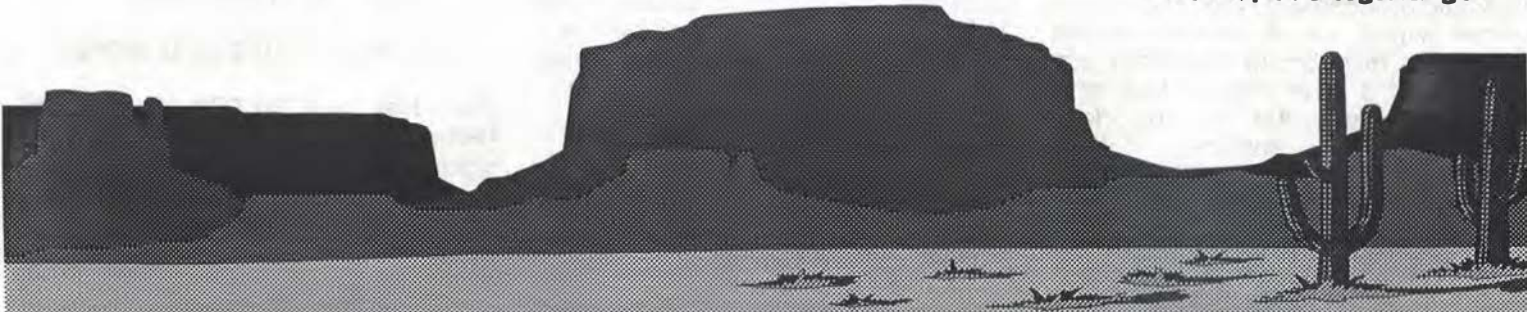




# MUFON

Mutual UFO Network

**UFO HOTLINE:**  
**1-800-UFO-2166**  
(to report sightings)



**MEETING DATE: Wednesday, March 26, 1997 • MEETING TIME: 7:30 p.m. SHARP**  
**PROGRAM: RICHARD MOTZER: MYSTERIES OF THE APOLLO MISSION TO THE MOON AND**  
**UPDATE TO CURRENT RASH OF UFO SIGHTINGS OVER ARIZONA**  
**LOCATION: 5636 E. McDowell Road - National Guard Armory**  
(East of 52nd St. on McDowell; then North on Bushmaster Blvd. into Armory)

<b>Tom Taylor</b> State Director 602/967-6265	<b>Bill Hamilton</b> Asst. State Director 602/404-7566	<b>Jim Ossipov</b> Maricopa Co. Sect. Dir. 602/752-2280	<b>Bill Hamilton</b> Field Investigator 602/404-7566	<b>Earlene Ford</b> Media Representative 602/375-1942
<b>June Scherrer</b> Pima County Sect. Dir. 520/326-0078	<b>Bobbie Jones</b> Yuma County Sect. Dir. 520/627-2461	<b>Mary Hart</b> Newsletter Producer 602/907-0609	<b>Herb Funston</b> Cochise Co. Sect. Dir. 520/378-3024	<b>Mike Hayes</b> Mojave Co. Sect. Dir. 520/692-1233

## DIRECTOR'S MESSAGE

MUFON Field Investigators all over the state have been getting a real workout this past week. Sightings have been coming in off and on for a week, mainly daylight discs, seen over west Phoenix.

Then on Thursday the 13th I got a couple of calls in the early evening referred to me by the UFO Reporting Center in Seattle, WA. At nearly 11:30 p.m. Peter Davenport from the Seattle Reporting Center called me himself to tell me they had received some 18 reports at that time from Paulden, Prescott, Glendale, Phoenix, Tempe and Apache Junction, reporting odd lights in the night sky.

More reports are coming in right now, and we hope to have some sort of report to give at this month's meeting. Hats off to Bill Hamilton, Richard Motzer, Jim Ossipov, and Alan Morey for following up on the reports. If anyone out there sees any articles in the paper concerning this case, please drop them in the mail to me, especially non-valley residents.

