

Evidence Suggesting that *some* UAPs are Advanced Non-Human Craft

Kevin H Knuth, PhD

Dept of Physics
Univ at Albany (SUNY)
Albany NY USA

Sept 29, 2001
Budapest, Hungary
Hungarian Air Force Pilot Photo

What I Am Doing in this Talk

- Discuss the Nuances Amongst UAP Hypotheses
- Outline the Process of Statistical Hypothesis Testing
- Highlight the Difficulties in Supporting an Extraordinary Hypothesis
- Discuss Strategies for Handling Extraordinary Hypotheses
- Present Evidence that **SOME** UAPs could be Non-Human Craft
- Argue that the Non-Human Craft Hypothesis should be Embraced by the Scientific Community as a Significant and Rational Possibility

What are UAP?

What are UAP?

UAP = Unidentified Aerospace-Undersea Phenomena

What are UAP?

UAP = Unidentified Aerospace-Undersea Phenomena

AMBIGUOUS



HORRIBLY MISUSED
to suggest that we
do not at all know what
these things are

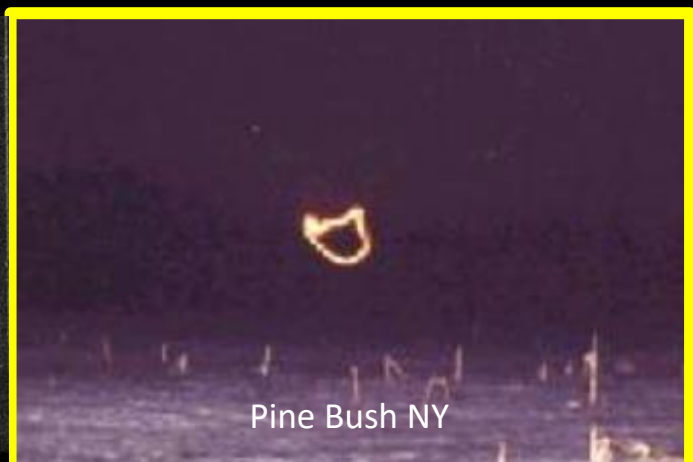
What are UAP (Unidentified Aerospace-Undersea Phenomena)

UAP are a CLASS of Phenomena — not a single thing



What are UAP (Unidentified Aerospace-Undersea Phenomena)

UAP are a CLASS of Phenomena — not a single thing



What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.



Here is an unidentified flying object

Can you identify it?

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.



Here is an unidentified flying object

Can you identify it?

“It could be ANYTHING!”

--- your least favorite science popularizer

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.



Here is an unidentified flying object

Can you identify it?

~~“It could be ANYTHING!”~~

--- your least favorite science popularizer

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!
Eagle!

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!

Eagle!

Bald Eagle!

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!

Eagle!

~~Bald Eagle!~~

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!

Eagle!

~~Bald Eagle!~~

Eagle of Genus *Haliaeetus*

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Kevin H Knuth



Here is an unidentified flying object

Can you identify it?

BIRD!

Eagle!

~~Bald Eagle!~~

Eagle of Genus *Haliaeetus*

African Fishing Eagle

(*Haliaeetus vocifer*)

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.

Here is an unidentified flying object

Can you identify it?



BIRD!

Eagle!

~~Bald Eagle!~~

Eagle of Genus *Haliaeetus*

African Fishing Eagle

(*Haliaeetus vocifer*)

What Does it Mean to be Identified / Unidentified?

Identification is an Observer-Dependent Characteristic

What it means to be identified depends on the observer

Identification is not binary. There are degrees of identification.



Similarly, one cannot say that this
“could be ANYTHING”.

What if pilot identifies it as a/an:

OBJECT

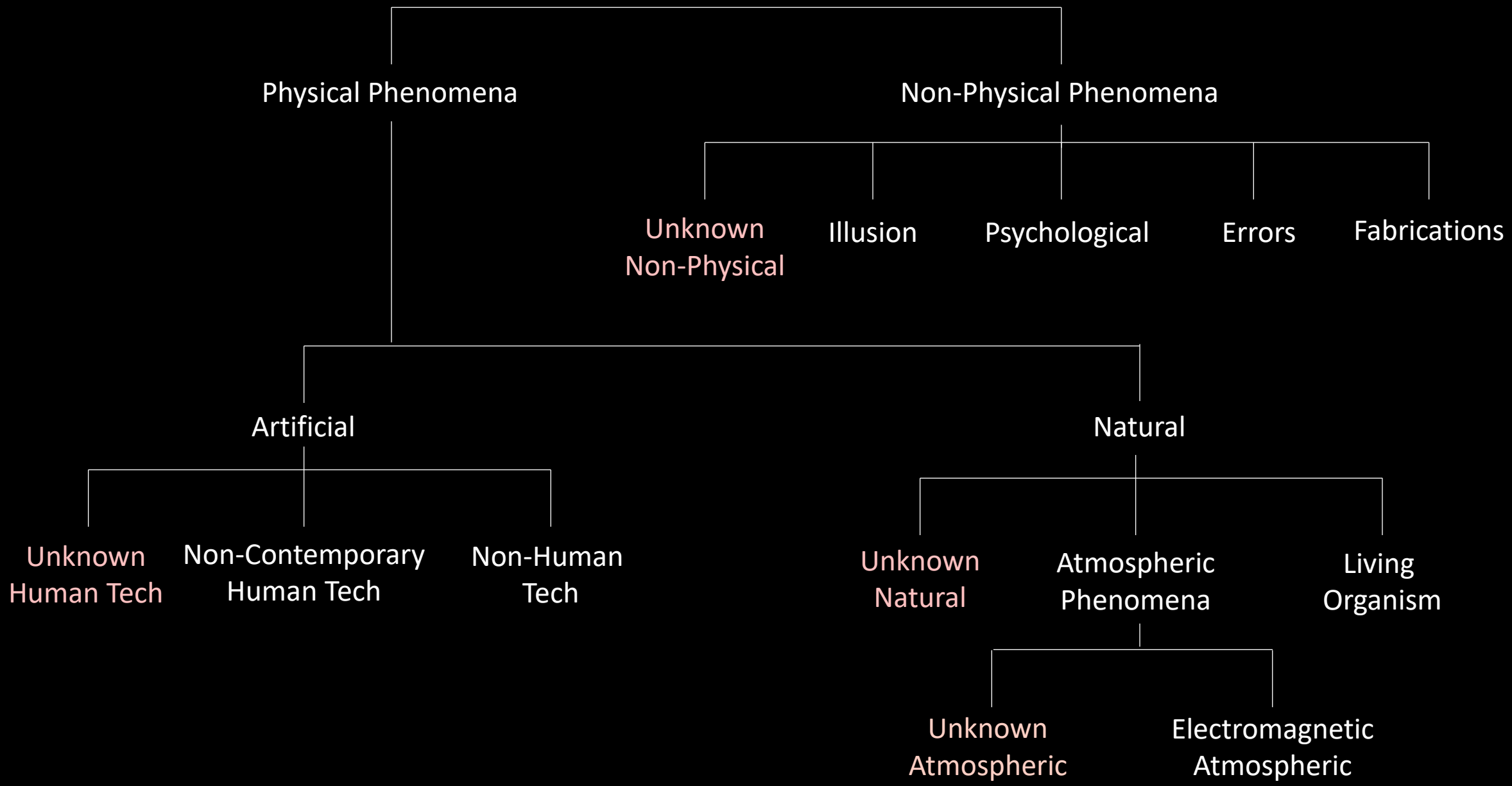
CRAFT

TICTAC

In what sense is it unidentified?

UAP Hypotheses

Potential UAP Hypotheses



Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena	
Biological :	Animals, +
Astronomical :	Stars, Planets, Comets, Meteors, +
Atmospheric :	Clouds, Mirages, Sun Dogs, Swamp Gas, Unknown Atmospheric, +
Electromagnetic :	Ball / Bead Lightning, Earthquake Lights, Elves, Sprites, Jets, Charged Aerosols, +
Artificial Phenomena	
Non Human Technology (NHT)	
Other Hypotheses	
Falsehoods : Exaggerations, Hoaxes	
Errors : Malfunctions, Mis-Calibrations, Mistakes	

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Human Misidentified : Airplanes, Balloons, Drones, Missiles, Satellites, Space Debris +

Advanced Human Tech : Wakanda Hypothesis

Secret (Friendly) Government Tech

Advanced Adversarial Tech

Advanced Corporate Tech

Non Human Technology (NHT)

Other Hypotheses

Falsehoods : Exaggerations, Hoaxes

Errors : Malfunctions, Mis-Calibrations, Mistakes

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Extraterrestrial Hypothesis (ETH)

ETH : Automated Extraterrestrial Probes

ETH : Remote Controlled Craft or Probes

ETH : Piloted Craft

ETH : Von Neumann Probes, Artificial Organisms

Non-Humans from Earth

Other Hypotheses

Falsehoods : Exaggerations, Hoaxes

Errors : Malfunctions, Mis-Calibrations, Mistakes

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Non-Physical Phenomena

Time Travelers

Extra-Dimensional Travelers

and more...

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Hoaxes

Pranks

Exaggerations

Errors : Malfunctions, Mis-Calibrations, Mistakes

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Delusions

Mistakes

Equipment Malfunction

Equipment Mis-Calibration

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

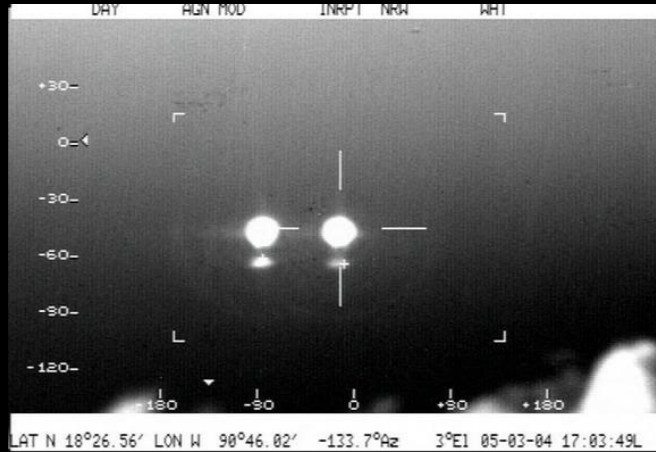
Errors

Phenomenon vs Phenomena

UAPs are a Class of Phenomena, not a single thing.



Costa Rica 1971



Mexican Air Force 2004



Weyauwega WI USA, Feb 2003



Vancouver BC, RobS, 2005

The **UAP Taxa** are unknown.

Multiple Hypotheses are likely to be found to be correct.

We should expect confusion resulting from similar, but different phenomena

CONFLATION OF HYPOTHESES is an EXPECTED HAZARD (as discussed by Dr. Misra in his Limina talk)

Extraordinary Claims Require Extraordinary Evidence

Carl Sagan

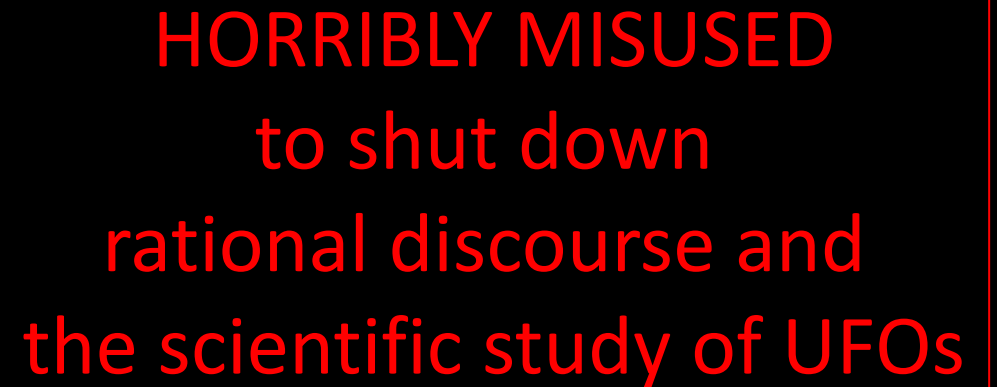
Extraordinary Claims Require Extraordinary Evidence

Carl Sagan

AMBIGUOUS



HORRIBLY MISUSED
to shut down
rational discourse and
the scientific study of UFOs



Extraordinary Claims Require Extraordinary Evidence

In Science we must
compare the probabilities of
different models
contingent on Data.

Statistical Model Testing



* In Science we RULE OUT Hypotheses.

However, in practice, uncertainties handled statistically require that we test one hypothesis against another.

Extraordinary Claims Require Extraordinary Evidence

Carl Sagan

> 1

$=$

ϵ

$\left(> \frac{1}{\epsilon} \right)$

$$\frac{\Pr(\textit{Extra} | D, I)}{\Pr(\textit{M} | D, I)} = \frac{\Pr(\textit{Extra} | I)}{\Pr(\textit{M} | I)} \frac{\Pr(D | \textit{Extra}, I)}{\Pr(D | \textit{M}, I)}$$

This term represents the ratio of PRIOR PROBABILITIES of the two models.
How much do you believe each Hypothesis is possible BEFORE you have any Data

This term represents the ratio of the LIKELIHOOD OF THE DATA given each Model

That no testimony is sufficient to establish a miracle,
unless the testimony be of such a kind,
that its falsehood would be more miraculous,
than the fact, which it endeavors to establish.

David Hume 1748

With the *Extraordinary* Hypothesis being deemed sufficiently improbable, $\epsilon \ll 1$,
**there is ALMOST NO AMOUNT of Data that will make *Extra* more probable
than the hypothesis that the Data are in Error!**

Strategy to Handle *Extraordinary* Hypotheses

With the *Extraordinary* Hypothesis being deemed sufficiently improbable, $\epsilon \ll 1$, there is almost no amount of Data that will make *Extra* more probable than the hypothesis that the Data are in Error!

