



Hale-Bopp is already brighter than Comet Hyakutake, which streaked across the sky a year ago, according to Sky & Telescope, an astronomy magazine that operates a hotline and website for late-breaking celestial news.

The comet's gassy tail takes up 20 degrees of the sky, Sky & Telescope said, which is about twice the size of a human fist held at arm's length and viewed against the heavens. Hale-Bopp has another tail as well, a curved, shorter smudge made up of dust.

What is not visible to unaided eyes on Earth is Hale-Bopp's icy heart, a 25-mile- (40.23 km) wide core more than 10 times the size of the average comet and four times the size of the storied Halley's Comet.

Unlike Hyakutake, a much smaller, dimmer comet that gave a great show because it came within 9 million miles (14.48 million km) of Earth, Hale-Bopp will not get any closer than 122 million miles (196.3 million km) at its closest pass, on March 23-24.

Hale-Bopp -- the name comes from its discoverers, Alan Hale and Thomas Bopp, who first spotted it in 1995 -- has the potential to give clues to the earliest moments of the solar system, Feldman said by telephone.

The National Aeronautics and Space Administration is launching a series of so-called sounding rockets that will rise above Earth's atmosphere to gauge the composition of the comet and then parachute back down, Feldman said.

It could help confirm what many scientists already believe: that water on Earth came from comets that hit Earth's surface. The comets' frozen core melted to form oceans, according to the theory.

If the rocket data show the same trace elements present in the world's oceans are also present in Hale-Bopp, this could go a long way toward proving the theory, Mumma said by telephone.

Earth-based telescopes can get some great views of Hale-Bopp, but the Hubble Space Telescope will not. The comet's path brings it too close to the Sun and Hubble's mechanisms are not equipped to ``look'' directly into the Sun.

[W11]\*\*\*\*\*

Source: The Times newspaper  
Date: 9th March 1997

Comet promises a cosmic festival of light

by Steve Connor  
Science Correspondent

AFTER 4,000 years, the world's night sky is about to be lit up by the return of the comet Hale-Bopp, <FONT COLOR="#ff0000">a 25-mile-wide cosmic snowball of ice and dust.

>From today the comet, which is travelling at almost 100,000mph, will start to reward hopes that it will be one of the most spectacular sights in the night sky, growing from a smudge of light to the most noticeable object among the stars.

Hale-Bopp, the brightest comet to enter the solar system for more than 400 years, will come closest to Earth on March 22, at a distance of 125m miles away. The last time it was visible from Earth was around the time of the ancient Egyptians about 2,000BC.

As it flies past the Sun, the heat causes the frozen surface of the comet's nucleus to vaporise, leaving a trail of gas and dust particles that can form a tail many millions of miles long. This is lit up by reflected sunlight.

Scientists believe that comets such as Hale-Bopp are "builders' rubble" left over from the birth of the solar system more than 4.5 billion years ago and that they were responsible for delivering water to planets like Earth.

Dr Michael Mumma, a comet expert at America's National Aeronautics and Space Administration near Washington, said a third of the comet was made of ice: "It would make a very good sized lake or ocean."

By studying the light spectra of the comet, scientists can determine its chemical composition. This will help them to understand how the planets formed from the condensation of a massive cloud of primordial dust particles that existed at this time.

A number of new chemicals have been detected on Hale-Bopp, including alcohol and some of the organic constituents of living organisms.

Two American astronomers, Alan Hale and Thomas Bopp, discovered the comet in 1995, independently but within minutes of each other.

Its sudden appearance in the sky raises the prospect that other comets could come closer to Earth and even threaten to collide with it, causing catastrophic damage. This was graphically illustrated in 1995, when comet Shoemaker-Levy slammed into Jupiter, causing ground tremors that were witnessed from Earth.

"What has been new over the past five years is the regularity of discovering Earth-approaching objects," said Mumma.