To kill one rumor, there is no evidence that F-15s were scrambled from Luke Air Force Base to pursue the UFO over downtown Phoenix! It also does not appear that the sighted objects were the Blue Angels making an appearance in Phoenix, based on eyewitness accounts, including that of the Yavapai County Sheriff's Department. The location of the Blue Angels on the dates in question can be specifically verified by a few phone calls.

Many thanks to all of you for your kind words with the recent passing of my mother.

Now -- more than ever -- keep your eyes to the sky!

Tom Taylor  
State Director

## HALE-BOPP COMET WATCH

We have organized an outing to view the Hale-Bopp comet on Saturday, March 29. We will gather before 6:30 p.m. at the McDonald's restaurant at 51st Ave. just north of Interstate 10. We will leave McDonald's for the watch site

promptly at 6:30 p.m., so be at McDonald's in plenty of time! We will be heading west of the White Tank mountains to have as little city light pollution as possible for the viewing. Call Bill Goodman, 272-6696 or 272-5390 if you have any questions.



## Media Watch

by Tom Taylor

The local Phoenix TV stations have all done a good job of reporting on the current wave of UFO sightings over Arizona. MUFON has gotten its name publicized in a good light!

The March issue of Fate magazine has an interesting article by MUFON's reporter in South Africa, Cynthia Hind, entitled "Aliens at Ariel School" which concerned a spacecraft which landed in a schoolyard in South Africa. Dr. John Mack went to investigate this case. Sixty-two children were interviewed and were asked to draw pictures of what they saw!

Several articles, some on the front page, have appeared both in the



Mesa Tribune and the Arizona Republic concerning the Hale-Bopp comet (which we observed with the naked eye from South Mountain just after dark a few nights ago and which is very visible on any clear morning before sunrise). Fate magazine also carries a similar article. Look elsewhere in this newsletter for details about our outing to view Hale-Bopp at the end of the month.

In the interest of keeping the UFO topic before the public, the following is a list of programs on the subject recently aired via television, radio and newspaper in recent weeks. We will attempt to list programs ahead of time whenever possible; unfortunately, we are often not notified of programs until it is too late to publish them in the Newsletter in time for members to view, hear or read them. In the case of TV and radio programs, ask at MUFON meetings to see if anyone is aware of someone who may have taped them to share.

***Always be sure to check current TV listings before viewing!***

Mike and Roger Bollinger put out an interesting quarterly publication called UFO Update. To subscribe to this publication, or for more information, call (602) 494-9279.

#### **WEEKLY RADIO PROGRAMS:**

DREAMLAND - KFYI Radio, 910 AM, Sunday evenings, 8:00 p.m. - Art Bell hosts this interesting radio program. The program is aired on the following stations in other cities in Arizona: Globe: 1240 AM; Safford: 1230 AM; Tucson: 1400 AM; Kingman: 1230 AM; Yuma: 560 AM; and Flagstaff: 600 AM. Art also hosts "Coast to Coast" weeknights at midnight and often features UFO related guests and/or topics. A "Dreamland" repeat is also broadcast at 8 p.m. on Saturdays.

Erskin Overnight, KXAM Radio, 1310 on the AM dial, Saturdays from 11 p.m. to 1 a.m.

UFO-AZ Radio Show - In the Tucson area on KTUC, 1400 AM, 10:00 p.m. Sundays (after "Dreamland").

Mysteries Around Us, KTAR Radio (620 AM), 12 midnight Saturday and 12 midnight Sunday, hosted by Frank Baranowski, a well-known hypnotherapist specializing in regression.

#### **WEEKLY TV PROGRAMS:**

Jim Dilettoso hosts a UFO-related 15-minute program on Channel 10 at 8:45 a.m. Wednesdays.

UFO AZ/UFO TALKS: Scottsdale TCI Cable, Channel 28, Thursdays, 4:00-5:00 p.m. and Channel 22, Dimension Cable, Monday and Tuesday at 9:00 a.m.; now also in Prescott on Channel 13 Friday nights at 9 p.m. and repeated on Tuesday at 3 p.m. Co-produced by Alan Morey. Ted, Peggy and Jim co-host this continuing series featuring interesting guests and topics related to all aspects of the UFO experience.