RECOMMENDED STRATEGY

~~SMOKING GUN EVIDENCE~~

- **Reduce Probability of Error**
Multiple Independent Disparate Pieces of Evidence
Modeled after Multi-Messenger Astronomy
Many Different Instruments / Imaging Modalities
Multiple Observation Points
Multiple Independent Observing Groups
- **Divide and Conquer the Extraordinary Hypothesis**
Establish Less Controversial Aspects of the Hypothesis
- **Remain Agnostic with respect to the Hypotheses**
Focus on Characteristics (Phenomenology)
that have implications for the set of Hypotheses

The Five Observables

Advanced Aerospace Threat Identification Program (AATIP)
DIA PROGRAM 2007 - 2012

1. Positive Lift
2. Sudden/Instantaneous Acceleration
3. Hypersonic Velocity without Signatures
4. Trans-Medium Travel
5. Low Observability or Cloaking

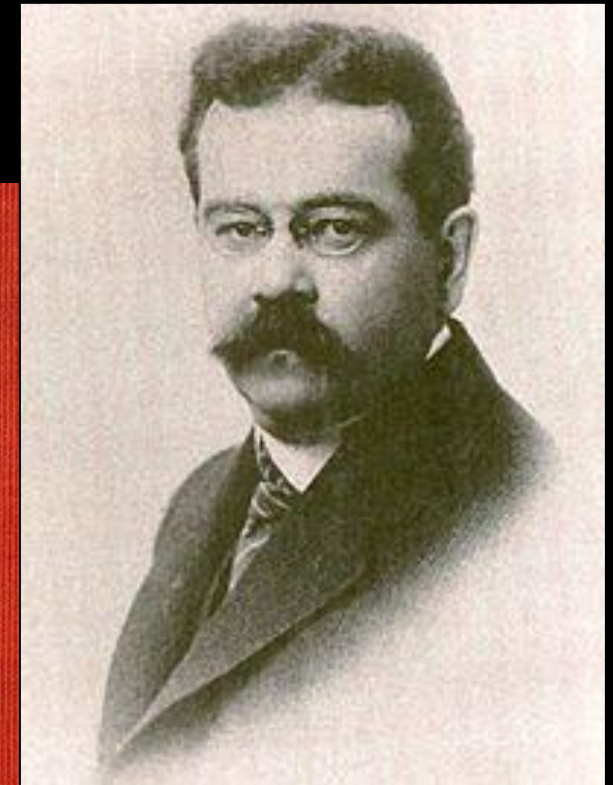
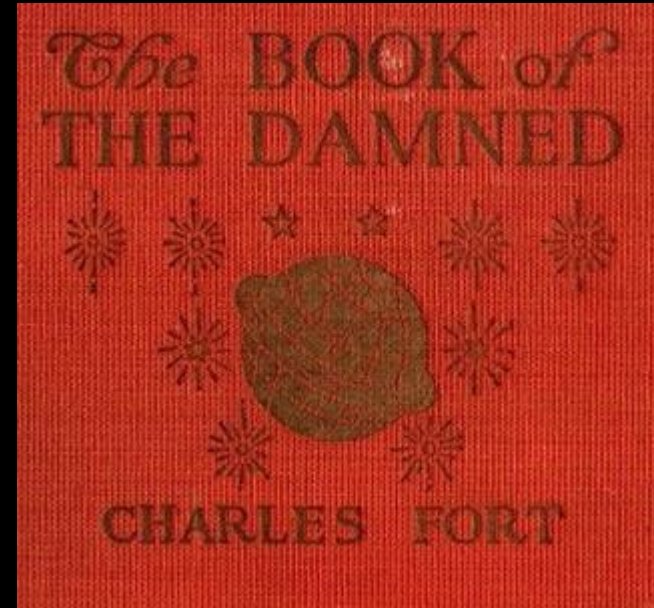
How Extraordinary is the Non-Human Tech Hypothesis?

Revising Our Priors

Charles Fort (born Aug 6, 1874 in Albany NY)

First UFOlogist

The Book of the Damned, 1919



Charles Fort

“it is not the conventional or respectable thing upon this earth to believe in visitors from other worlds, most of us could watch them a week and declare that they were something else, and likely enough make things disagreeable for anybody who thought otherwise.”

- Charles Fort, Sept 5, 1926, Letter to the NYT

1947 : The Year that UFOs Entered our (USA) Social Consciousness

Leased Wire
Associated Press

Roswell Daily Record

RECORD PHONES
Business Office 2288
News Department 2287

47 NUMBER 50 ESTABLISHED 1888 ROSWELL, NEW MEXICO, TUESDAY JULY 8, 1947 6c PER COPY.

Claims Army Is Stacking Courts Martial

Indiana Senator Lays Protest Before Patterson

Washington, July 8 (AP)—Senator Jenner (R-Ind.) contended today that "the high command in the European theatre is stacking courts against defendants in court martial."

In a letter to Secretary of War Patterson demanding a full investigation of army military trial procedure, Jenner offered what he said was documentary proof that:

1. "Prisoners are not being permitted to employ either civilian or military counsel of their own choice in the preparation and presentation of their defense."
2. "Every effort is being made to prevent attorneys who were connected with the infamous Lichfield prison case to practice in courts martial in the European theatre."

The Indiana senator made public a copy of an informal "routing slip" which he said was signed by Brig. Gen. Cornelius E. Ryan, assistant deputy, military government headquarters for the military government for Germany, and written by Col. Francis H. Vanderswerker. Jenner told newsmen that the routing slip substantiated his charges.

The slip, addressed to the chief of staff, USPETA (presumably US forces, European theatre), was dated last Oct. 23.

RAAF Captures Flying Saucer On Ranch in Roswell Region

House Passes Tax Slash by Large Margin

Defeat Amendment By Demos to Remove Many from Rolls

Washington, July 8 (AP)—The house passed today the Republican-backed bill to cut income taxes by \$4,000,000,000 annually for 49,000,000 taxpayers, beginning Jan. 1.

It goes to the senate where approval also is forecast.

The vote was 392 to 11, or more than the two-thirds majority needed to override a presidential veto.

The action, which may encounter another presidential veto, came after Speaker Martin (R-Mass.) personally appeal to the house to pass the bill by such a decisive vote—as to persuade the president that the people should have this delayed justice.

The measure is identical with

Security Council Paves Way to Talks On Arms Reductions

Lake Success, July 8 (AP)—The United Nations security council today approved an American blueprint for arms reduction discussions despite a Russian warning that the plan would bring about a collapse of arms regulation efforts.

The vote was 9 to 0, with Russian and Poland abstaining.

In view of Russia's firm stand against the U. S. plan it had been believed she might invoke the big power veto to block it.

Soviet Deputy Politburo Minister Andrei A. Gromyko gave his warning before the United Nations security council in a new effort to revive the Soviet working plan which already had been rejected by the commission for conventional armaments.

His challenge was taken up promptly by French delegate Alexandre Parodi and U. S. Representative Herschel V. Johnson, who announced their opposition to any substitute for the American plan.

No Details of Flying Disk Are Revealed

Roswell Hardware Man and Wife Report Disk Seen

The intelligence office of the 509th Bombardment group at Roswell Army Air Field announced at noon today that the field has come into possession of a flying saucer.

According to information released by the department, over authority of Maj. J. A. Marcel, intelligence officer, the disk was recovered on a ranch in the Roswell vicinity after an unidentified rancher had notified Sheriff Geo. Wilcox, here, that he had found the instrument on his premises.

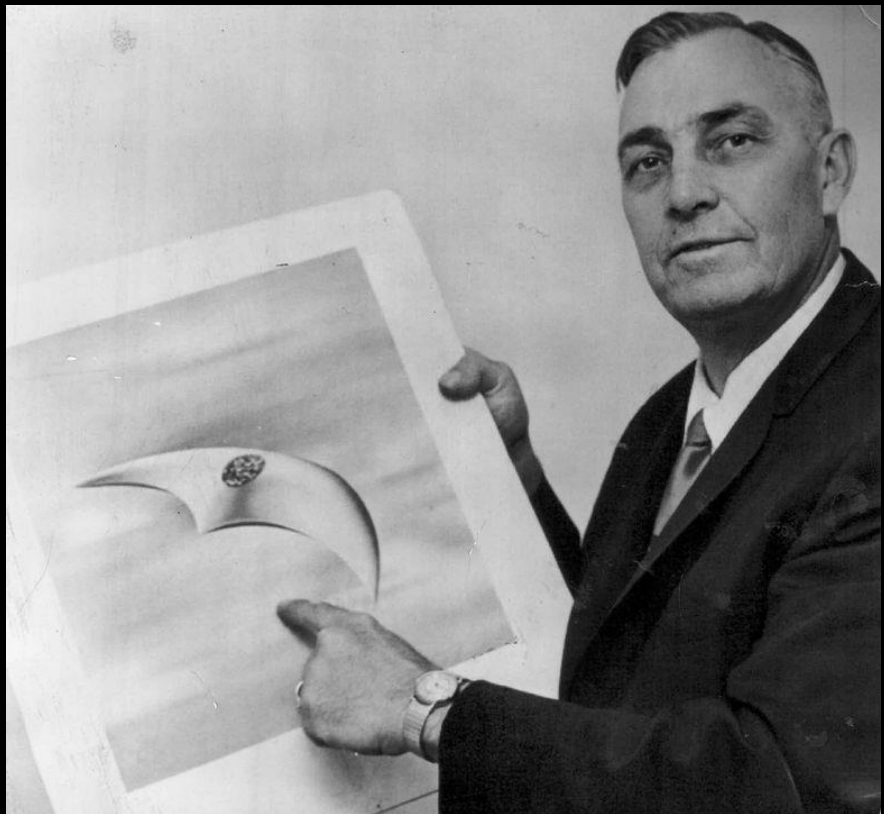
Major Marcel and a detail from his department went to the ranch and recovered the disk, it was stated.

After the intelligence office here had inspected the instrument it was flown to "higher headquarters."

Ex-King Carol Weds Mme. Lupescu



Former King Carol of Romania and Mme. Elena Lupescu



Kenneth Arnold

Movies as Usual

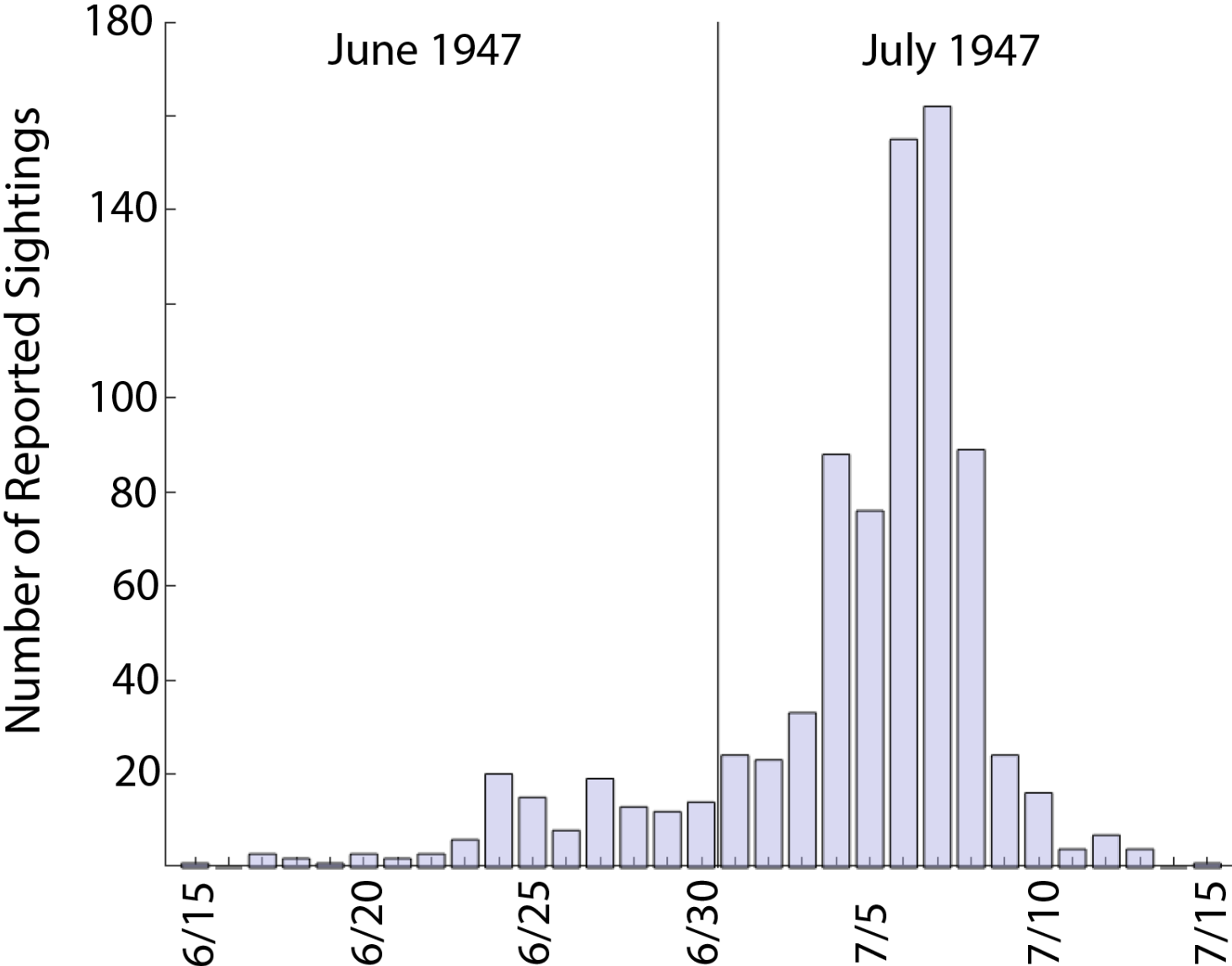
GRAND

FRIDAY SATURDAY
MORNING SHOWS WESTERN
AND COMIC CARTOONS

Levees broke and flood waters rolled into the town of Grand, Ill., but while the manager of this movie theater sweeps the water that has entered the lobby, these youngsters are lining in line for tickets for the night's performance. (AP photo).