Dr Alan Fitzsimmons, an astronomer at Queen's University, Belfast, said comet Hale-Bopp should become one of the best-studied comets: "The important aspect of this comet is that it has been the brightest predictable object, and so we've had time to get ready and prepared to observe it in detail.

"It will be one of the most spectacular comets of our lifetime, but then we don't know when the next one will appear."

Early morning would be the best time to see the comet as it glowed low on the horizon in the northeast sky, he said. "I'm betting there won't be many telescopes on Earth that won't be trained on this comet. It is just going to get bigger and brighter. Anyone looking out will be able to see it."

Although Hale-Bopp will become the most closely studied comet to date, it was the return of Halley's comet in 1985 that stirred some of the greatest scientific interest in these cosmic objects, not least because it was met by a spaceprobe that managed to take close-up pictures.

[W12]\*\*\*\*\*

Source: The Times newspaper  
Date: 12th March 1997

Tail of the century

BY NIGEL HAWKES, SCIENCE EDITOR

COMET Hale-Bopp is providing a brilliant show as one of the best comets of the 20th century, clearly visible round the world in the morning and evening skies.

Terry Platt, an amateur astronomer from Binfield near Bracknell in Berkshire, took this photograph of the comet at 4am yesterday from his garden. He says that it is easily visible with the naked eye, and comparable in brightness with the brightest stars.

He used a telephoto lens, picking his moment between wisps of early-morning fog. Amateur astronomers are a hardy bunch; he had been up at 1am observing Mars, then managed to get three hours' sleep before rising again to photograph Hale-Bopp.

It is not necessary to head for the hills to observe the comet. One American astronomer, Paul Feldman, of Johns Hopkins University, assures would-be watchers that he had no difficulty seeing the comet from a well-lit supermarket car park, even after sunrise.

Astronomers both amateur and professional will spend much of the next two months watching the comet, named after the two American astronomers who first identified it in 1995. It is expected to go on getting brighter for a further two weeks as it gets closer to the Sun.

Hale-Bopp is already brighter than Comet Hyakutake, which crossed the sky a year ago, according to the magazine Sky & Telescope. This comet's tail takes up 20 degrees of the sky, about twice the size of a human fist held at arm's length and viewed against the heavens.

Nasa, the space agency, is using Hale-Bopp' <FONT COLOR="#ff0000">s

passage to put to the test a theory about the origins of the Earth's oceans. It will be launching sounding rockets that will rise above the atmosphere to measure the composition of cloud around the comet. The theory is that water on the Earth came from comets that hit the Earth's surface fairly early in its history. Comets consist largely of ice.

The rocket observations of the amounts of trace elements in the comet will be compared with the amounts of the same elements in the oceans. If they are the same, they will provide support for the theory.

[W13]\*\*\*\*\*

Source: Associated Press

Date: 13th March 1997

Mars life theory gets a boost

By PAUL RECER

WASHINGTON (March 13) - A theory that microbes once lived on Mars is boosted by two new studies of a rock that was blasted away from the red planet and eventually landed on Earth.

Researchers at the University of Wisconsin, Madison, and at the California Institute of Technology said the new studies do not prove that Martian microbes once lived in the rock. But they remove one challenge based on the temperature history of the potato-size chunk of Mars.

'We have ruled out the high temperature hypothesis' that would have made life impossible, said John W. Valley of the University of Wisconsin. 'I still don't have final answers. There should still be skepticism.'

Wisconsin scientists determined the range of temperatures the rock was exposed to by analyzing the ratios of carbon and oxygen isotopes. At Cal Tech, researchers traced the temperature history by measuring magnetic fields within the rock. Both studies will be published Friday in the journal Science.

NASA scientists last summer claimed that small globules of carbonate found inside a Martian meteorite were the fossilized remains of microbes or bacteria that lived on the red planet more than 15 million years ago.