Unsolved Mysteries - Fridays at 7:00 p.m., Channel 12.

X Files - Sundays at 8:00 p.m., Channel 10.

Sightings (cable only - SciFi Channel) moved to **Wednesdays, 8 p.m. and 12 midnight** according to a MUFON member and viewer in California. Be sure to check your local cable guide for this broadcast.

Strange Universe - every weeknight at 10:30 p.m. on Channel 45.

Dark Skies, 7:00 p.m. Saturdays, Channel 12.

Late Night Cosmic Contact - Saturdays, 9:00 - 10:00 p.m., Channel 61 [TCI Tucson Public Access]. This new talk show features host Chris Maynard and guests who believe they have experienced contact with life from other worlds. Chris also examines national contact cases to evaluate facts, comparisons and trends of this growing phenomenon.

## **Classified Ads**

### **AD SPECIALTIES AND MORE!**

We offer over 50,000 personalized items. Pens, mugs, keychains, hats, shirts, etc.

In addition, try our top-quality graphic design, production, and printing services.

Discount to MUFON members. Call Roy Schott at (602) 954-0622 or e-mail Roy at Royschott@aol.com

*Hey out there -- be smart like our member Roy Schott and advertise in the MUFON-AZ Newsletter!! Ads up to three lines long are \$5.00; business-card sized ads are \$10 [we can reproduce your business card as the ad]. See Tom Taylor for prices on larger ads. Submit your ad and payment by the first of the month to have it appear in that month's newsletter issue.*

### **50 YEARS OF ARIZONA SIGHTINGS 1947-1997**

Jim Ossipov has an updated version of reported Arizona sightings since 1947. Copies may be purchased at MUFON-AZ meetings for \$5.00 or ordered by mail for \$6.50. Contact Tom Taylor for details.



Many thanks to those submitting articles and book reviews, and if you haven't done so, here's an invitation to add to YOUR newsletter by doing so. Handwritten articles and those typed on a typewriter are fine, but if you do have a computer, it saves a lot of time if you can submit your articles on diskette. However,

**MUFON-AZ WEB ADDRESS:** <http://www.idowebpages.com/mufon.html>

**MUFON (INTERNATIONAL) WEB ADDRESS:** <http://www.utgers.edu:80/~mcgrew/mufon/index.html>

**MUFON (INTERNATIONAL) E-MAIL ADDRESS:** [mufonhq@aol.com](mailto:mufonhq@aol.com)



PLEASE save your articles in Word-Perfect 5.1 software or in ASCII (DOS text) format and put your name on them. Then send them (either the hard copy or the diskette) to Tom at 1433 W. Huntington, Tempe, AZ 85282 or fax hard copy articles to Mary Hart at 907-0609. You can also send them via internet to her husband's internet address, which is: taz7211@ix.netcom.com

## Calendar

**Cochise County Chapter** - Meeting Saturday, March 22. 2-4 p.m., Sierra Vista Public Library (Mona Bishop Room), 2950 E. Tacoma St. in Sierra Vista. The library is next to the Community Center. Call 520/378-2845 or 520/378-3024 for further information if necessary.

**Pima County Chapter** - No April meeting. Next meeting will be May 10, 1997 (Saturday), 1 p.m. Tom Kelly will speak on Nikola Tesla. Call June at 520/326-0078 for more information.

**Yuma County Chapter** - Meeting Sunday, April 13, at Desert Lakes Clubhouse. Contact Bobbie Jones at 520/627-2461 for details.

**Maricopa County Chapter** - Meeting Wednesday, March 26, usual place and time (see page 1).

March 21-23: 5th Annual Gulf Breeze UFO Conference. For information call 904/432-8888 or Fax 904/438-1801 or write Project Awareness, P.O. Box 730, Gulf Breeze, FL 32562.