...me of Soviet Satellites

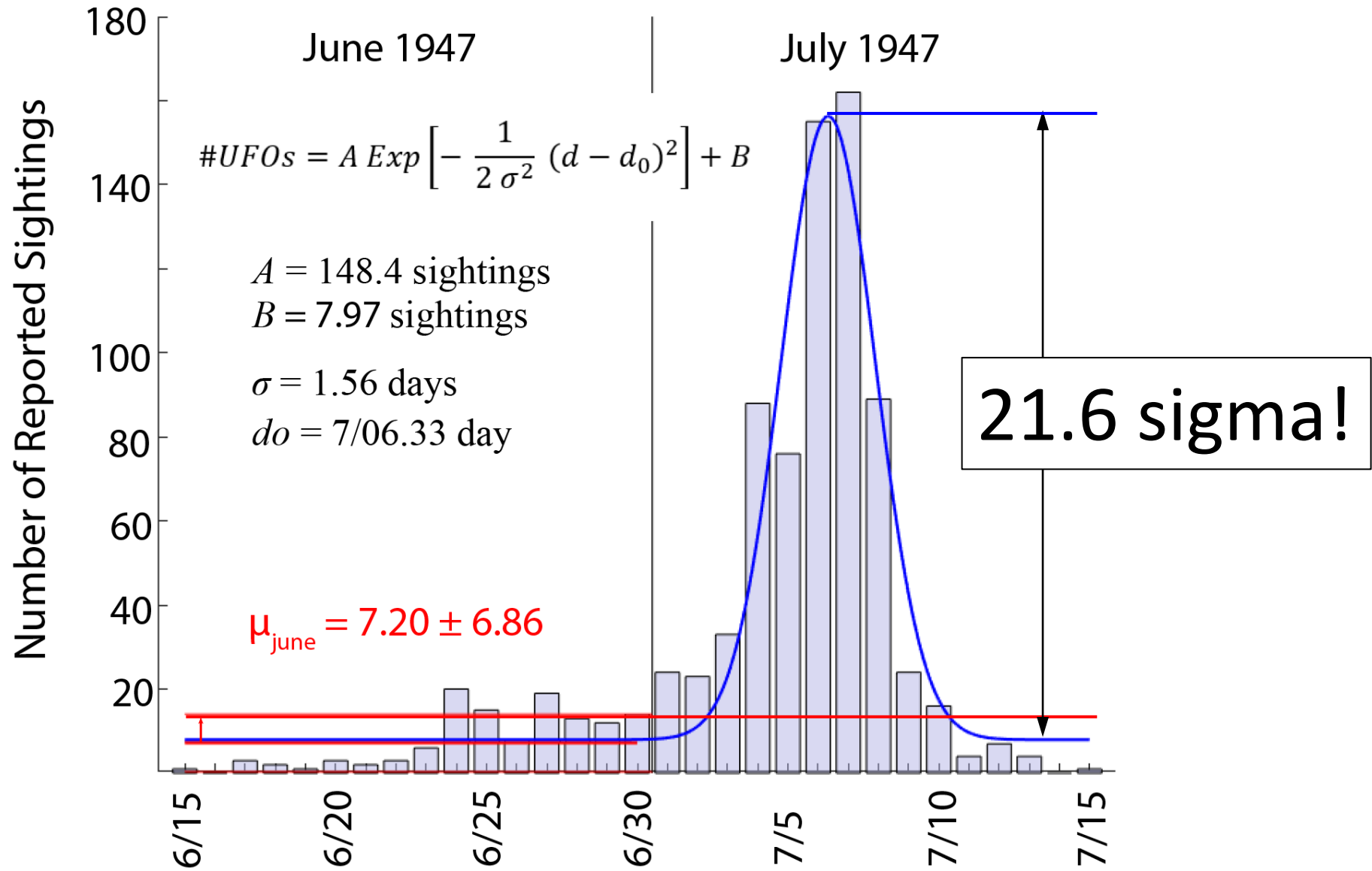
Daily U.S. UFO Sightings - Summer 1947*



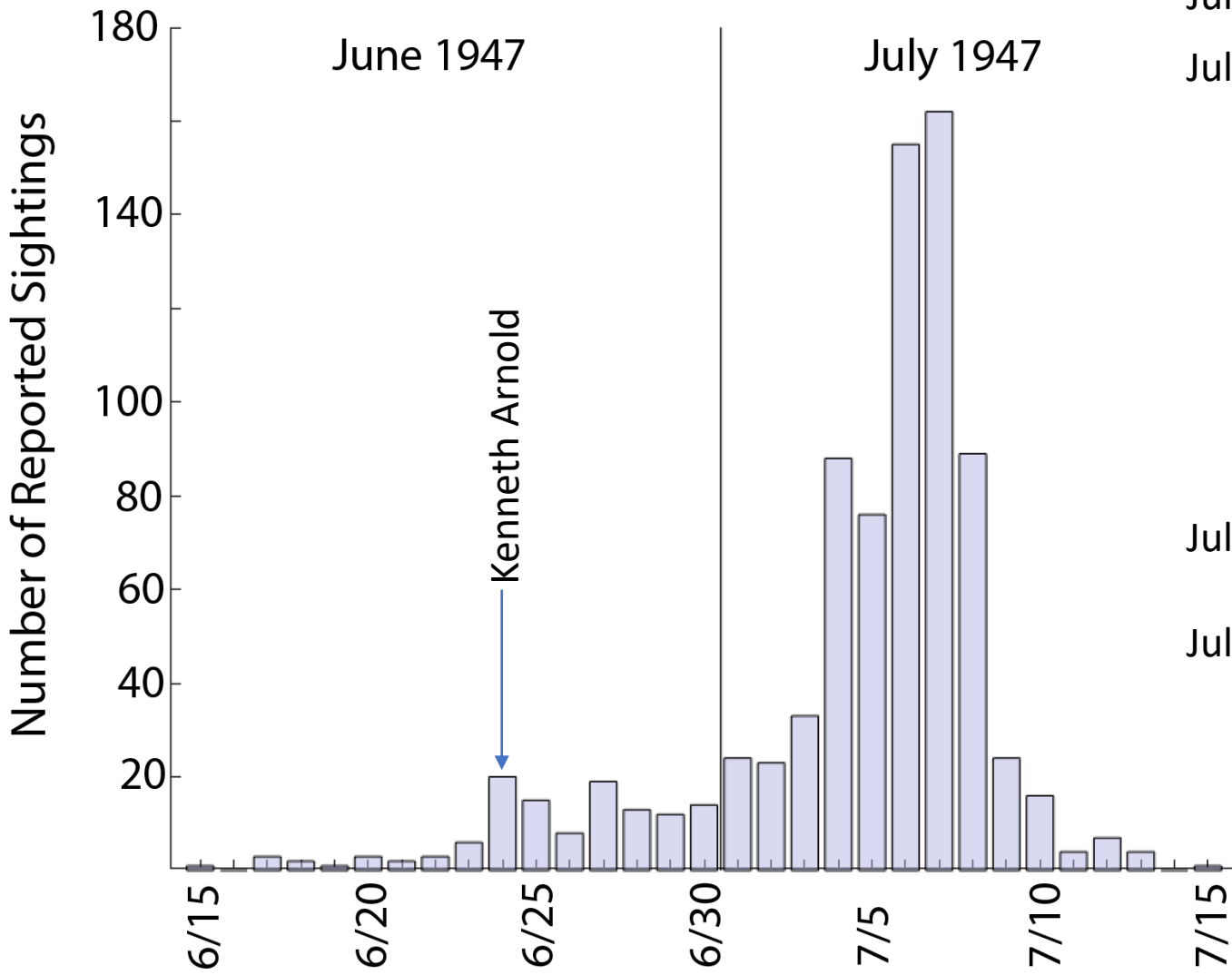
* Bloecher, T., 1967. Report on the UFO Wave of 1947. Washington, DC: Ted Bloecher.

Daily U.S. UFO Sightings - Summer 1947*

* Bloecher, T., 1967. Report on the UFO Wave of 1947. Washington, DC: Ted Bloecher.



Daily U.S. UFO Sightings - Summer 1947



SOME of the July 1947 Sightings *

TWO crashes in NM (Roswell & San Augustin Plains)

July 3: Landing of 8 Large Objects – 10 witnesses in ID

July 4: 35 Objects in 3 Formations - 60 people Twin Falls ID

Lone Disk in Sky – 200 witnesses in Spokane WA

Two Groups of Disks – entire UA crew ID/OR border

Disks over Portland OR – dozens of police + people

Air-to-air sightings – two pilots in CA and ID

Photo Taken – Coast Guardsman in WA

Disk over Lake Ponchartrain in New Orleans

20+ disks over Port Huron MI – multiple witnesses

July 5: Propellor shaped object - two TWA pilots Neapolis OH

July 6: B-26 pilot and crew observe a disk pacing off left wing

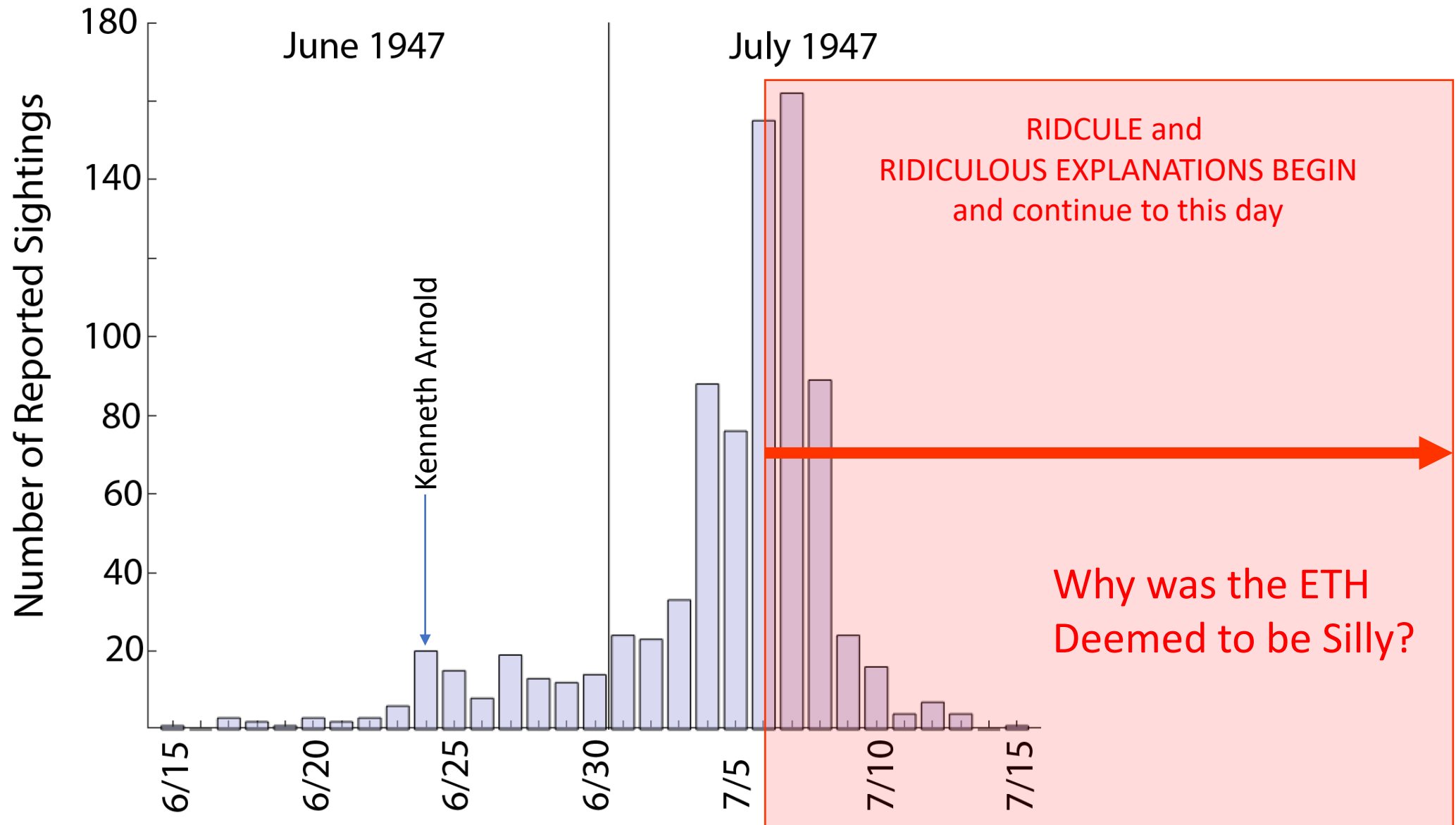
Clay Center KS at 1:45pm (Hynek – “astronomical”)

Landing near Tempe AZ

Landing near Pocatello ID

* (Bloecher 1967)

Daily U.S. UFO Sightings - Summer 1947



Strategy to Handle *Extraordinary* Hypotheses

RECOMMENDED STRATEGY

- **Reduce Probability of Error**
Multiple Independent Disparate Pieces of Evidence
Modeled after Multi-Messenger Astronomy
Many Different Instruments / Imaging Modalities
Multiple Observation Points
Multiple Independent Observing Groups
- **Divide and Conquer the Extraordinary Hypothesis**
Establish Less Controversial Aspects of the Hypothesis
- **Remain Agnostic with respect to the Hypotheses**
Focus on Characteristics (Phenomenology)
that have implications for the set of Hypotheses

UAP Characteristics

The Five Observables

Advanced Aerospace Threat Identification Program (AATIP)

DIA PROGRAM 2007 - 2012



1. Positive Lift
2. Sudden/Instantaneous Acceleration
3. Hypersonic Velocity without Signatures
4. Trans-Medium Travel
5. Low Observability or Cloaking