Based on a microscopic and chemical analysis of the globules, the NASA team theorized that the microbes lived and died in the rock, leaving behind organic chemicals and fossilized remains. The rock was then blasted from the Mars surface by a meteorite impact, spent thousands of years wandering in space and then fell to Earth in the Antarctic. The rock was recovered from an ice field and identified by chemical composition as coming from Mars.

A major challenge to the theory has been that the carbonate globules actually formed by inorganic processes at temperatures of more than 1,200 degrees, far too hot for life.

But the new studies show that temperatures of the globules never exceeded 212 degrees - scalding, but still within the living range of known life forms.

'Our work shows that there are no show stopper lines of evidence in the temperature,' said Valley. There are other reasons to be skeptical, however, he said, 'and it will be difficult to convince the world one way or the other.'

'Our results don't prove there was life,' said Joseph L. Kirschvink, head of the Cal Tech team. But the finding proves that the possibility of life cannot be eliminated because of temperature, he said.

The Cal Tech team determined the temperature history of the rock by measuring the magnetic field direction of tiny parts of the samples. The magnetic field direction in a rock will change slightly each time it is heated and cooled.

'To make the measurement, we had to saw apart a specimen the size of a grain of sand,' said Altair T. Maine, a member of the Cal Tech team.

Kirschvink said his team found that after the rock cooled from a melt some 4 billion years ago, it was never again heated to a temperature lethal to all life.

The Cal Tech study also showed that early in the history of Mars, the planet had a magnetic field similar to that of Earth. Kirschvink said this means the planet probably had an atmosphere. A strong magnetic field allows a planet to retain an atmosphere.

Over billions years, however, Mars has lost its magnetic field and most of its atmosphere, he said.

Kirschvink said the magnetic studies also show that the sampled part of the Mars meteorite never heated up as it entered the Earth's atmosphere and smashed into the Antarctic. This suggests that microorganisms could survive a trip from Mars to Earth.

'An implication of our study is that you could get life from Mars to Earth periodically,' he said. 'In fact, every major impact could do it.'

Earlier studies had suggested a Mars origin of life and Kirschvink said his studies do not rule out this possibility.

Kurt Marti, an expert on the chemistry of the solar system at the University of California, San Diego, said the two new studies may lay to rest temperature challenges to the Mars life theory, but he said there are other objections.

'These all have to be addressed one by one,' he said. 'Until that is done, we have to be careful about accepting or rejecting this theory.'

Among the theory's other problems: the need for chemical evidence of life based on carbon isotope ratios, and better physical evidence that the carbonate globules are, in fact, fossils.

Valley said he hopes to start soon an analysis of the carbon isotopes.

[W14]\*\*\*\*\*

Source: The Jerusalem Post  
Date: 13th February 13 1997

Livnat, Knesset discuss extraterrestrial life

The Knesset's deliberations yesterday were out of this world, as Communications Minister Limor Livnat stated that the existence - or nonexistence - of unidentified flying objects cannot be verified by scientific methods.

Livnat, the government's liaison with the Knesset, was responding on behalf of the Science Ministry to a parliamentary question by MK Avi Yehezkel (Labor) dealing with recent claims about the landing of strangers from outer space. The latest one, revolving around a little green thing found at a moshav, was proven by foreign scientists to have terrestrial origins.

"No serious body in the world has authoritative evidence of so-called visits by creatures from space," Livnat said. "It's true that a lack of proof doesn't mean that something does not exist, but in the absence of evidence, anyone is free to believe what he wants."

The minister noted with irony that despite the "intensive 'encounters' by extraterrestrial creatures with laborers, farmers, housewives and pensioners, none of them have ever met a physicist, biologist, chemist or astronomer to get an exact scientific picture of the similarities and contrasts between our worlds."

The planet Earth "needed five billion years to develop intelligent life; although other parts of the universe are older, there may be heavenly bodies with life forms..., but consider the fact that the average distance from another planet with the potential of life in our galaxy is 400 light-years, and it would take a spaceship 8.5 million years to get here."