NOTE: The tentatively scheduled UFO & Alien Abduction Research Conference to be held in Reno, NV, which was formerly listed in this section is apparently NOT going to take place, according to Walt Andrus. Sorry for any inconvenience.

June 21-22: "The UFO Event of the Year" in North Haven, CT. Stanton Friedman and Dr. John E. Mack. Contact John White; 60 Pound Ridge Rd.; Cheshire, CT 06410 or phone 203/272-2151 or fax 203/250-0501.

June 26-28, 1997 - 18th Rocky Mountain UFO Conference, University of Wyoming, Laramie, Wyoming.

July 11-13, 1997 - 28th Annual MUFON International UFO Symposium, Amway Grand Hotel, Grand Rapids, Michigan. The theme of this symposium will be "The 50th Anniversary of UFOlogy."

August 15-17 - UFO Awareness Week. We will have our usual display in Christown mall. Further details will be announced as the time gets closer.

## *In Sympathy*

Some of our subscribing members may not be aware that Tom Taylor's mother passed away recently. We all extend our most sincere sympathy to Tom.

Mary Hart,  
Newsletter Producer

## BOOK REVIEW

Secret Vows: Our Lives with  
Extraterrestrials  
Denise Rieb Twiggs and  
Bert Twiggs

Berkeley, 1995, 278 pages;  
Appendix, Drawings and diagrams.  
\$5.50

Another *True Story of Awakening*. This one has a slightly different slant. The authors not only claim to have had an encounter but they claim a relationship with Extraterrestrials that is familial, physical, intimate, and -- if one can judge by the number of children produced by this menage-a-quatre -- prolific. In vivid detail they describe the giant mother ship four by five miles across with a dome extending a mile above it. It remains hidden behind the moon and contains a very much improved earthlike environment to which the couple are taken on periodic nightly visits to their alternate spouses and the children begotten of these celestial liaisons (these -- pardon the pun -- nocturnal missions).

The story tells of the awakening of their subconscious minds from 1989 to 1992 when they finally become fully conscious of the existence and presence of the "Andromes," aka ETs, in their lives

both on earth and (literally) in the heavens. The details remain in their subconscious and are only periodically revealed after a counsel of ET elders determines that the Twiggs have matured enough to be able to handle the shock of conscious awareness of these long-term ongoing relationships.

This manipulation seems to contradict one of the major premises of the story. According to the Twiggs, the Andromes' spiritual principles do not permit them to interfere with human conscious-level activity, but they certainly seem to deal a pretty rough hand to both the conscious and unconscious as in the following example. "On October 26, 1989, we received a full monitor change during our waking hours. (The ETs) . . . caused our monitors to release more of our suppressed memories into higher levels of our consciousness." (p. 162)

The Twiggs believe that, "... the conscious mind can dream while the unconscious mind can experience reality" (p.158). This, of course, is just the opposite of what most of us have believed, i.e., it is the unconscious which does the dreaming while the conscious experiences the reality, except of course in psychotic episodes. But it probably does account for some driving behaviors we have observed on our highways!

The visits to the mother ship and its smaller transport vessel do not seem to me to be the stuff of human free will. The encounter descriptions are like many others we have read or heard about, e.g., the classical symptoms of ET evolvment, marks on the head, vivid dreams, restlessness, nose bleeds, and missing time. Human resistance is met with an assertion of superior will and technology until the visits are deemed by the abductee to be ones of their own choosing. The Twiggs in fact reject the notion that these are "abductions," preferring instead the idea of voluntary, mutually (at least at the subconscious level) agreed-upon meetings.

For the ETs this is said to be an opportunity to assist the earthbound while adding some badly needed genes to their own DNA pool. Without the particular genes (which,



alas, not all humans are able to furnish) the ETs will perish. But in the heavenly law of non-interference under which The Divine allows interactions between humans and His creations from other planets, the Twiggs must, of their own volition, choose to offer this help.

