

UFOs & OUTER SPACE MYSTERIES

a sympathetic skeptic's report

BY

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**Donning
Norfolk/Va. Beach**

Chapter Four

Myths and Mysteries of the Moon

The moon has many mysteries. Some are very old and some are new. Some are counterfeit. Some are very real. All are fascinating.

Every frontier seems to have developed its unique mythology. The wandering Greeks saw sirens and cyclopes and sought the Golden Fleece. Sailors thousands of years later reported sea serpents and mermaids. Strange civilizations were waiting beyond the known lands: Atlantis, the kingdom of Prester John, the Seven Cities of Cibola. Marvelous and miraculous artifacts were brought home and displayed. Unicorns and unipeds were just over the next hill.

These myths and legends often took centuries to develop and spread, as traveller's tales and minstrel's fables were combined, recombined, embellished and exaggerated. But today, an amazing new phenomenon has appeared: the legends and myths of the space frontier have sprung up almost overnight and are spreading around the world.

What are these myths about? Are they merely for entertainment, or are they in some way harmful? Why have they been ignored by the "establishment" science? Is there any truth to some of the weird and wild stories of outer space?

The moon, both before and after Apollo, has had a grip on the human imagination. It has provided its share of puzzles. Was it a mirror of the earth or an independent world with mountains and

oceans of its own? What were the lights and glows seen from time to time upon its face? What was the hidden side like? Where did the surface features come from, and where did some of them vanish to?

Many eighteenth century astronomers were convinced that the moon was inhabited. Later in 1823, Gruithuisen announced he had seen a city which year by year was changing and expanding its outline. In the 1830s, the *New York Sun* ran a series of articles about the discovery of living creatures on the moon—later exposed as a clever and amusing hoax. More than a century later, some astronomers reported making out the shadow of a massive bridge spanning the rim of the Mare Crisium; other observers suggested it was an optical illusion caused by shadows on uneven ground. What was on the moon after all?

With the arrival of on-site lunar exploration in the 1960s, lunar scientists expected many answers. The more perceptive expected new mysteries as well. Nobody could have forecast the new hoaxes which followed in the wake of Apollo.

As the first data came back to earth from the Surveyors and Lunar Orbiters fifteen years ago, strange-looking structures were seen on the surface of the moon. They attracted the attention of the mass media and of UFO buffs in particular. As science fiction writers had long theorized, alien civilizations (even extinct terrestrial civilizations) may have left traces of their visits on the moon. As other observers theorized, life might even exist, either native or imported, on the moon right up until today.

One space photograph released by the National Aeronautics and Space Administration (NASA) showed what could only be described as a group of soaring spires, more than a hundred feet high, vaguely reminiscent of radio towers or even rockets standing on launch pads. What kinds of natural formations could have accounted for these objects? Could they be artifacts or even animals?

NASA scientists suggested that they were only large (twenty to forty feet across) boulders casting long shadows because of the low sun elevation, less than eleven degrees, about a day after lunar sunrise. The largest 'rock,' however, cast a disproportionately long shadow, indicating to many people that it was three or four times as high as it was broad. Such were the widely publicized reports, at least.

Later studies caused all serious observers to reconsider this estimate. Even authors such as Ivan Sanderson soon realized that the shadow was so long only because it was being cast downhill into a low-lying crater. When topographic corrections were



"Lunar animals and other objects, discovered by Sir John Herschel in his Observatory at the Cape of Good Hope and copied from sketches in the *Edinburg Journal of Science*" Lithograph by Benjamin H. Day, New York, 1835, based upon the Moon hoax perpetrated by the American journalist John Adam Locke in *The New York Sun*, 1835; in which the British astronomer Sir John Herschel (1792-1871) supposedly viewed life on the moon through his telescope. From the Library of Congress Division of Prints and Photos. Permission granted by Smithsonian Institution, Washington, D.C.

made, the shape of the object became unspectacular; it was thirty to forty feet wide and twenty to thirty feet high, easily within the normal shape of a big rock. There were no 'mysterious moon spires' after all!

But this explanation, like so many other solutions to 'strange and unknown' phenomena which 'baffle science' and which have

'no earthly explanation' was not widely reported. More accurately, I have never seen it printed anywhere, even though all the major analysts have privately come to that conclusion long ago. But instead of correcting earlier mistakes, the writers moved on to new areas of investigation.