The US government established investigative committees on UFOs in 1948, 1949, 1952 and 1962, and they discredited 95 percent of the testimonies, Livnat said, but "their conclusions did not weaken popular belief in UFOs. We don't know anything more about them today

than we did 50 years ago, and that's true about the Loch Ness monster, astrology, parapsychology, palm reading and other strange and various notions."

[W15]\*\*\*\*\*

Source: Associated Press  
Date: 15th March 1997

Arizonans report strange lights in Thursday's sky

PHOENIX (AP) Strange bright lights over northern and northwestern Arizona evoked bevy of telephone calls but drew no official explanation.

Law enforcement agencies said their phones began ringing Thursday night with questions from people wanting to know what the lights were.

One Phoenix area man videotaped what appeared to be a string of nine lights hovering above the desert floor. The video was highlighted on the television news Friday evening.

So what were they?

The Arizona National Guard said Friday it has no earthly explanation.

However, Capt. Eileen Bienz, spokeswoman for the state guard, said an Apache helicopter pilot told a Phoenix television station that the lights were caused by military flares sent up during a training exercise.

The pilot also said Prescott residents erroneously identified a formation of five military aircraft as a UFO, Bienz said.

UFO buffs didn't buy those explanations.

A spokesperson with a national UFO hotline in Washington state called it a ``dramatic event.''

[W16]\*\*\*\*\*

Source: The Daily Courier, Arizona  
Date: 16th March 1997

UFO sightings in PV, other areas

Despite reports, Luke Air Force Base denies sending aircraft to investigate

By LAURA HINCHEY

A man reported sighting UFOs above a shopping center in Prescott Valley at about 8 p.m. Thursday night, according to Prescott Valley police. Peter B. Davenport, director for the National UFO reporting center in Seattle, said his organization's hot line received more than a dozen calls last night from several areas of Arizona regarding objects seen in the sky.

Davenport said the hot line began receiving calls for a sighting in the Paulden area, then Prescott, then the Glendale area and the last report was for objects seen over Tucson.

A man from Paulden called The Daily Courier and said he saw five diamond shaped objects with wispy tails around 8 p.m. last night. Upon hearing that other people have reported also seeing the objects, he said, "I'm glad to know I wasn't the only weirdo."

Kurt Milam, spokesman for the Yavapai County Sheriff's Office, said they received some calls last night from people who saw low-flying objects, but YCSO did not dispatch deputies to investigate.

A speaker at the Federal Aviation Administration said they had only received calls from people wanting to know if any UFOs had been sighted.

An astronomer called into the hot line office and told them he saw the UFOs in northern Phoenix, five of them with lights.

According to the hot line speaker, Luke Air Force Base apparently

sent two jets last night to intercept the UFOs. The pilots recorded the objects on camera, and returned to base. Allegedly one pilot was shaken, and the base was locked down for the night.

Media liaison at Luke Air Force Base Sgt. Rolla Suttmiller said no aircraft were sent out and there was no lock-down, adding that the cameras on the aircraft's only take pictures of targets during practice.

She said the base received no calls Thursday night regarding UFO sightings. "We do not respond to something like this," she said. "And we do not fly in the evening."

[W17]\*\*\*\*\*

Source: The Associated Press  
Date: 16th March 1997

It's just 2.5 miles of yarn

By MARCIA DUNN

CAPE CANAVERAL, Fla. (AP) - For nearly a year, America's ``other space agency'' - the super-secretive National Reconnaissance Office - has been monitoring a bright, white object streaking through the night sky.

Don't fret: It's not a UFO. It's 2 1/2 miles of knitting yarn.

The single strand of reinforced acrylic yarn has been orbiting Earth, unwound, since last June.

The National Reconnaissance Office is intrigued by the possibility of using tethers to connect clusters of small satellites so they can communicate, much like a computer network.

Other tantalizing applications: using tethers to power spacecraft by generating electricity as the conductive cords sweep through Earth's magnetic field, to propel spacecraft into different orbits and to drop experiments from a space station.