We are told that the Andromes make love and marriage much as we do and that they have schools, religious centers (where, incidentally, they saw "Jesus" on several occasions), and the mother ship also contains architectural home styles which are somewhat dated by earth standards. Something from the 1930's or 40's, it would seem. The meeting ship as opposed to the mother ship is the typically described and drawn football shape on a tripod landing gear.

Implants in the Twiggs' heads allow the Andromes to observe the daily situation of the Twiggs without having to resort to apparently more intrusive telepathy for updates. A convenience apparently not offered to the humans who see only what they are allowed to see but who do report enhanced psychic ability. Groups of humans are brought together and given computer simulated disaster training for an as yet unknown event when some humans will be removed from the earth. Additionally, we are told, the Andromes can shrink their size, which is normally slightly smaller than humans.

The ET faces shown in the Twiggs drawings are not those universally beautiful people we see in our print and film idealizations of the perfect earthly human frame. In fact they appear rather more homely than you and I, which makes the Twiggs alleged voluntary attraction to them even more difficult to understand. Skeptics who suggest that all these encounter visions merely spring from our secret longings and subconscious fears will have to explain this one to me. I can't imagine dreaming up less attractive celestial partners to fall in love with and produce intergalactic progeny.

For sure, those with mere prurient interests best avoid this work. As Denise says, "It is not up to us to decide when others should awaken. That is strictly between their subconscious selves, the Andromes

leaders and the specific Andromes they have a relationship with, whatever the relationship may be. It is not a game of truth or dare but a highly spiritual and psychologically precise journey into understanding and discovery." (page 240)

Anticipating our skeptical, nah, puzzled reaction she ends by rhetorically asking, "Extraterrestrial spouses, Jesus on the mother ship, and now shrinkable people! What next in this incredible universe?" (p. 262). With tongue in cheek, one wonders . . . High definition TV? A 600 Mhz brain?

Reviewed by Herb Moran  
70264.1414@Compuserve.Com

### REPORT ON SIXTH ANNUAL INTERNATIONAL UFO CONGRESS - CONVENTION AND FILM FESTIVAL

I took some time off and attended five days of International UFO Congress in Laughlin, NV from Sunday, Jan. 19 through Thursday morning, Jan. 23. My overall impression is that once again, there are more questions raised than were answered. Following are excerpts from my highlight report of what some of the speakers had to say. Unfortunately, I only caught the tail end of Stan Deyo's talk. Stan hails from Australia and spoke for about five hours on Sunday afternoon (with several breaks), and his topics included earth changes (earthquakes, volcano eruptions, climate changes, asteroids, comets, etc.), the discovery of Atlantis and Eden, the Roswell crash, etc.

Col. Donald Ware (Ret.) spoke Monday morning on "Transformations: Spiritual, Physical and Political." Ware is retired from the U.S. Air Force with wide experience as a fighter pilot, staff scientist, teacher, test manager and programs manager. His talk was wide-ranging. Among the things he reported was that Ed Walters (Clearwater, FL) had videotaped his own abduction. Ed said he set up a camera on a tripod facing his bed and started recording before lying down to sleep. On the six hours of videotape there is some strange phenomenon shown, including a sequence where someone or

something blocks the camera lens, probably during the abduction. Too bad! Wouldn't it have been great to see who or what it was?

Whitley Strieber spoke next, reporting the latest news on the Hale-Bopp comet, which is on his web site. He summarized the situation concerning the comet and the "companion" object and Courtney Brown's submittals. Two areas he's working on include: physical evidence, analyzing the videos of sightings and implants. He's also studying and facilitating the removal of implants in the body.

James Hurtak, Ph.D., spoke on "Extraterrestrial and Ultraterrestrial Realities and the New Cosmology of Life." Hurtak has a Ph.D. degree in social sciences and linguistics from the University of California and in history from the University of Minnesota. The theme of his talk was summarized in the program: "The human race has entered the most critical evolutionary stage: the breakthrough into a new open-world environmental niche in space and contact with other civilizations in space."