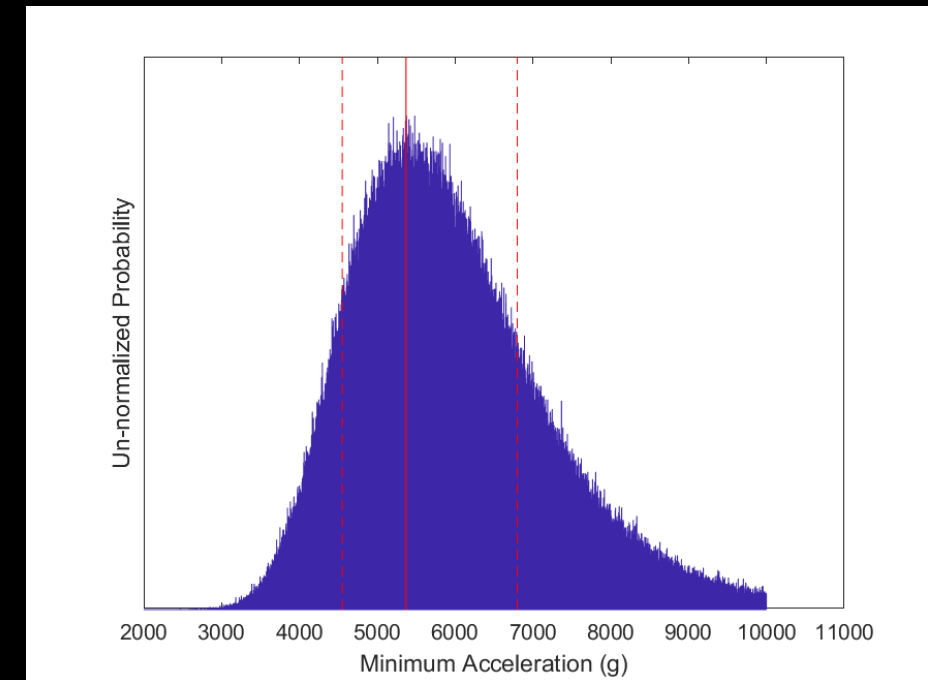
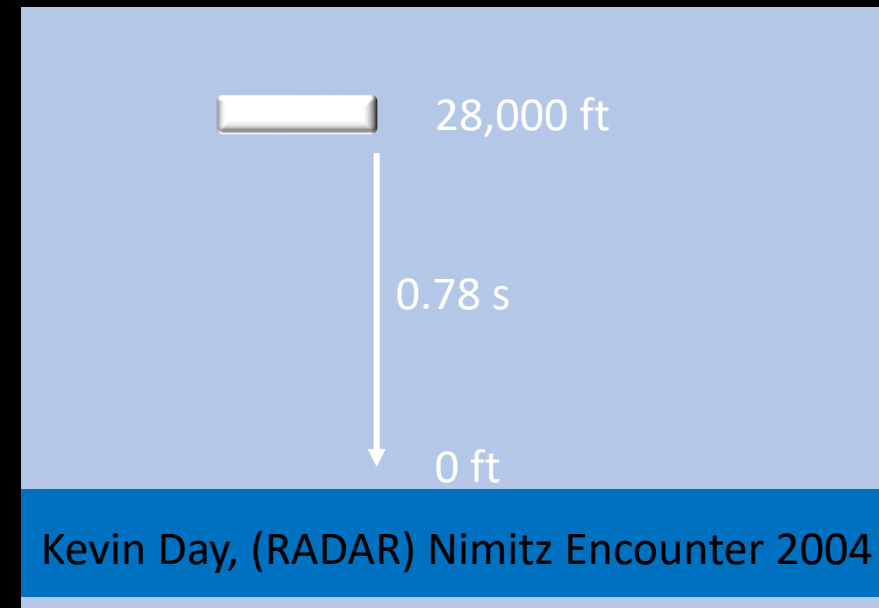
Sudden/Instantaneous Acceleration
Hypersonic Velocity without Signatures

Sudden/Instantaneous Acceleration

“Instantaneous” really means Too High to Measure

Knuth, Kevin H., Robert M. Powell, and Peter A. Reali 2019.
"Estimating Flight Characteristics of Anomalous Unidentified Aerial Vehicles"
Entropy 21, no. 10: 939.
<https://doi.org/10.3390/e21100939>

Case	Event	Year	Min Acc	Max Speed
Bethune		1951	1700 g	
JAL 1628		1986	68 – 84 g	
Nimitz	Day - Radar	2004	5400 g	Mach 60 = 74,000 kph
	Fravor		150 g	
	ATFLIR		76 g	



Nimitz 2004

The power required to accelerate the TicTac at $a = 5400g$

is found by

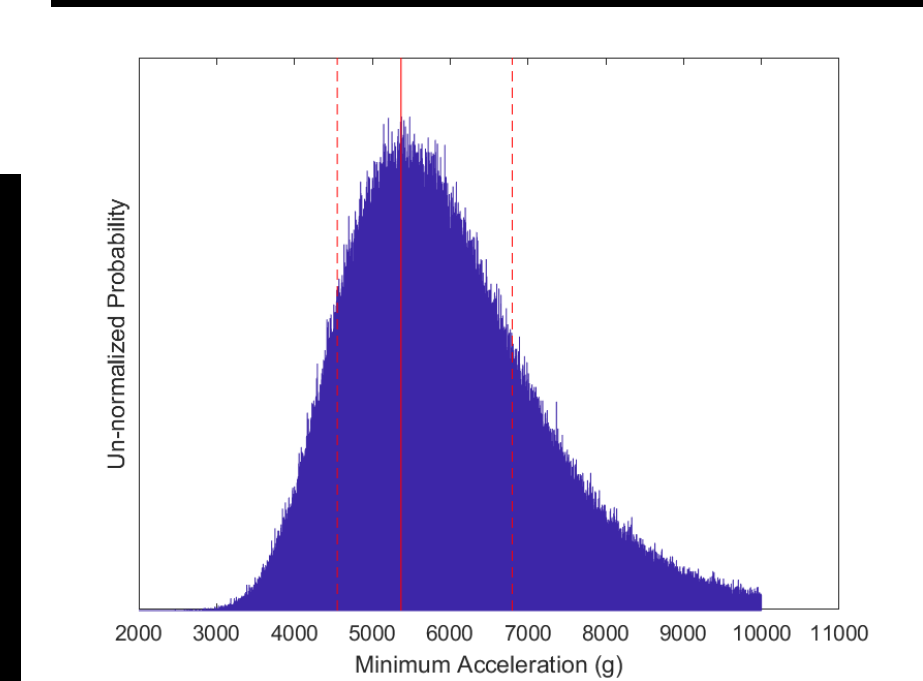
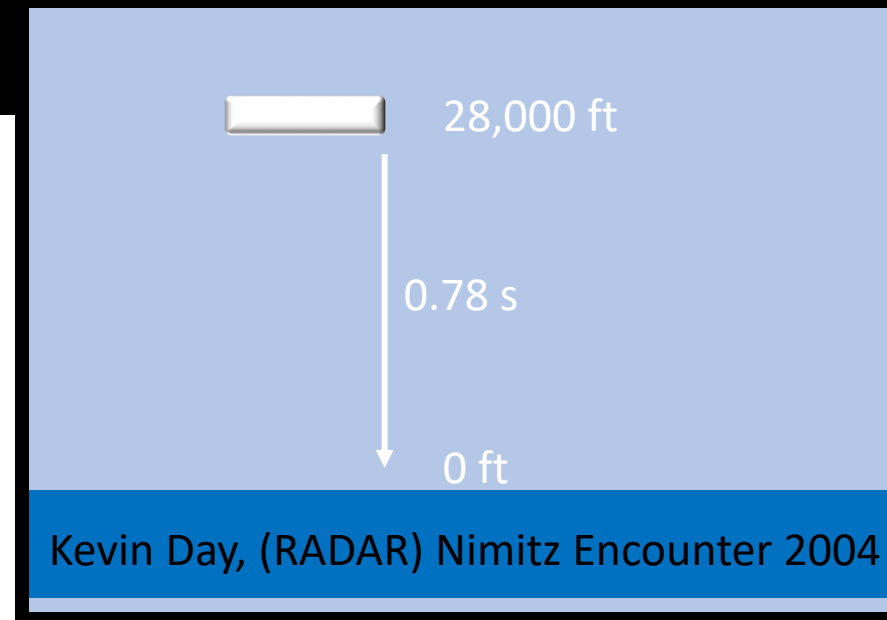
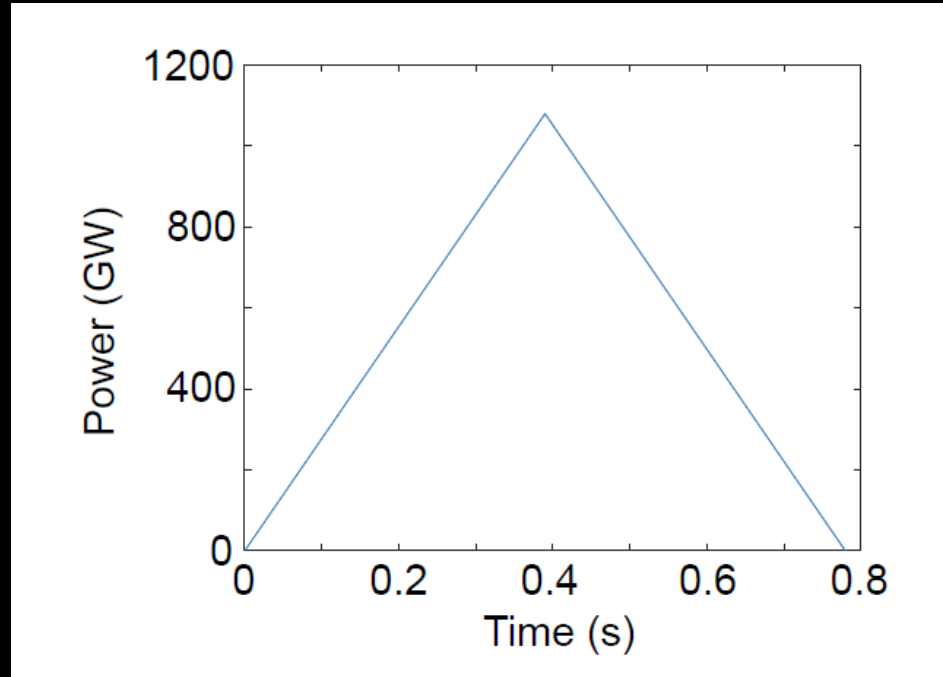
$$P = Fv = mav = ma^2t$$

Assuming a mass (1/10 of the F-18): $m = 1000kg$

the maximum power is

$$P = 1100 \text{ GW}$$

This is more than 10 x the TOTAL nuclear power output of the United States!!!

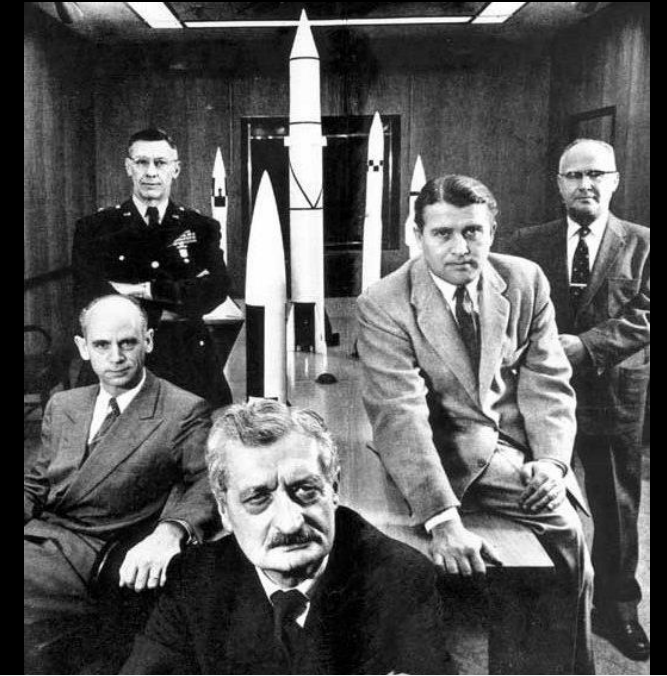


Hermann Oberth

The German Father of Modern Rocketry

Mentor to Werhner von Braun

Wrote: Die Rakete zu den Planetenräumen
(By Rocket into Planetary Space)



Hermann Oberth (center),
Wehrner von Braun (to the right), Credit: NASA

Lecture about Flying Saucers: Hermann Oberth 1954

19 km/sec = Mach 55 \approx 42,500 mph

Their speed is sometimes very high. 19 km/sec has been measured with wireless measuring instruments (radar). Accelerations are so high that no man could stand it; he would be pressed to the wall and bruised. The accuracy of such measurements has been doubted. If there would be only 3 or 4 measurements, I would not rely upon them and would wait for further measurements, but there is existing more than 50 such measurements; the wireless sets (radar) of the American Air Force and Navy, which are used in all fighters, cannot be so inaccurate that the information obtained with them can be doubted completely.

Radar Observations at Minot AFB, 1968

During the early morning hours of Oct 24, 1968, two glowing UFOs were observed at Minot Air Force Base, North Dakota USA which supports nuclear ICBMs.

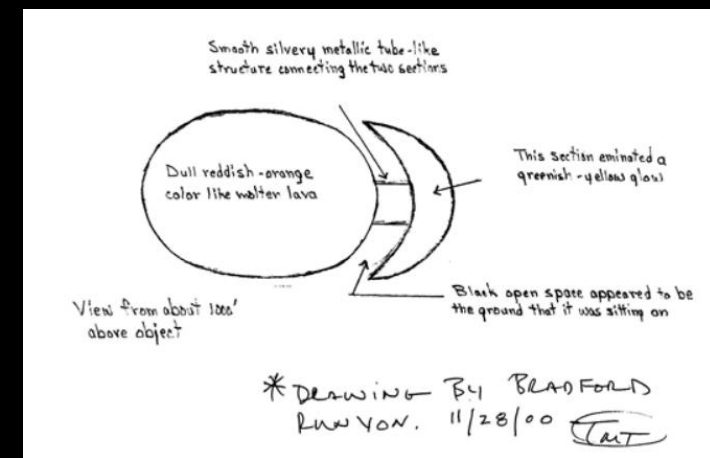
At 3 am an approaching B-52H was alerted to watch for bright glowing orange UFOs.