This is the longest-lasting space tether yet, a \$4 million experiment to demonstrate the motion and survivability of tethers in low Earth orbit, littered with micrometeoroids as well as space junk.

It's also the first unclassified, ongoing space project in the 36-year history of the National Reconnaissance Office.

The NRO typically flies spy satellites.

``It's really fantastic to call people up on the phone and say, `Hi, I'm Scott Larrimore and I'm with the NRO and I'd like you to track my spacecraft. It catches a lot of open mouths,''' said Larrimore, an Air Force captain who is program manager for the tether experiment.

Still, the NRO has some things to be closemouthed about.

The NRO refuses to say how or when the shoestring-like tether was rocketed into orbit or how or when its next tether experiment will fly. Until December, all NRO launches were classified for so-called national security reasons.

What it will say, on the record, is this:

The Tether Physics and Survivability experiment, called Tips, was ejected from a classified military satellite on June 20, 1996, into a 635-mile-high orbit that swings as far north as Alaska and as far south as Chile's Cape Horn. A few hours later, the yarn -all 2 1/2 miles - was unreeled from a spool. The tether, which weighs 12 pounds, was bowed and swung like a jump rope, but eventually straightened and became more perpendicular to Earth.

Nine months later, the yarn still is orbiting Earth, intact. The NRO knows so because of ground-based laser, radar and telescope observations. Amateur astronomers also keep unofficial tabs on the tether. (It's visible with binoculars on a clear night, although you need to know exactly where and when to look.)

Tips has outlived its predecessors by months. NRO officials say if the tether isn't broken by a micrometeoroid or other debris, it could orbit for as long as 27 years before plunging through the atmosphere

and burning up.

The last time a tether flew, aboard space shuttle Columbia in February 1996, the 12-mile conductive cord snapped within five hours because of an electric discharge. The satellite-on-a-string drifted away like a lost balloon. On the first flight of the \$400 million NASA-Italian Space Agency system, aboard Atlantis in 1992, a protruding bolt caused the tether to jam a mere 840 feet out.

Despite all the trouble, the two missions proved electricity could be generated by a tether system - easy power for spacecraft. And the unintended severing of the tether demonstrated that the higher of two objects goes up when a tether is cut and the lower one goes down slightly - a fuel-free way to boost spacecraft into longer-lasting orbits.

A shuttle, for example, could depart from the future international space station via a tether. Once that tether is cut, the shuttle would drop and the station would rise - a win-win situation.

NASA successfully flew three simpler and cheaper tethers on unmanned Delta rockets in the early 1990s. The third test ended abruptly, however, when the 12-mile line was severed, most likely by a micrometeoroid, just three days and 17 hours after it was unreeled.

The only other orbiting tethers to date: 100-foot cords linking manned capsules and Agena boosters during Gemini 11 and 12 in 1966.

NASA's next shot at a tether? Not until 1999 and most definitely not on a space shuttle, where astronaut safety is paramount. The space agency dumped a tether experiment that was to have flown on Discovery this July.

``Things have really been ramped back because of the squeeze on the budget and the bad experience we've had with tethers,'' said NASA project manager Jim Harrison.

Added astronaut Jeffrey Hoffman, who flew on both tethered-satellite missions: ``It's an emotional impact. What can you say? It would have been better if it hadn't broken.''

Unlike NASA, the NRO wanted as plain a tether system as possible.

The 2 1/2 miles of white yarn is wrapped in braided Spectra 1000, a tough, white fiber used in bulletproof vests and fish lines. The resulting nonconductive cord is about one-tenth of an inch thick.

On either end of the Tips tether is an aluminum, hexagonal box covered with 18 laser reflectors. The box containing the NASA-donated unreeling device and long-dead electronics has a mass of 83 pounds. The other box is 23 pounds.

The names of the boxes: Ralph and Norton, respectively.

Remember Ralph Kramden and Ed Norton of ``The Honeymooners?''