Dolores Cannon has been a UFO investigator and worked as a hypnotist on suspected abduction cases. She has also investigated crop circles and written ten books on the paranormal (including three on the prophecies of Nostradamus and three dealing with her UFO investigations). Her first book, Keepers of the Garden, expounded on the ancient astronaut theory of the seeding of planet earth.

Rolando Quiroga Valero, from Mexico, told his story as a long-term Pleiadian contactee. He is of Mexican Indian descent on both sides of his family. It was interesting to hear his perspective as someone who, while not highly educated in a formal sense, spoke intelligently and openly about his ET contacts and their way of life, which he has seen on one or more trips he claims to have taken to their home planet.

Graham Birdsall, editor of the English-based national newsstand publication UFO Magazine, gave a brief presentation to update the latest 1996 UFO activity in Great Britain. One of his more amazing stories was



of a multiple-witness sighting of a triangular-shaped craft which hovered about 100 feet off the ground. Below it, about 100 small creatures (humanoid looking) were surveying around busily doing something (he didn't specify what), all with little boxes. There were several other creatures which seemed to be guiding them. The top of the triangular craft had a face on it. This scene was observed by a number of people from a hillside above the scene, which viewed toward a valley area where the craft was seen hovering. The witnesses left the scene when it seemed as though they'd been spotted by some of the creatures and some of them were heading toward them.

G. Cope Shellhorn, a retired professor of English, spoke on "Death and Dirty Tricks in Ufology." The program description said "The recent violent and/or unusual deaths of Ron Johnson, Phil Schneider, Ron Rummel and Ann Livingston raise many troubling questions. What, for instance, were the discernible facts in these cases? Do we have a reason to believe they, and others earlier in time, were targeted for harassment and possible termination by agencies, organizations or individuals, known or unknown? Prof. Shellhorn reported in detail the two dozen or more deaths of people involved with secret, black budget projects and research. Researchers, scientists, reporters -- all dead, many perhaps killed. By whom -- and why? He raised more questions than he answered in his presentation.

Dr. Lee Shargel was probably one of the most controversial speakers at the conference. He is a former NASA and Department of Defense metallurgist/scientist. He covered the Roswell crash and retrieval, craft not necessarily ours on the moon, Hale-Bopp, and scenes from tape. His talk was largely focused on about 100 slides he showed. He claimed that one slide depicted two craft with a crescent-shaped front and tubular body giving it a crossbow appearance which was flying in the vicinity of the Roswell crash site. The slide was taken from a gun site camera on a pursuit plane that was flying over these craft. These craft didn't look like flying saucers. (Shargel said that NASA uses the term non-earth vehicles rather than UFOs for these

vehicles). One of the criticisms I heard of these photos was that if taken from the gun site, there would likely have been more vibration and the pictures wouldn't have been as sharp as they were of the craft.

He also displayed an object which he claimed was from the crashed Roswell vehicle and which he said consisted of some 32,000 layers of homogeneous aluminum held together by -- guess what -- rice adhesive! He labeled the object as a "valve containment unit." He also reported that Travis Walton, the Arizona UFO abductee, claimed to have seen a similar part on the craft he had been aboard. An attendee, Mark Williams (who was sitting next to me) said he had talked with Walton personally, and Walton had never claimed to have seen such a part before.

On the Hale-Bopp comet, Shargel showed a number of slides which depicted a companion and a halo-like bright band in front of the comet which he said was distorted by "gravity waves." He claimed that gravity waves move faster than the speed of light, but later in talking with Richard Boylan, he admitted this was just a theory.

In summary, Shargel made a lot of claims, many of which were not well documented. Some of his photos are questionable as to their source or veracity. Until there are others who speak out in support of or in corroboration with his claims, I would view many of them with skepticism.

