. Frontier Analysis Ltd. P A Budinger dated 26 September 2014.

Notes:

1. Researcher Bob Spearing advised as follows:

“The MUFON case revolved around an orange ball of fire like an orb in the sky which gave off residue which fell to the ground. Phyllis Budinger of Frontier Labs analysed the samples and found they were composed of fiberglass and palmitic acid which is a waxy highly flammable substance. I suspected a Chinese lantern and mailed Phyllis a fuel cell from a Chinese lantern to analyse. The fuel cell is basically a 1 inch by 1 inch square of fiberglass coated with palmitic acid which is nestled at the bottom of a lantern. It is lit with a match and the heat it produces causes the paper lantern to alight. Her analysis showed that my fuel cell was identical to the sample from the Claymont, Delaware object...I don't believe MUFON ever changed the status of the case to IFO.”

(Source: Personal communication to the author from Bob Spearing, 18 November, 2018.)

2. In a report dated 16 July 2015, (copy kindly provided to me by Bob Spearing), Phyllis Budinger reported on her examination of two fuel cells from Chinese Lanterns. Their composition was found to be “palmitic acid and glass fiber, such as the one found after the Claymont incident.”

1. Location: Not given. Named as “Sierra” case.

2. Date: Withheld by Vallée.

3. Link: Not given by Vallée.

4. Sample description:

Two samples.

5. Analysis:

Sierra 1

99.38% titanium by weight. Al 4020ppm; Sc 755 ppm; Fe 561ppm; Mg 321ppm; V 202ppm; Cr 197 ppm; Mn 131 ppm; Ni 137 ppm; Ca 73ppm; K 16 ppm.

Isotopes:

- Ti46 – Standard is 8.25% sample is 8.7 and 7.66.
- Ti47 – Standard is 7.44 sample is 5.33 and 3.83.
- Ti48 – Standard is 73.72 sample is 73.91 and 76.56
- Ti49 – Standard is 5.41 sample is 5.76 and 5.26.

Sierra 2

Iron 98.35% by weight; Mn 8543 ppm; Cr 3500 ppm; Cu 2032 ppm; NI 613 ppm; Sc 592 ppm; Co 94 ppm; Zn 76 ppm; Al 63 ppm; Ca 10 ppm; V 7 ppm.

Isotopes yet to be done.

6. Image: Yes.

7. Reference:

Vallée, J. "What do we know about the material composition of UFOs?" Talk at "Contact In the Desert."2017. <https://www.youtube.com/watch?v=CnPHt7zfd0I>

ADDENDUM

The following case is frequently cited in the UFO literature as a fragment. However, there was no visual UAP sighting associated with the case.

1. Location: Tiffin, Ohio, USA.

2. Date: 2003.

3. Link: No UAP. "Ed" found a piece of metal in his side yard when raking up leaves. Apparently been there since winter.

4. Sample description:

- Irregular shaped metal "blob"
- Six inch by two point five inch by half inch thick (maximum.)

5. Analyses:

(A) By: Reiter – 2003

Methods: Scanning electron microscope. EDS. Geiger counter.

Conclusions:

- EDS – primarily aluminium, traces of carbon and silicon
- Density right for appropriate mass weight
- Not noticeably radioactive.

(B) By: Dr Ayengar via frontier Analysis Ltd.

Methods: EDS analysis.

Conclusions:

- Impure alloy of aluminium (76.5%) containing a small amount of silicon (24%), 10/1% carbon, 2.4%iron; 8.2% oxygen; 0.2%calcium
- Metal blob that appears to have solidified in an unconfirmed manner from a molten state
- Not exotic or unearthy.

(C) By: Olson, Martins, Topolski – 19 July 2015. From Bennie Foggin labelled "Ohio Ed's metal sample." Sample was less than one cubic centimetre.

Methods: scanning electron microscope; energy dispersive spectroscopy.

Conclusions:

- Fairly simple composition
- Specimen not composed of a common alloy

- Ag and Mg appear artificially added – whereas Si and Fe content likely impurities.

6. Image: No.

7. References:

1. Olson, R.; Martins, L.; Topolski, M. at <https://medium.com/@larrycekander/larry-cekander-presents-503f1eebe078>
2. Reiter, NA and Mason P. "Two cases of unusual sky-fall aluminium metal from Ohio." <http://www.theavaolonfoundation.org/docs/metal.html>

ADDENDUM 2:

The following is an extract from a talk by Jacques Vallée. 1min 26secs. Speaking of reengineered materials. "For example, there is an element that has five isotopes, known isotopes, in different abundance. In the sample we have, two of the isotopes are not present, and the other three are present at 33%; 33%; 33%. The only thing that can happen is if somebody has separated the isotopes and reintroduced them into an alloy for some reason that we can't fathom what that reason would be...Not ready to publish yet...we need to redo it..."

(Source: Thomas R Morrison pointed me to <https://youtu.be/wJGttcIQjCA?t=5166> which is episode 241 "Grimerica Talks Ufology for the 21st Century" with Dr Jacques Vallée. Uploaded 15 September 2017.)