``It tickled my funny bone and I got away with it,'' said Bill Purdy, program manager for the Naval Research Laboratory, which designed and managed the Tips experiment for the NRO.

The NRO and NRL aren't the only ones picking up where NASA left off.

The engineer who developed the Tips tether, Joe Carroll of Tether Applications in Chula Vista, Calif., has a 22-mile cord that's supposed to ride on a European Ariane 5 rocket later this year. He's also working on a tethered capsule that might be used to return experiments from the future international space station.

And Rob Hoyt of Tethers Unlimited in Seattle is working on a fishnet stocking-type tether. Why fishnet? If one string breaks, the tether still holds.

Hoyt's most far-flung project: rotating tethers that work like a bola to hurl payloads from Earth orbit to the moon.

As for the space elevator envisioned by science fiction writer Arthur C. Clarke, lifting people and cargo to geosynchronous orbit 22,300 miles up, that's farfetched - for now.

No material currently exists that's strong enough, yet affordable, for such a long, long tether.

``You get on an elevator and you push a button to go to geo,'' Carroll said. ``That's the 10-millionth floor. That's going to take a while.''

A brief look at the eight orbiting tethers to date:

September 1966: 100-foot Dacron cord links manned Gemini 11 capsule and Agena booster.

November 1966: 100-foot Dacron cord links manned Gemini 12 capsule and Agena booster.

August 1992: 12-mile conductive tether with satellite on end jams 840 feet out while being unreeled from space shuttle Atlantis.

March 1993: 12 1/2-mile tether launched on Delta rocket, intentionally cut two hours after being unreeled and re-enters atmosphere and burns up.

June 1993: One-third-mile conductive tether launched on Delta rocket, orbits for 1 1/2 months to two months before re-entering atmosphere and burning up.

March 1994: 12 1/2-mile tether launched on Delta rocket, severed three days and 17 hours after being unreeled, most likely by micrometeoroid. Remaining tether and booster segment orbit for 59 days before re-entering atmosphere and burning up.

February 1996: 12-mile conductive tether with satellite on end breaks while being unreeled from space shuttle Columbia. Tethered satellite orbits for 23 days before re-entering atmosphere and burning up.

June 1996: 2 1/2-mile tether ejected into orbit from classified military satellite, still intact and flying.

[W18]\*\*\*\*\*

Source: Los Angeles Times  
Date: 24th February 1997

In Person: Looking into the alien ex machina

Physicist Bob Wood Wants to Know How UFOs Get Here

Attention extraterrestrial visitors: If your travel plans include an Orange County flyover, you might want to stop by Bob's house.

Bob Wood, a former director of research and development at McDonnell Douglas who holds a doctorate in physics, would like to chat. The 68-year-old Newport Beach resident has spent the last three decades trying to answer a single, basic question: How did you get here?

"We're just a little bit behind in understanding all of the technology used by the aliens, or visitors--or whatever you want to call them," said Wood, research director of the 5,000-member Mutual

UFO Network and its Orange County chapter. "But there are ways to figure it out and build such craft. I don't accept the idea that we won't be able to replicate their capabilities."

But he does accept the idea that visitors from other worlds have been coming to Earth for a long time. And in 1967, he managed to convince McDonnell Douglas that the idea was worth studying.

The giant aerospace company allowed him to assemble a small team of researchers to investigate reports of UFOs and alien encounters, with the goal of discovering the underlying science that could make their visits possible. The project ended after two years with no definitive results, but the research made him a believer.

"I read a book, then I read another book, and pretty soon I'd read about 100 books and I decided this was no joke, there was something to it. The preponderance of eyewitness accounts was just so overwhelming, I couldn't ignore it."

One of the most intriguing UFO accounts Wood has investigated was reported in 1965 by Orange County highway inspector Rex Heflin. Wood ranks it as the county's most significant UFO sighting to date.