During a 180 degree turnaround, **both** ground and B-52 radar systems detected an object maintaining a 3 miles distance from the airplane following its descent rate.

Within one 3 second sweep of the radar, the UFO closed two miles distance positioning itself only 1 mile away from the airplane pacing it for 20 miles.

The plane banked and flew over the UFO which was egg-shaped and glowing like molten lava.

The acceleration to close the 2 mile distance was found by Claude Poher to be 209 g with a top speed of Mach 12 (15,000 kph).



Later drawing by Capt. Runyon

JAL 1628, Anchorage Alaska, 1986

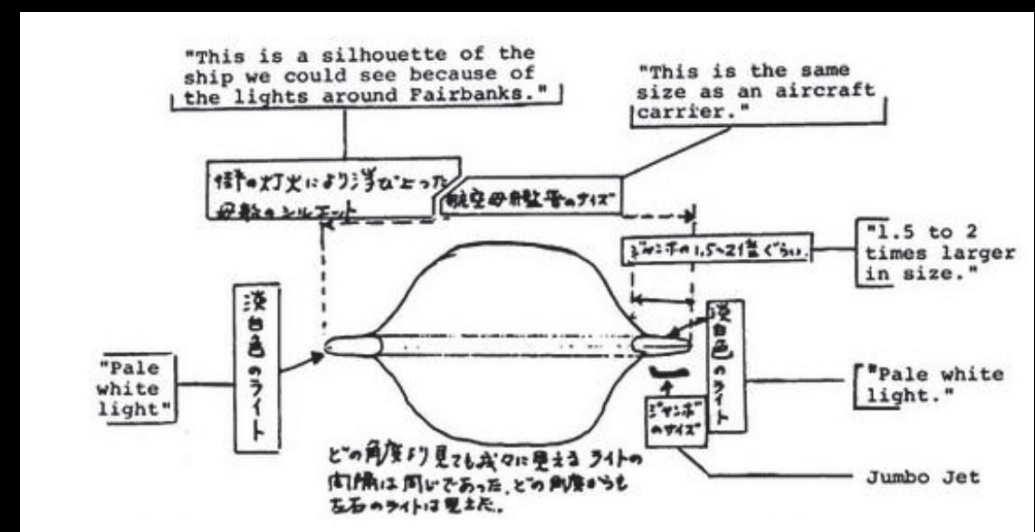
On Nov 17, 1986, the JAL Boeing 747, Flight 1628, was flying from Tokyo to Paris when it encountered several UFOs over Alaska. A large UFO about the size of an aircraft carrier followed JAL 1628 for approximately 50 minutes.

While summarized in Knuth, Powell, Reali 2019, Dr. Coumbe obtained and more carefully analyzed the radar data of the large UFO's motion.

Dr. Coumbe analyzed 11 jumps made by the UFO across the path of the 747.

Three of these jumps exhibited accelerations exceeding 9000 g with top speeds of Mach 350 (432,000 kph or 269,000 mph).

At 269,000 mph, the UFO could have reached the Moon in 53 min!



Drawing by Capt. Terauchi

Jump	Max. Speed (<i>Mach</i>)	Acceleration (<i>g</i>)
1	53 ± 1	256 ± 3
2	83 ± 2	612 ± 10
3	52 ± 1	244 ± 3
4	53 ± 1	256 ± 3
5	322 ± 29	9656 ± 815
6	77 ± 2	548 ± 10
7	52 ± 1	252 ± 3
8	76 ± 2	536 ± 10
9	316 ± 29	9450 ± 815
10	76 ± 2	536 ± 10
11	350 ± 29	10786 ± 815

Table from Coumbe, Anomaly 2022.

Hypersonic Velocity without Signatures

No Sonic Booms or Fireballs!

Important Points:

- UFOs exhibit extreme accelerations!

5400 g (Knuth, Powell, Reali 2019)

10,786 g (Coumbe 2022)

- UFOs have been tracked at Hypersonic Speeds in air

Hypersonic Speeds as high as:

- Mach 55 \approx 42,500 mph (Oberth 1954 – Multiple Cases)

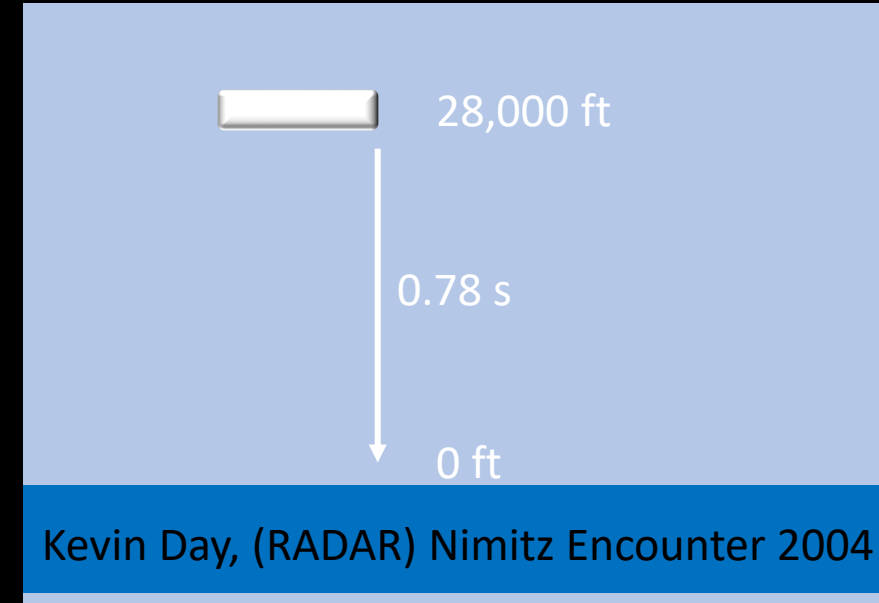
- Mach 12 \approx 9,300 mph (Poher, 2005)

- Mach 60 \approx 46,000 mph (Knuth, Powell, Reali, 2019)

- Mach $350 \pm 29 \approx$ 268,500 mph (Coumbe, 2022)

- No energy deposition when decelerating or stopping

- Nimitz 2004 drop maneuver should have deposited at least 4.3×10^{11} J of energy (100 tons of TNT) assuming a mass of 1000 kg (Knuth, Powell, Reali, 2019)



Kevin Day, (RADAR) Nimitz Encounter 2004

DIFFICULTY: ERROR IN DATA?

$$Pr(D | \textit{Error}, I)$$

Hypersonic Velocity without Signatures

No Sonic Booms or Fireballs!

Important Points:

- Extremely high accelerations, speeds, and POWER rules out Natural Phenomena

Natural Phenomena

Biological : Animals, +

Astronomical : Stars, Planets, Comets, Meteors, +

Atmospheric : Clouds, Mirages, Sun Dogs, Swamp Gas, Unknown Atmospheric, +

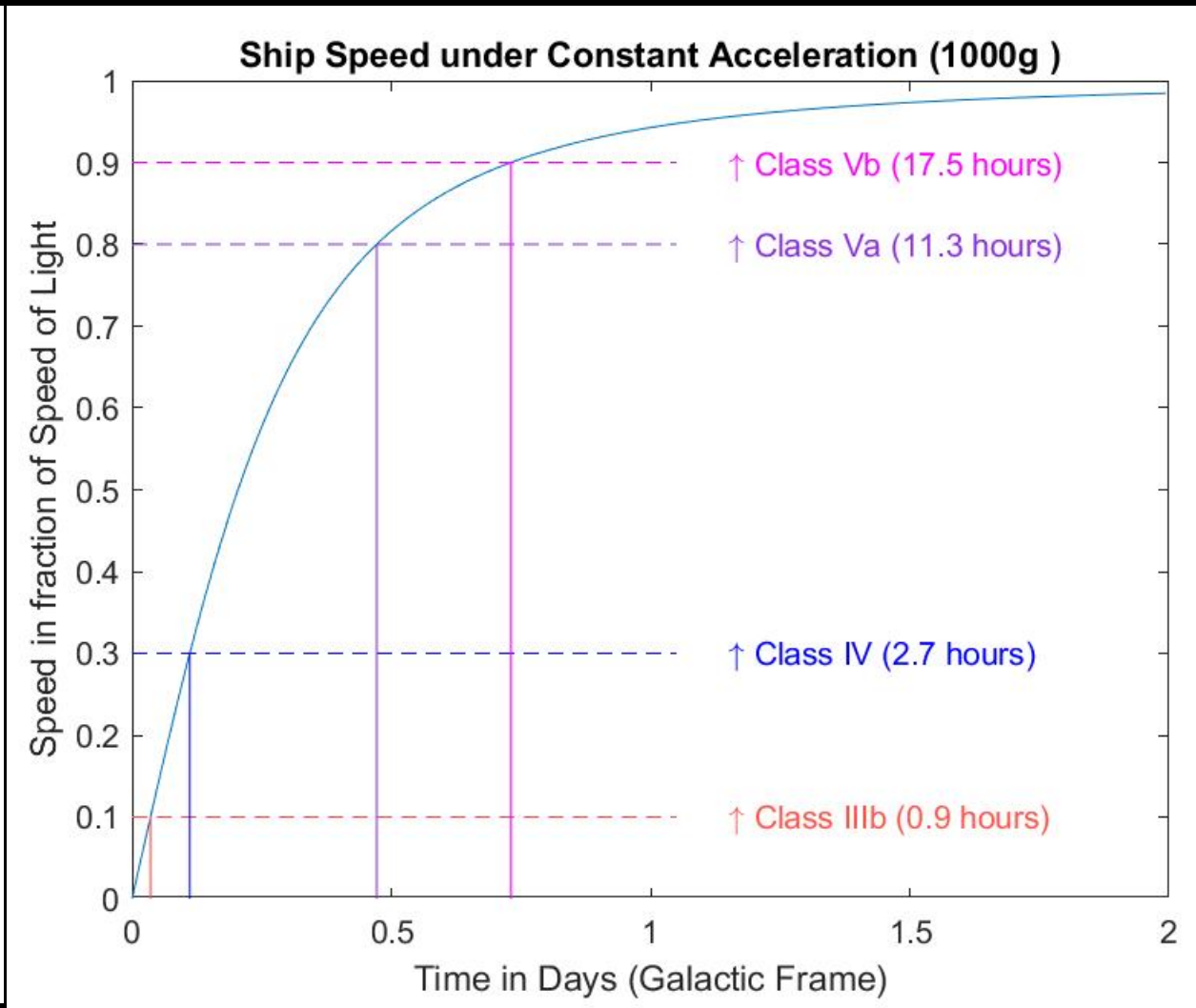
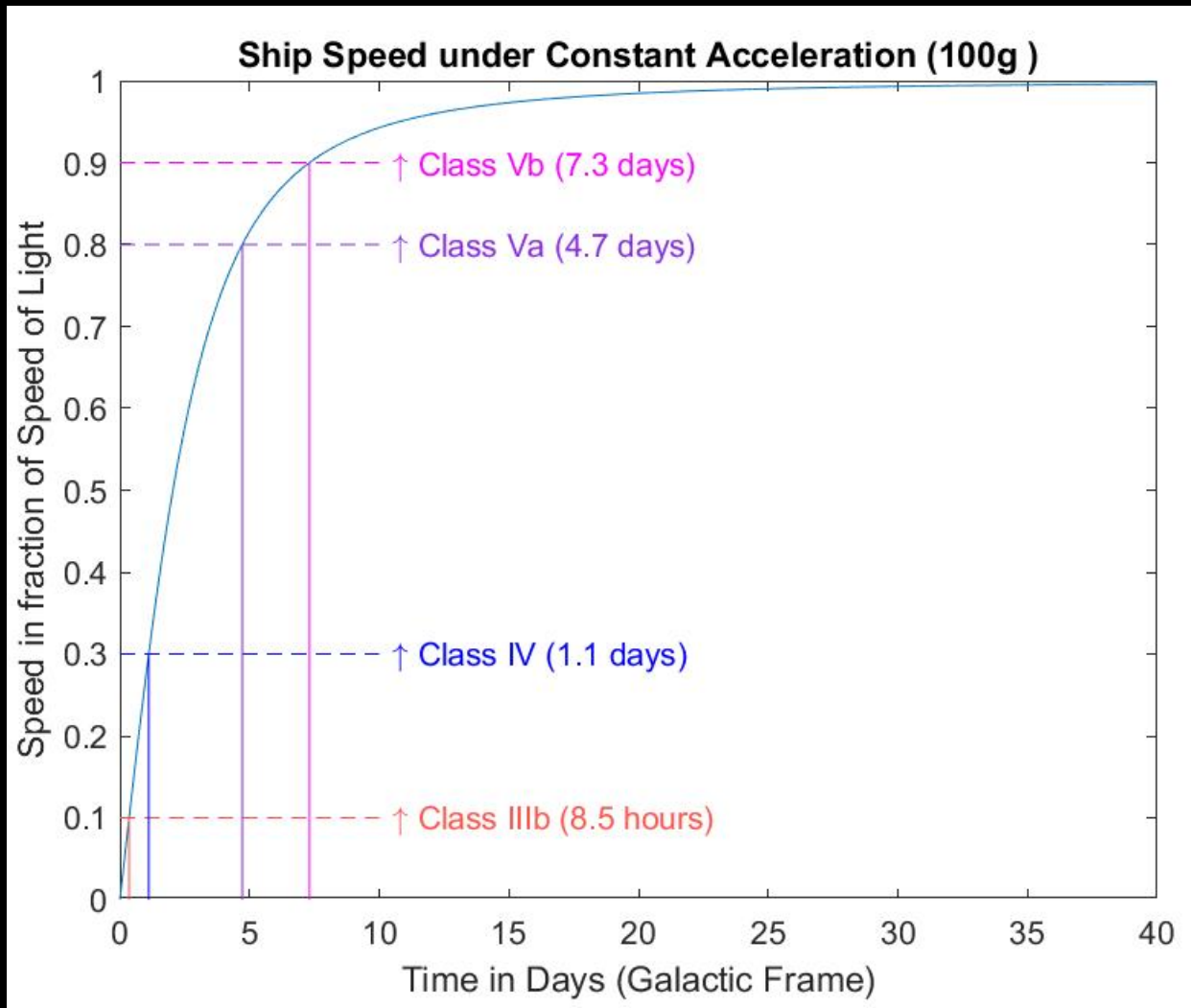
As well as Human Technology

