## Have We Been Visited?

#### **Bracewell Probes**

Unmanned Orbit around another star Wait for civilization to appear Establish contact Radio results to Earth

Is there a Bracewell Probe in Solar System? Long-delayed echoes (1- 30 sec) Duncan Lunan 1973

- → Epsilon Boötes (Binary star)
- → Contact attempted now discounted

If use Daedalus technology (fusion)  $R_M = 150$  (need to decelerate)

## Visits in the Past?

- In historical times?
- Erich von Daniken is most famous promoter
  - Pyramids, precision stone work
  - Drawings on Nazca plain
  - Easter island statues
  - Note western bias
    - No need for aliens to help with Stonehenge

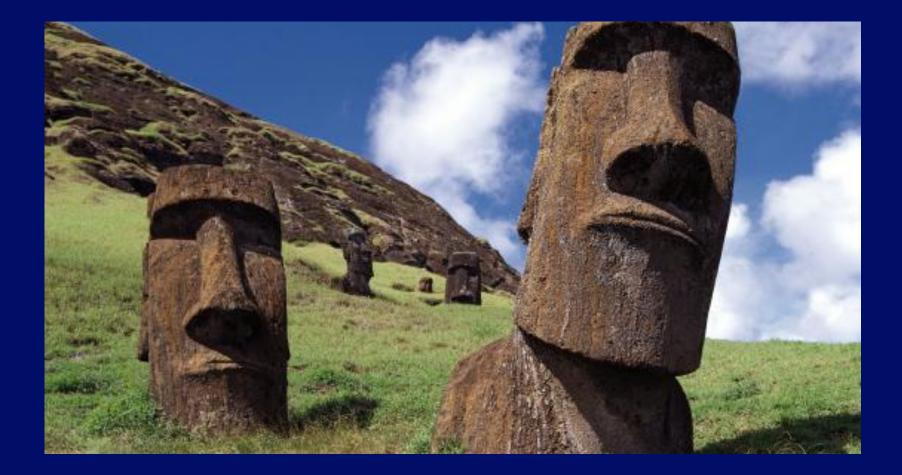
# Pyramids



# Figures on Nazca Plains of Peru



# Easter Island Statues



## Ongoing visits?

- Flying saucers (after WWII)
- Neutral term: Unidentified Flying Objects (UFOS)
- Evidence is primarily anecdotal

## Reliability

e.g. Night advertising aircraft

< 10% correctly described these

 $\Rightarrow \quad \text{Unreliable witnesses} \Rightarrow \text{ some ordinary} \\ \text{objects will fall into UFO category}$ 

# Statistics of UFO cases 90% of UFOs eventually identified (IFO)

No difference between UFOs and IFOs in time of day, duration, age or gender of witness, occupation, or UFO interest

Both UFO and IFO incidents involve people who, on average, are much more interested in UFOs.

## **Statistics of UFO belief**

"UFOs are extraterrestrial visitors"
40 - 50% of people nationally
Previous 309L classes\_\_\_\_Yes (before class)
UFOs exist?
68%
40 - 50%
If Yes, controlled by E.T.?
76%
45 - 55%

Expect this class to attract more believers, <u>BUT</u> Austin also seems more credulous Student polls 1983, 1995 ~ 80% Believe in UFOs Education: High School or Less Doctorate or Working on it 62% 88%

50% believe Government covers up UFO evidence

## What we Believe

		1983	1995
1.	ETs are friendly	84%	53%
		1995	
2.	ETs are friendly	males	females
		47%	58%

3. By ethnicity

	Asian-Am	African-Am	Hispanic	White
Believe in UFOs	35%	61%	77%	81%

### Attitudes of Scientific Community

Generally much more skeptical Repeated studies found no evidence of alien connection 2 studies suggested UFOs worthy of further research

- Allen Hynek
   → Categories
- 2. Stanford Panel 1997
  Peter Sturrock, von Eshleman, Thomas Holzer
  "Deserves Scientific Study" but no evidence of
  "involvement of an extraterrestrial intelligence"

# **Categories of UFOs**

- 1. Nocturnal lights Clear weather, usually 8-11 PM
- Daylight Disks Usually disks, some cigar shaped
- Radar-visuals
   Detected by radar as well
- 4. Close encounters

  First Kind UFO seen closer than 500 feet
  Second Kind Physical effects burnt vegetation,
  electrical problems
  Third Kind Observation or encounter with Aliens
  A. Hynek

## **Detection of Alien Spacecraft**

Matter-antimatter annhilation  $\rightarrow \gamma$ -rays We have  $\gamma$ -ray detectors on satellites

- Military to watch for nuclear tests reported γ-ray bursts from space
- 2. NASA satellite: Gamma-ray observatory (GRO) was in orbit from 1991 to 2000 could detect annihilation 0.02 grams  $\left(\frac{R}{1AU}\right)^2$ sec  $\left(\frac{R}{1AU}\right)^2$
- ⇒ No spacecraft decelerating within 1 AU with mass of ship exceeding 90 grams since 1991.