"During his normal routine, somewhere near Dyer and Myford roads, he saw this craft right in front of his windshield. He had a loaded Polaroid camera on his front seat because that was his job, to photograph things that needed to be fixed. So he took a shot right through his front window."

Heflin took three photos before the hat-shaped UFO left the area. "He drove farther and then got out and took a picture of the smoke ring that was left behind after it accelerated out of sight."

The first three photographs were published in an Orange County newspaper more than a month later. They were examined in 1967 by the Condon Committee, a team of scientists from the University of Colorado commissioned by the Air Force to conduct an independent study of UFO reports.

"The Condon Committee declared that maybe it was a hoax, because of their inability to prove that it couldn't have been a small model," said Wood, who first met Heflin in 1968. "He seemed quite credible to me. And there were other things that were consistent with other sightings: His radio crackled and went out just as the UFO was close. And he described a wedge-shaped region of light on the bottom of the craft. He never knew that this light was on his photographs. It was only later that the researchers found it on the photographs."

Wood and Pasadena researcher Ann Druffel have obtained the original photos, which were taken from Heflin in 1965 and mysteriously returned to him in 1993.

Heflin said he'd given the photos to someone claiming to be an official from the North American Air Defense Command. But NORAD officials denied contacting him.

"He told me that he'd gotten a phone call from a female voice that said, 'Have you looked in your mail box recently?' He said, 'No,' so he went out and looked and there was nothing there. He went out and looked a half-hour later, and somebody had left him his original photographs inside an envelope."

Using the latest computer technology, Wood hopes to determine if the photos are indeed genuine.

"You couldn't have done this five years ago. We will be using a new technique for finding patterns in photographs--it's basically a computer scan."

Of the 300 sightings reported to MUFON each year that are considered unexplainable, about 10 are from Southern California. The 100-member Orange County chapter gets only a few calls each month, and most have earthly explanations.

"You have to think of multiple explanations for these anomalous things. Many times there are reasonable explanations, and you don't want to be led down the wrong path."

For those unexplainable accounts of UFOs and alien encounters, Wood said there is no consensus on whether the visitors are friendly or hostile.

"I'd say there are several civilizations that might be involved, based on the in-depth interrogation of witnesses who are willing to go on record. Extraterrestrial societies could be better at some things, such as propulsion. But that wouldn't make them necessarily better in ethics. There's significant evidence that people have been abducted, but for the most part, the interest seems to be one of curiosity and seeking understanding."

(BEGIN TEXT OF INFOBOX / INFOGRAPHIC)

Profile: Bob Wood

Age: 68

Hometown: Little Falls, N.Y.

Residence: Newport Beach

Family: Wife Charlotte; two grown children; two grandchildren

Education: Bachelor's degree in aeronautical engineering, University of Colorado; PhD in physics, Cornell University

Background: McDonnell Douglas Corp. researcher and executive for 43 years, including eight years as director of research and development; director of advanced development for space station project

UFO research: Investigated reports of sightings and conducted scientific research on possible methods of UFO space travel for McDonnell Douglas, 1968-70; director of research for Mutual UFO Network Inc. (MUFON) since 1993; founding director of research for the Orange County section of MUFON since 1995

Who are those guys?: "I'd say there are several civilizations that might be involved, based on the in-depth interrogation of witnesses who are willing to go on record. Extraterrestrial societies could be better at some things, such as propulsion. But that wouldn't make them necessarily better in ethics."

Source: Bob Wood

Researched by RUSS LOAR / For The Times

GRAPHIC: PHOTO: Bob Wood: "We're just a little bit behind in understanding all of the technology used by the aliens, or visitors--or whatever you want to call them." PHOTOGRAPHER: CHRISTINE COTTER / Los Angeles Times PHOTO: IN PERSON: Bob Wood, 68, of Newport Beach used to be a director of research and development at McDonnell Douglas. Now he uses his expertise investigating UFO reports. GRAPHIC-CHART: Profile: Bob Wood / Los Angeles Times

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