Advanced Human Tech

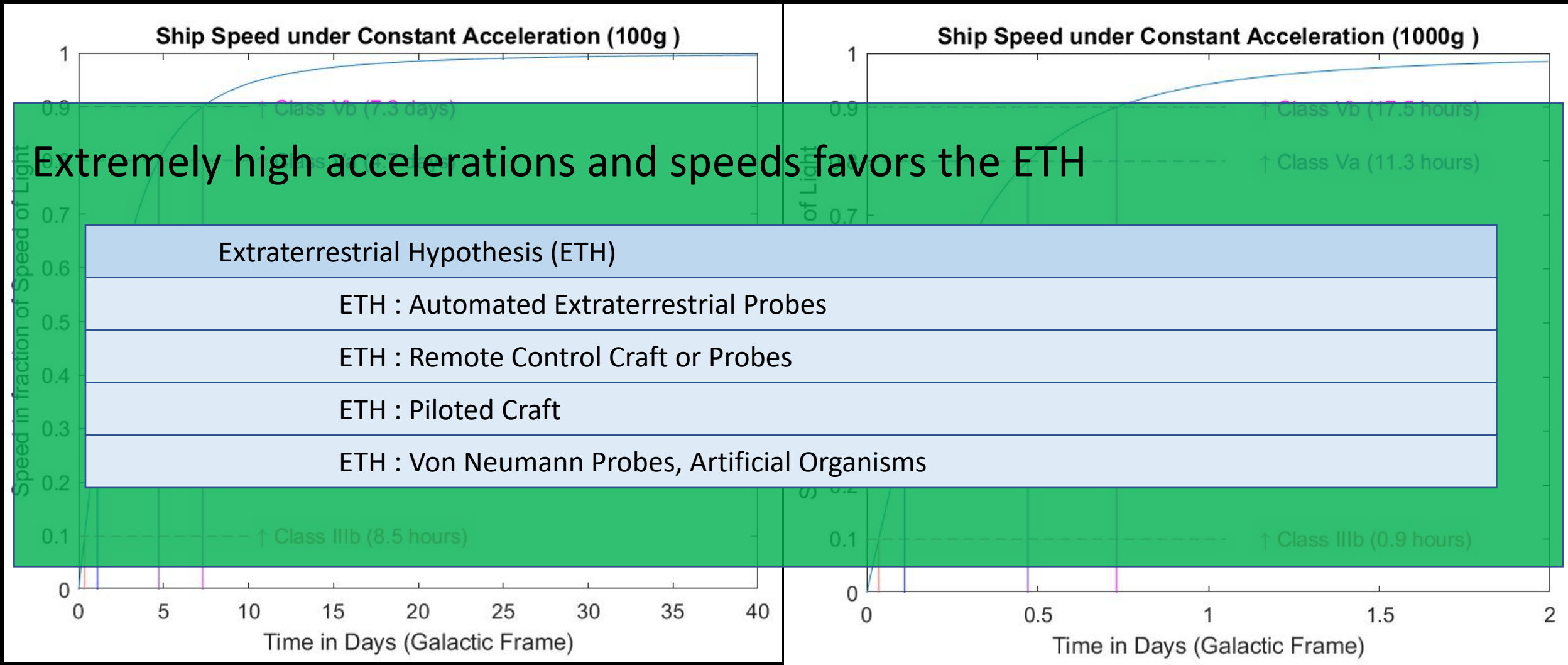
DIFFICULTY: ERROR IN DATA?

$Pr(D | Error, I)$

Consequences of High Acceleration



Consequences of High Acceleration



Extremely high accelerations and speeds favors the ETH

Luminosity

Extreme Luminosity

Some UAP are EXTREMELY luminous, so much so that many of the photographs are difficult to imagine and interpret.



Canadian Rockies near Macleod, Alberta
Royal Canadian Air Force pilot
R. J. Childerhose on Aug. 27, 1956



Salem Massachusetts Air Station (USA)
Coast Guardsman Shell R. Alpert on
July 16, 1952



Holloman Air Development Center,
New Mexico USA, Oct 16, 1957

Luminosity Estimates

Dr. Bruce Maccabee studied the 1956 Royal Canadian Air Force photograph.
The results were summarized and reported by Dr. Jacques Vallee



Canadian Rockies near Macleod, Alberta
Royal Canadian Air Force pilot
R. J. Childerhose on Aug. 27. 1956

The radiance of the object is given by

$$L_o = \frac{4}{\pi} E_i (f\#)^2 \frac{\exp \left[\frac{\tau_{raf} - \tau_{uap}}{\cos \alpha} \right]}{T (\cos \beta)^4}$$

where $E_i = H/t$ is the irradiance dependent on the measured exposure level H and the shutter time t

$f\#$ is the f-stop

τ is the optical thickness of the atmosphere

α is the angle of the line-of-sight to the vertical

β is the off-axis angle of the UAP

Luminosity Estimates



Canadian Rockies near Macleod, Alberta
Royal Canadian Air Force pilot
R. J. Childerhose on Aug. 27. 1956

With a measured exposure level of

$$H = 10^{-4} \text{ J/cm}^2$$

and a shutter time of about

$$t = \frac{1}{125\text{s}} = 0.008\text{s}$$

the radiance was estimated to be

$$L_o \approx 2\text{W/sr/cm}^2$$

Given an estimated distance between
6 and 20 km, the luminous power output was
estimated to be between:

2,500 and 30,000 MegaWatts

Maccabee, B. Optical power output of an unidentified high altitude light source.
J. of Scientific Exploration 13, 2 (1999), 199-211.

Vallee, J. F. Estimates of the optical power output for six cases of unexplained aerial objects.
In The UFO enigma: A new review of the physical evidence, P. A. Sturrock, Ed. Warner Books, 1999.

Luminosity Estimates

While other luminous power estimates (Vallee 1999) range from tens of kiloWatts to 500 megaWatts, luminous power up to thousands of megaWatts is shocking.

These powers are, again, on the order of those from nuclear power plants. As in the case of maneuvers, this rules out natural phenomena and human tech.

An engineer ought to ask:

What is the purpose of emitting hundreds to thousands of megaWatts of light ?

If this is a merely a byproduct of the propulsion system, then it is shocking (and telling) that wasting megaWatts of power is an acceptable loss!

Vallee, J. F. Estimates of the optical power output for six cases of unexplained aerial objects.

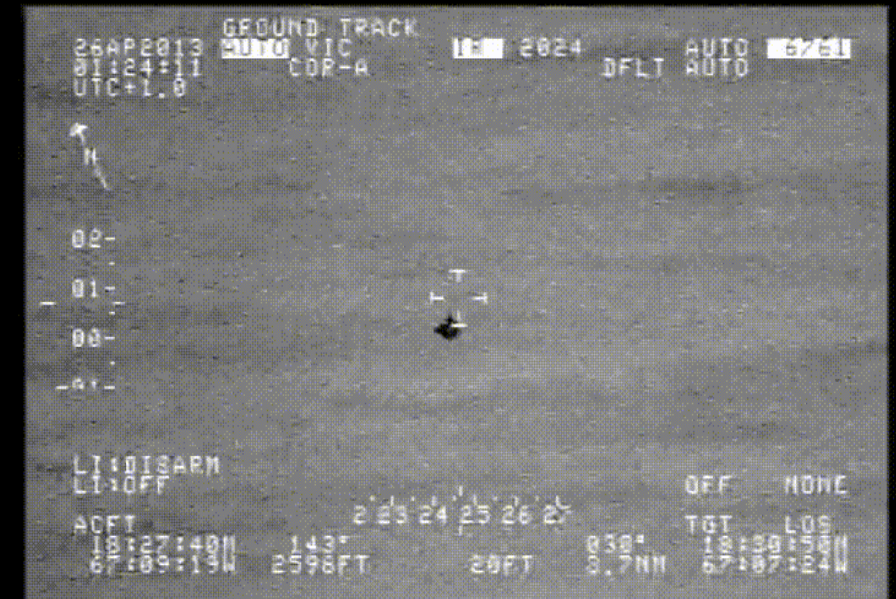
In The UFO enigma: A new review of the physical evidence, P. A. Sturrock, Ed. Warner Books, 1999.

Trans-Medium Travel

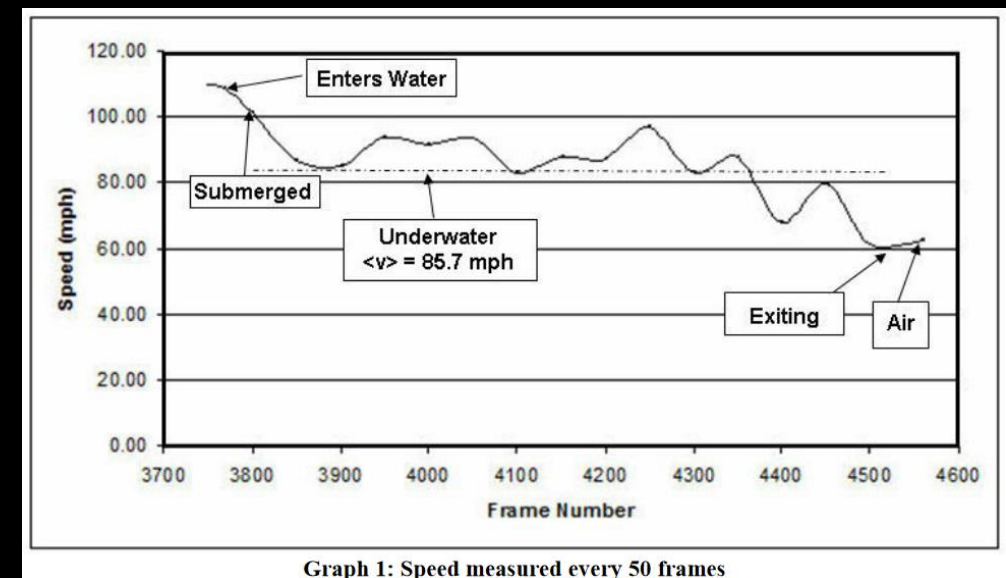
Trans-Medium Travel

UAPs can travel effortlessly in **multiple media**

Insignificant change in speed



The Aguadilla UAP appears to enter the water at a speed of just over 100 mph, and continues traveling through the water at about 85 mph



Graph 1: Speed measured every 50 frames

US Homeland Security, Aguadilla, Puerto Rico. April 26, 2013

<https://www.explorescu.org/post/2013-aguadilla-puerto-rico-uap-incident-report-a-detailed-analysis>

Trans-Medium Travel

Trans-medium Travel of UFOs has been observed and recorded for **over 140 years!**

Date	Location	Observers	Medium	Event
May 15 1879	Persian Gulf	Ship Vultur	A	Two large spinning wheels (40 m diam)
1880	Persian Gulf	Ship Patna	A	Two large spinning wheels
March 1887	?	Dutch Barkentine	A -> W	Two strange objects fall into the sea
Nov 1887	Cape Race Newfoundland	Published in L'Astronomie	W -> A	Object emerges from water, hovers near ship and speeds into the sky
1902	?	Ft. Salisbury	A - > W	Unknown object goes into the sea
June 3 1909	Malacca Strait	Danish Steamer Bingtang	W	Large Luminous Spinning Wheel Surfaces
June 16 1909	Don Hoi China	Four Fishermen	A -> W	Luminous UFO flew over city the dropped into Sea several miles off the coast
Aug 12 1910	South China Sea	Dutch Ship Valentijn	W	Large spinning wheel close to surface

Trans-Medium Travel

Trans-medium Travel of UFOs has been observed and recorded for **over 140 years!**

Trans-Medium Travel Rules Out Both Natural Phenomena and Human Tech

Date	Location	Observers	Medium	Event
May 15 1875	Persian Gulf	Ship Vultur	A	Two large spinning wheels (40 m diam) 28,000 ft
Natural Phenomena				
March 1887	?	Dutch Barkentine	A -> W	Two strange objects fall into the sea
Artificial Phenomena				
1902	?	Ft. Salisbury	A -> W	Unknown object goes into the sea
June 3 1909	Malacca Strait	Danish Steamer Bingtang	W	Large Luminous Spinning Wheel Surfaces
June 16 1909	Don Hoi China	Four Fishermen	A -> W	Luminous UFO flew over city into Sea
Aug 12 1910	South China Sea	Dutch Ship Valentijn	W	Large spinning wheel close to surface

Landings
and
Physical Traces

Prominent Landings

Farm outside Delphos Kansas USA, Nov 2, 1971

UFO hovered above the ground leaving physical traces

Westall High School, Melbourne Australia, April 6, 1966

Many students and a teacher witness a UFO land near the schoolyard

South Korea, Two UFOs observed to land near a school in 1973

- *Yu and Maeng – Limina Inaugural Symposium 2023*

COMETA Report presents four CEPAN/SEPRA studies of landings, some accompanied by beings, leaving physical traces, such as marks from the landed craft, footprints, and in one case damage due to high electric fields and the smell of sulphur.