Assumes electron-positron annihilation for specific numbers

#### Case Study: The Roswell Incident

1947Rancher finds strange debris<br/>Rumors of "flying saucer"<br/>Attributed to weather balloon

1978 Marcel (Intelligence officer at AFB in 1947) Talks to <u>Inquirer</u> → big UFO interest Claims of Exotic Matter (originally balsa wood, tin foil, rubber, tape, paper) Claims (& movies) of Alien Autopsy Claims of a Government cover-up

### Case Study: The Roswell Incident

~ 1994 -1995 Congressional inquiry → GAO

USAF finally tells the story

<u>Project Mogul</u> High altitude balloons to "listen" for nuclear bomb detonations (it did detect 1st Soviet bomb - 1949)

But winds  $\rightarrow$  pushed balloons out of range  $\rightarrow$  discontinued in 1950

One tracked to near where debris found - then contact lost

Photos of debris match description of Mogul balloons

Secrecy  $\rightarrow$  Conspiracy theories

# UFO Pictures...





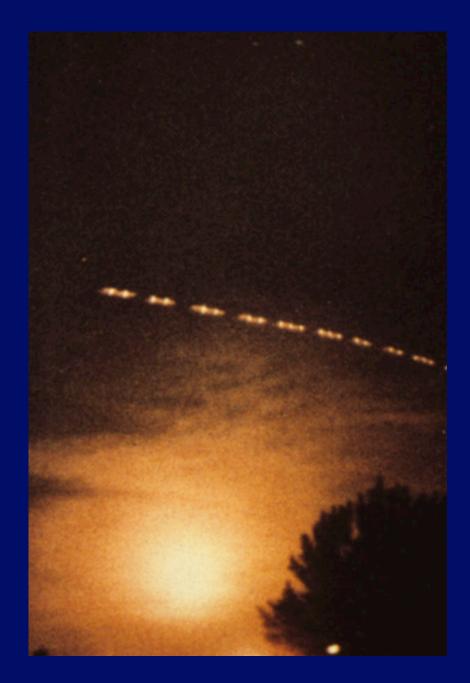


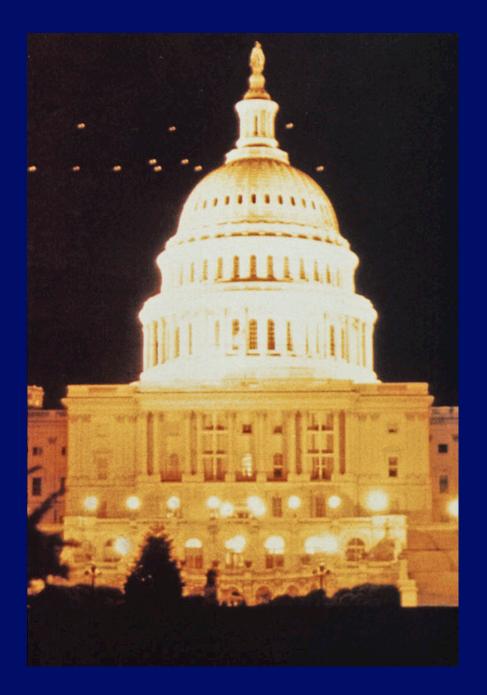






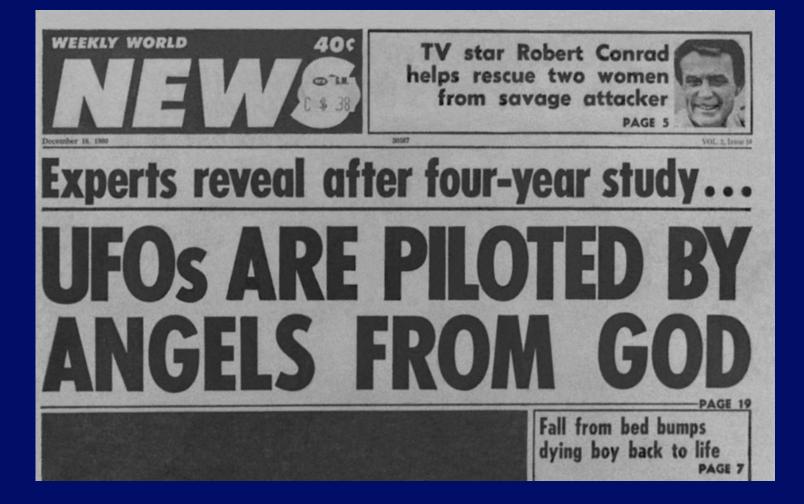












# Arriving for SXSW!