Overall, the conference was worth attending. There was much good information presented, backed by many slides and good videos. The only negative I can think of about the conference was where it was held, which was a large casino/hotel complex in Laughlin. Cigarette smoke permeated the whole building, and the atmosphere of gambling was in stark contrast to the subject matter of the conference, which included many messages having a spiritual, higher-consciousness nature. When I spoke with the organizer of the conference, Bob Brown, he said that the casinos are one of the few places available having rates for hotel rooms and food are sufficiently reasonable that attendees can stay for the length of such a long conference. Other

MUFON members said to be in attendance included Dr. Ruth and Harry Hover and Richard Motzer; however, I did not see them there -- but since there were 400 to 500 people in attendance, this would explain my missing them.

Pete Creelman  
MUFON-AZ Member

## ARRAY TOUR

Mufon is planning a weekend trip to the VLA, located in western New Mexico on the weekend of May 17-18, 1997. Details will be announced at the March meeting. If you did not sign up already and are interested in going for this rare tour, please call Tom at 602-967-6265. There is no cost for the tour, which is not open to the public!

# NASA warned to watch out for hostile Martian life forms

Associated Press

WASHINGTON — A serious study that could have come straight from science fiction warns some "life forms" may exist on Mars and NASA should be careful not to contaminate Earth with hostile bugs when it brings back soil samples.

"The risk is not zero," says the study, released Thursday by the National Research Council. It recommends that any samples be physically and biologically isolated "and treated as though potentially hazardous until proven otherwise."

The study bears real-life similarities to "The Andromeda Strain," Michael Crichton's best-selling novel about an extraterrestrial organism that threatens life on Earth.

No sample-return missions are planned until the middle of the next decade. Two U.S. probes, the Mars Pathfinder and the Mars Global Surveyor, are en route to the Red Planet but their findings will be transmitted electronically.

The notion that life, even microscopic life, ever existed on Mars is controversial. But if it did, said the study, "it is possible that they have

continued to exist up to the present time."

The National Aeronautics and Space Administration asked the research council in 1995 for guidance about protecting Mars from our microbes — and us from Mars. The panel that studied the issue included an engineer and a lawyer along with scientists.

The council is the research arm of the congressionally chartered National Academy of Sciences.

For starters, even if Martian microorganisms were somehow introduced into Earth's environment, the study said, "the likelihood that they could survive and grow and produce harmful effects is judged to be low."

The Martian bugs, "would be unlikely to be able to compete successfully with Earth organisms, which are well adapted to their habitats."

Mars, Earth's neighbor, has fascinated novelists and movie makers because of the tantalizing possibility that, of all the other planets in our solar system, it was the most likely to harbor life. It is considered inhospitable to life as we know it today, but that may not always have been so.

Some of the anxiety about contamination from Mars was fueled last August when NASA researchers disclosed they had found possible signs of microscopic life in a meteorite discovered in Antarctica 13 years ago.

The rock, originating on Mars, contained chemicals that can be produced by bacteria and it had unusual microscopic shapes that could be interpreted as fossilized microbes.

Other researchers have disputed the interpretation by the NASA researchers.

The National Research Council panel said that while the Martian surface is believed inhospitable to life as we know it, "there remain plausible scenarios for extant microbial life on Mars — for instance, in possible hydrothermal oases or in subsurface regions."

Therefore, the report said, samples returned from Mars should be sterilized in space or put into containers, and a safe facility should be built to check them out.

Similar precautions were taken with the first three teams of astronauts that landed on the moon in 1969-1971.



# Investigator's Notebook: Spotting Satellites

The most frequently misidentified object in the night sky is the planet Venus. Its extreme brightness causes numerous reports of UFOs. Other objects orbiting above that may result in erroneous reports are satellites. Here is a handy investigator's catalog of the kinds of satellites that are up there, how they behave, and how they can be identified.

**1. Does it zigzag?** When seen from below, satellites travel in laser-straight paths. However, tiny, imperceptible eye-muscle movements on the part of the viewer cause the illusion that they are weaving one way and then another as they cross the sky. When someone reports that a light is zigzagging, that's a good clue to its identification as a satellite.