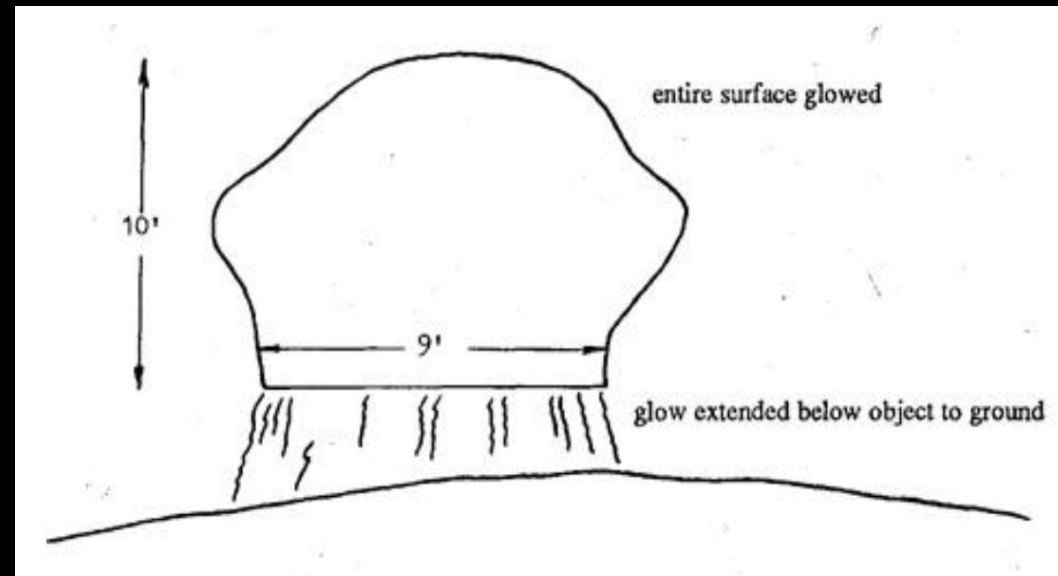
Delphos Kansas Farm Landing 1971

On Nov 2, 1971, Ronald Johnson was tending sheep when he heard a loud rumbling and saw a large object 75 feet away with a blue, red, and orange glowing surface. The object was hovering just above the ground. He observed a bright glow between the object and the ground.

After several minutes the UFO moved away passing over a shed where it became brighter and made a noise like a jet engine. Ronald then momentarily lost his sight.

He went to tell his parents, who came and saw the UFO at some distance. The UFO was also reported by a reserve police officer who called the sighting in to his base.

Extensively studied by Dr. Erol Faruk



Delphos Kansas Farm Landing 1971

Upon investigating the area where the UFO hovered, they found that there was a glowing ring on the ground, and that some of the leaves on the trees were also glowing.

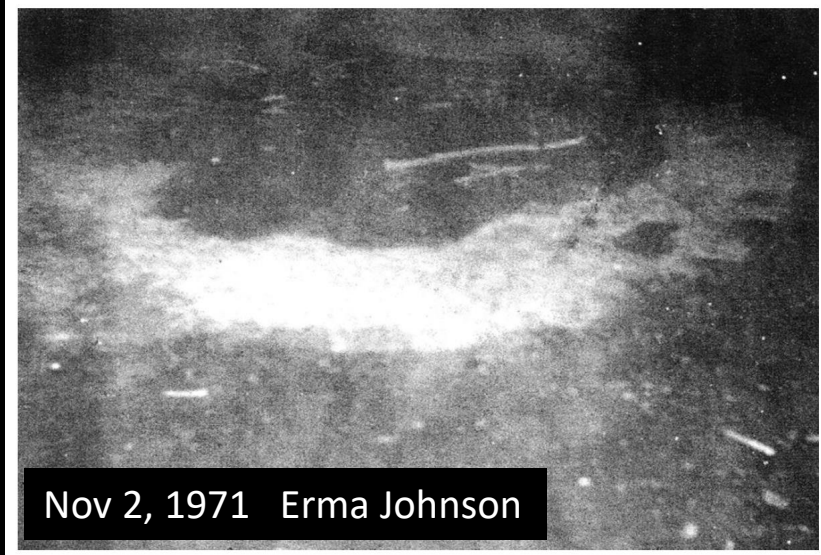
Erma Johnson ran to get a Polaroid 104 camera and took a photo of the glowing ring (top image).

On touching the ring, it felt as if there was a crystalized crust on the soil.

The soil had an unusual odor, and when touched produced a sensation similar to an anaesthetic, which had some persistence.



Delphos Kansas Farm Landing 1971



Nov 2, 1971 Erma Johnson



Dec 14, 1971 Ted Phillips (MUFON) with snow



Nov 3, 1971 Police Officers 10 Hours After the Event

The ring persisted over time.

The ring material was extremely hydrophobic extending to a depth of 14 inches.

Contains oxalic acid, as well as Higher amounts of potassium (4x), copper (2.5x), and manganese (11x) over control soil possibly account for the chemoluminescence

Faruk, E.A., 1989. The Delphos Case: Soil Analysis and Appraisal of a CE-2 Report,,. *Journal of UFO Studies*, 1, pp.41-65.

Phillips, Ted. *Landing Report from Delphos*. *Flying Saucer Review (Case Histories)*, No. 9: 4-10. 1972

Swords, Michael. *Soil Analysis Results*. *Journal of UFO Studies (JUFOS)*, New Series 1991, Volume 3, 115-133.

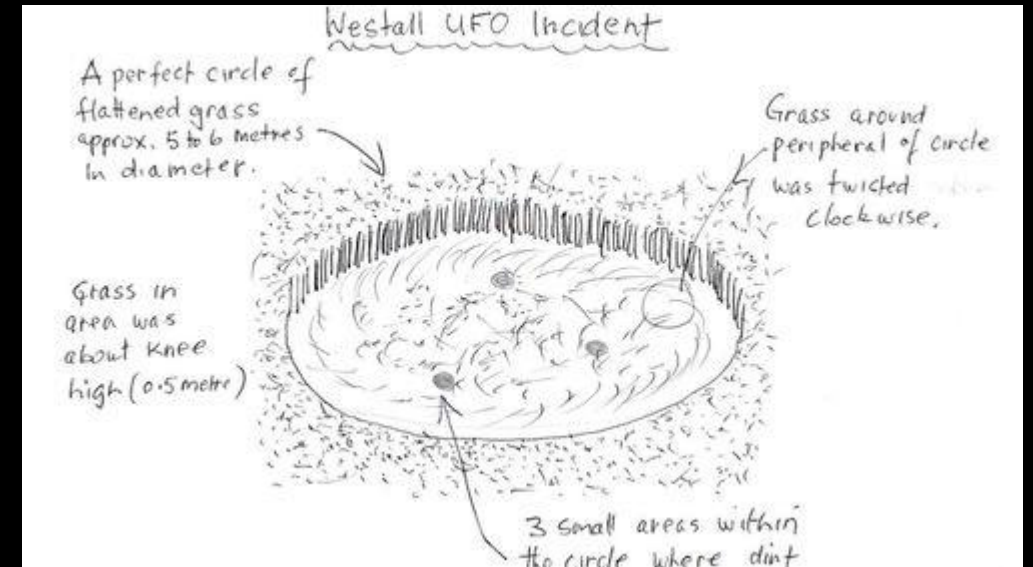
Westall Schoolyard Landing 1966

On April 6, 1966, 200 students and teachers at Westall High School in Melbourne Australia witnessed a 1 to 3 silver flying disks fly over the school, descend and land in a patch of trees just beyond the school property.

Two disk landed leaving circles of flattened, partially scorched grass after they took off.

Three girls went over the fence to find the UFO.

About 40 minutes later, army and air force personnel arrive and cordon off the area. One of the teachers, Mr. Greenwood, sneaks into the area to see military Personnel with equipment around the landing circles.



IF some UAPs are advanced non-human craft, then it stands to reason that the possibility exists that some may have encountered this non-human intelligence.

Numerous reliable accounts suggest that this has indeed occurred.

Moreover, these accounts give additional credence to the hypothesis.

Purported Encounters with Non-Human Intelligence Associated with UAPs

“It is difficult for any witness of something so strange to come forward”

---Randall Nickerson

Purported Encounters with Non-Human Intelligence Associated with UAPs

Boianai Mission UFO Encounters: Papua New Guinea, June 26-27, 1959

~40 people witness a UFO with four “men” standing on an exterior deck.

Socorro Landing: Socorro New Mexico USA, April 24, 1964

Sergeant Zamora witnessed a craft with two small people.

Ariel School Landing and Encounter: Ruwa Zimbabwe, Sept. 16, 1994

~62 children witness at least one craft and interact with entities.

Boianai Mission UFO Encounters: Papua New Guinea, 1959

In June 1959 UFOs were seen for several nights near Mount Pudi and the Boianai Mission in Papua New Guinea.

On June 26, Anglican Priest, Father Gill and several teachers and parishioners (38 in all) saw a large disk hovering about 100 meters off the ground. It had four legs, portholes, and what appeared to be a deck on the upper surface. Occasionally a shaft of blue light was emitted upward at 45 degrees.

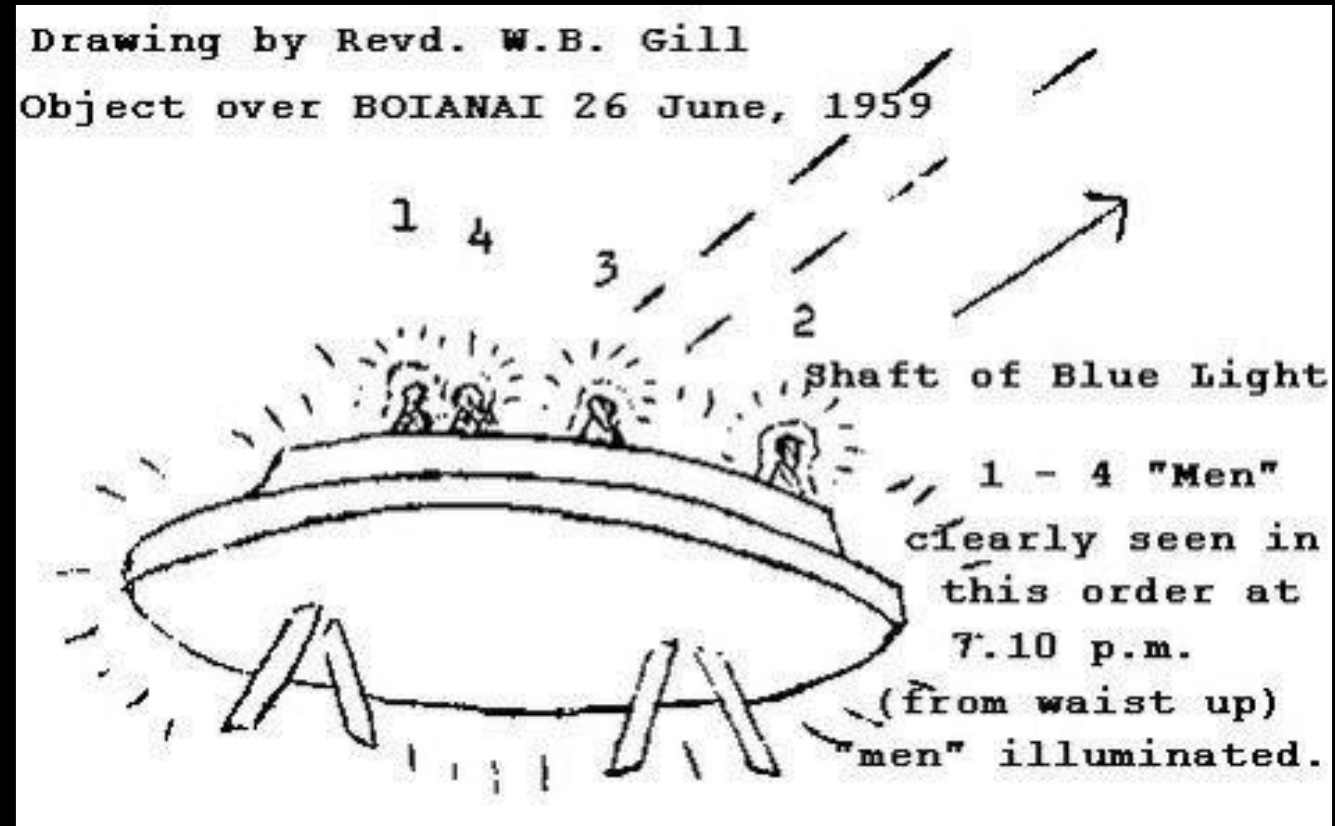
Several men came out onto the upper deck.

Observations lasted for about four hours.

The object was seen again the next night with two smaller UFOs.

Four small men came onto the deck and appeared to be working.

At one point Father Gill and others waved, and the four men waved back!



<https://www.youtube.com/watch?v=4I75neaOIGE>

Socorro NM Landing 1964

On April 24, 1964, Officer Lonnie Zamora witnessed an egg-shaped object land in an arroyo south of the town Of Socorro New Mexico.

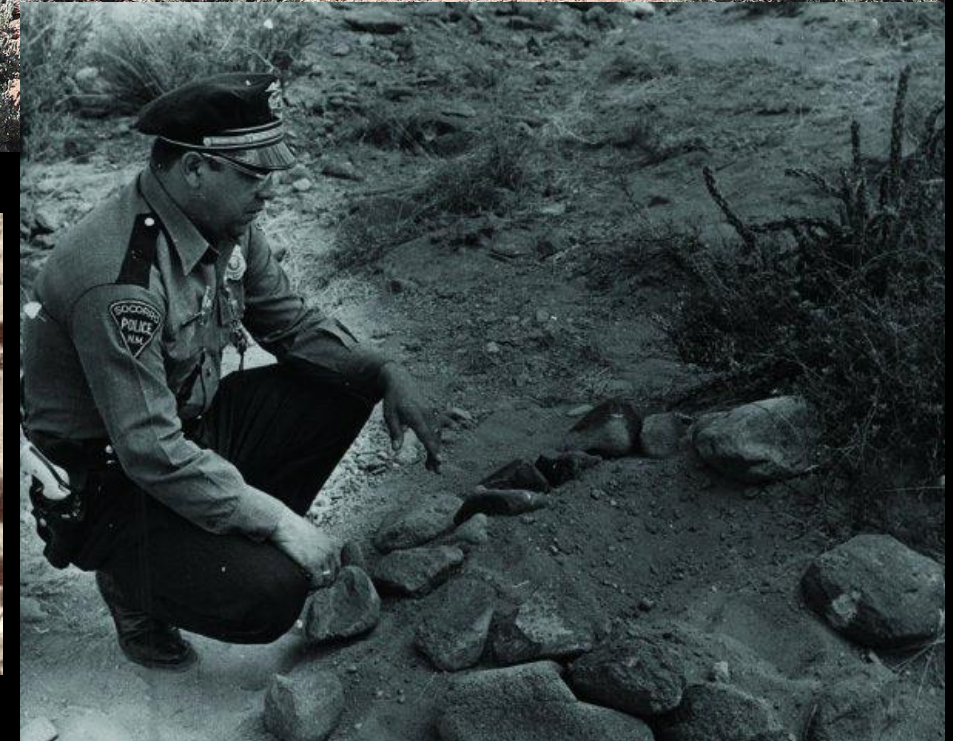
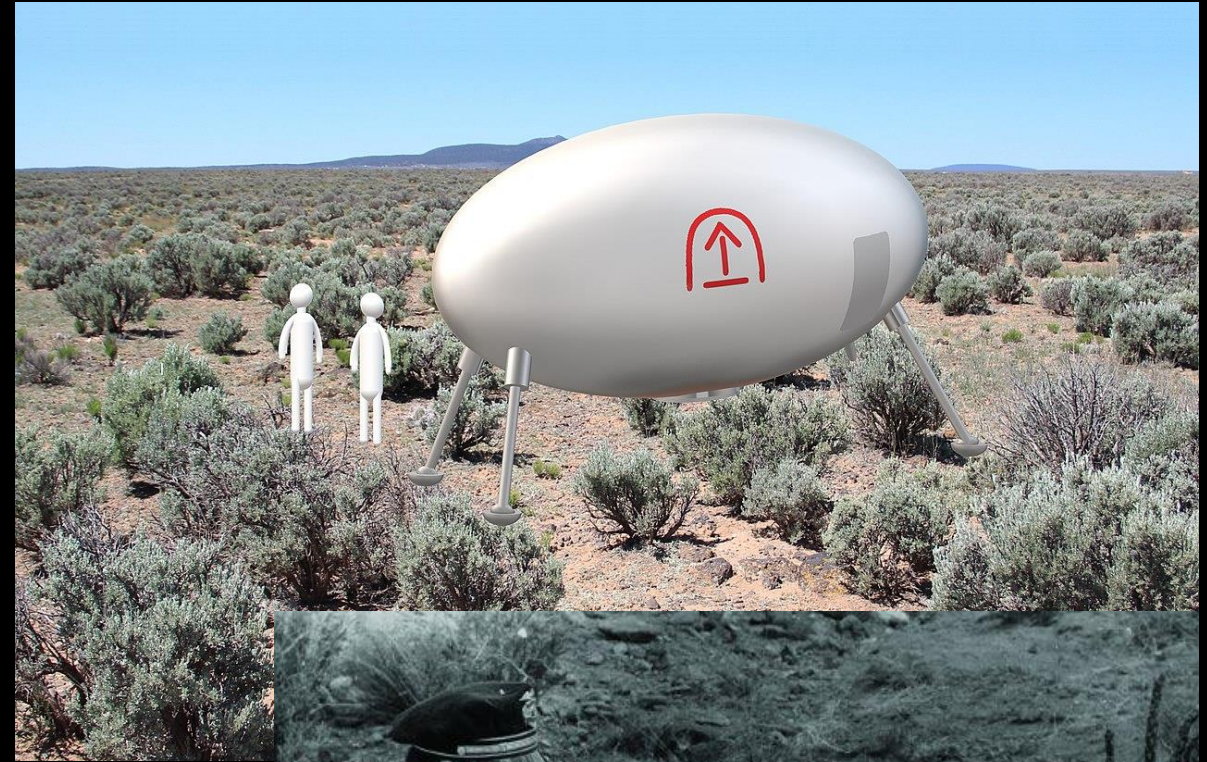
The object was seen in flight by 5 nearby tourists.

Officer Zamora investigated and approached to a distance of about 50 feet and saw a large white craft with a red insignia.

He briefly saw two small people in white near the craft.

The craft then emitted a loud roar with a blue and orange flame as the object lifted off the ground Before taking off at high speed.

The event left physical traces, such as marks from the landing pads, burning vegetation and scorched earth and rocks.



Socorro NM Landing 1964

The physical evidence at the Landing Site enables one to estimate the mass of the craft, as well as the mass of the occupants.

Dr. Coumbe's Limina 2023 Talk presents his careful analysis of the ground impressions of the craft's landing pads, and footprints left by the beings.

$$M_{UAP} = (1789.7 \pm 509.2) \text{ kg}$$



$$M_{2\text{legs}} = (41.9 \pm 16.8) \text{ kg}$$

↑
Assuming bipedal humanoid
(per Zamora's statement)

Standardized height and weight conversion
chart 4' 10" (148 cm).
Height of a typical 11-year-old boy.

Dr. Daniel Coumbe's Limina 2023 Presentation

Ariel School Encounter 1994

On Sept 16, 1994 one or more Silver Craft landed near the Ariel School in Ruwa, Zimbabwe.

The event was witnessed by more than 60 school children.

Small humanoid beings approached the children and communicated telepathically.

Details of the reports are strange with the craft changing positions, beings moving as if in slow motion, disappearing and reappearing, or running as if in a loop.



Ariel School Encounter 1994

Photographs of Physical Evidence of the Landing
by Investigator Gunter Hofer

Event investigated by Cynthia Hind and Gunter Hofer,
documented by BBC correspondent Tim Leach,
and Prof. John Mack

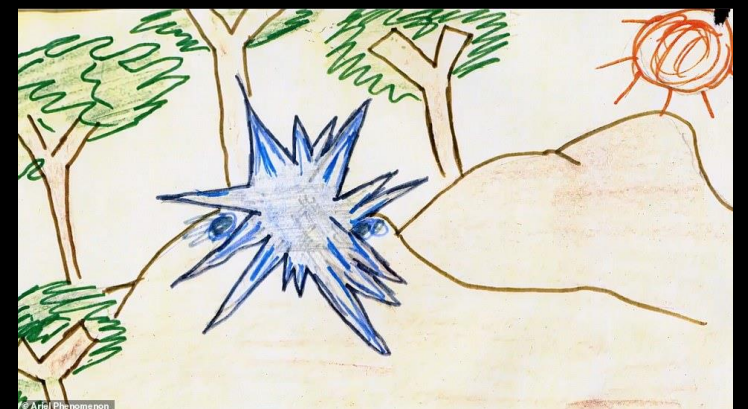
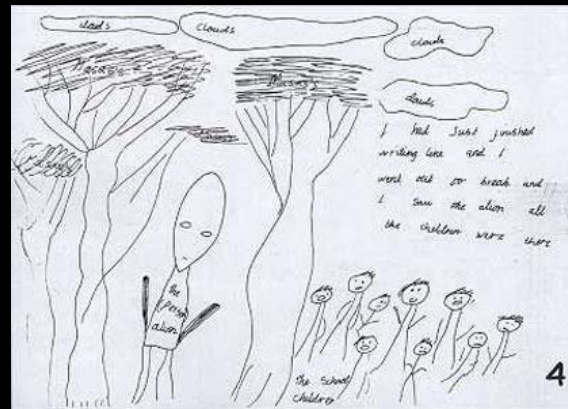
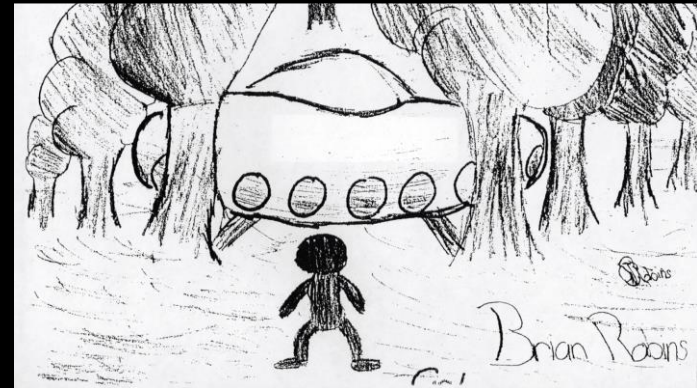
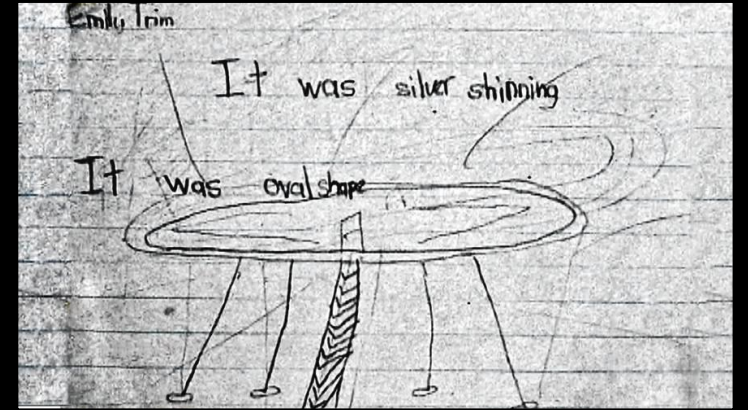
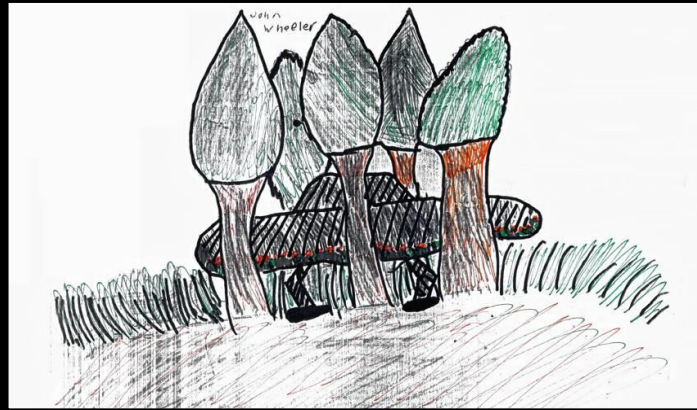
Documentary by
Randall Nickerson

ARIEL
PHENOMENON
<https://arielphenomenon.com/>



Ariel School Encounter 1994

Drawings of the Landed Craft and Beings



Ariel School Encounter 1994

“You have to see it to believe it.

If somebody is a staunch believer that it is not, how is me telling them my experience going to change what they think?

It will change what they think about me.
Its not going to change what they think about the universe.
And I don't need that.

But with 60 of us all saying it together, that will change what that one person thinks about the universe.”

--- Emma Kristiansen

1994 Ariel School Landing Witness



Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Other Hypotheses

Falsehoods

Errors

Potential UAP Hypotheses

Natural Phenomena

Artificial Phenomena

Non Human Technology (NHT)

Extraterrestrial Hypothesis (ETH)

ETH : Automated Extraterrestrial Probes

ETH : Remote Control Craft or Probes

ETH : Piloted Craft

ETH : Von Neumann Probes, Artificial Organisms

Non-Humans from Earth

Other Hypotheses

Falsehoods : Exaggerations, Hoaxes

Errors : Malfunctions, Mis-Calibrations, Mistakes

Conclusions

UAPs are a CLASS of PHENOMENA – apparently varied and complex

We should expect **confusion and conflation** of similar, yet different, phenomena

**We NEED many examples of independent data sets with multiple instruments
(multi-messenger, multi-modal)**

We cannot ignore witness testimony – **Handle with Care!**

We cannot ignore witness accounts of High Strangeness – **Important Clues!**

Some UAP are partially identified by witnesses as Non-Human Craft

Supported by Extreme Accelerations and Speeds – without signature

Supported by the extreme observed power – both maneuvers and luminosity

Supported by Multi-Media Travel – witnessed many times for over a century

The Scientific Community must accept that the Non-Human / Extraterrestrial Hypotheses are not unreasonable – **of course MORE evidence is needed!**

ETH is not just possible, but PROBABLE!

Must Confront the Copernican Principle AGAIN!

“with ... us all saying it together, that will change
what that one person thinks about the universe.”

--- Emma Kristiansen

Bibliography

Bloecher, T., 1967. Report on the UFO Wave of 1947. Washington, DC: Ted Bloecher.

Coumbe D. 2022. Anomaly, Rowman & Littlefield Publishers, Wash DC

Faruk, E.A., 1989. The Delphos Case: Soil Analysis and Appraisal of a CE-2 Report,,,. *Journal of UFO Studies, 1*, pp.41-65

Knuth, K. H., Powell, R.M., and Reali, P.A. 2019.

"Estimating Flight Characteristics of Anomalous Unidentified Aerial Vehicles“, *Entropy* 21, no. 10: 939.
<https://doi.org/10.3390/e21100939>

Maccabee, B. 1999. Optical power output of an unidentified high altitude light source.
J. of Scientific Exploration 13, 2, 199-211.

Phillips, Ted. *Landing Report from Delphos*. *Flying Saucer Review (Case Histories)*, No. 9: 4-10. 1972

Swords, Michael. *Soil Analysis Results*. *Journal of UFO Studies (JUFOS)*, New Series 1991, Volume 3, 115-133.

Vallee, J. F. 1999. Estimates of the optical power output for six cases of unexplained aerial objects.
In *The UFO enigma: A new review of the physical evidence*, P. A. Sturrock, Ed. Warner Books, 1999.