**2. When most frequently sighted?** From May through August. At this time of the year, dozens of bright outer-space machines cross the sky every hour. More than 6,000 satellites now orbit Earth, and one will appear every minute or two. The ground rules are simple: if it is a slow-moving point of light and obviously not an airplane, then it's a satellite. Few will be seen from November through February, because Earth's shadow occupies the sky soon after nightfall. Satellite spotting is most productive during the two hours after sunset and a couple of hours before sunrise, during the warmest third of the year.

**3. How fast is it going?** A satellite is not propelling itself, it is simply falling in a gravity curve that matches the curvature of Earth below. Its speed depends on its height. The higher it orbits, the weaker is the gravity and the slower it will move; the lower it is, the faster. A typical military or communications satellite travels in a 250- to 600-mile-high orbit and will cross the sky in a few minutes. If it seems decidedly faster, it's a dead duck — a low, moribund satellite only 110 to 130 miles up, soon to be pulled down by gravity. In short, a

satellite generally crosses the sky about as quickly as a high-altitude commercial jet (contrasted to meteors, which streak across the heavens in just a few seconds).

**4. In what direction is it traveling?** If it's coming from the east, heading west, it is NOT a satellite. Satellites are launched west-to-east, to match Earth's rotation. All countries launch from as close to the equator as possible, where rotation is fastest (Cape Canaveral, for example). Some satellites have a polar orbit, easily spotted because they're heading more or less south-to-north or north-to-south. This is a favored military trajectory because it permits scrutiny of the whole Earth each day. Reconnaissance satellites tend to have low orbits, so when you see one with both high speed and a polar orbit, it is probably a spy satellite. Resolution of the US KH-11, for example, is reputed to be clear within half a foot: it can spot you walking your dog, and spot the dog.

**5. Is its light steady or erratic?** Satellites glow by reflected sunlight. They have complex shapes that reflect unevenly. With a functional and stable machine, one side may hold the sun's light for quite some time. But in a defunct satellite, the inevitable tumbling causes an off-and-on effect. Such irregular flashes often come from satellites never intended to be functional, space debris such as 3rd-stage rocket boosters that have winked on and off from the day they reached orbit. Most objects tracked as "satellites" are just space garbage. Their increasing presence makes a girdle of scrap metal surrounding our planet: the *junkosphere*. Most of this trash is less than a few feet across. Of the 23,000 satellites tracked since 1957, of which a third are still in orbit, many are such debris. Only some 300 satellites are large and low enough to be easily visible to the naked eye.

**6. When are they best seen?** Visibility depends directly on the changing sunlight

that reaches them. When we look into the midnight sky, we are staring straight into our own planet's shadow, which extends into space for a million miles. Sunlight's presence or absence depends not only on the time of night, but also the seasons. In winter the sky overhead quickly plunges into shadow after sunset. In summer, the shadow slants southward, even at midnight. So even though the heavens may look fully dark by 10 p.m., the sun is shining 100 miles overhead. The bigger satellites catch that light and stand out against the inky darkness. When bright satellites appear to suddenly blink out, it means they have simply entered the invisible (from Earth) location of Earth's shadow. It's called the Twilight Wedge. In summer, the shadow boundary starts out low in the SE shortly after sunset and slowly rises to fill the mid-southern sky. Though the Twilight Wedge becomes invisible to us even before darkness has fully fallen, it's still there, and any satellite will disappear from sight when it enters this zone where sunlight is absent at its orbital height. By 10 p.m., the shadow's edge lies 20-30 degrees above the SE horizon; in other words, opposite the sun. Satellites will dim and vanish when they reach it.

**7. TV satellites.** Millions of backyard TV dishes maintain a tight focus on the same few dozen solar-powered transmitters. They are utterly invisible to us, since they orbit high at 22,300 miles, a hundred times farther away from the ground than the myriad lower-orbit satellites seen crossing the sky every night. This makes them about 10,000 times less bright, not visible even with binoculars.

COLORADO MUFON  
NEWS - SPRING 1997

(Source: condensed from "Secrets of the Night Sky" by Bob Berman, 1995, William Morrow & Co., New York.)

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