In order to exploit the high public interest in moon expeditions and astronaut accomplishments, many sensationalistic writers combed the space reports looking for anomalous or strange occurrences or for any ordinary occurrences which could be made to look strange after appropriate alterations. As could be expected, many of them found exactly what they were looking for.

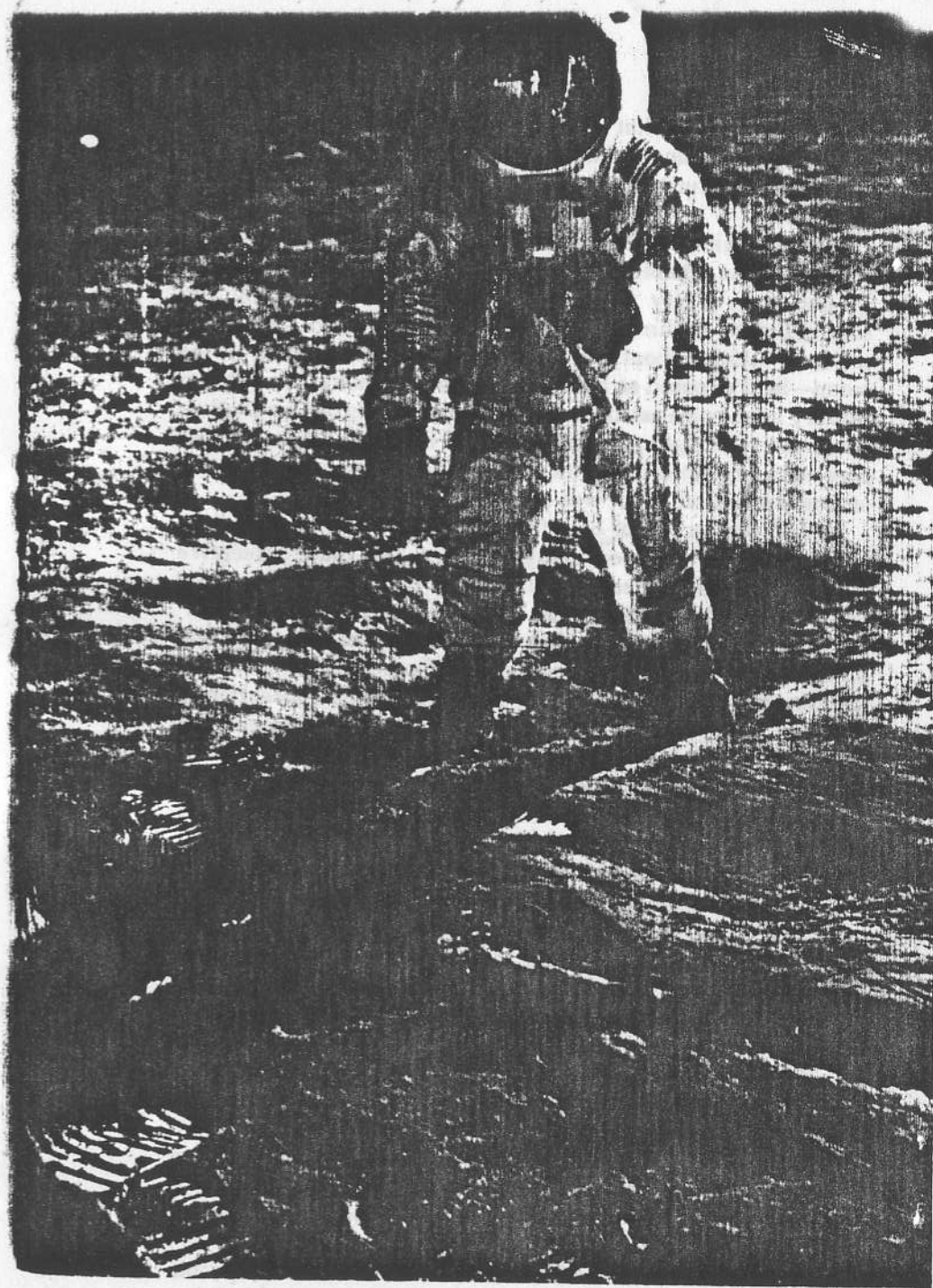
Most of the credit for setting off the modern moon hoaxes of the 1970s must go to author Joseph Goodavage, a prolific writer well known to UFO, parapsychological, and astrological audiences. He approached editor Martin Singer of *Saga* magazine with a story of alien civilizations on the moon, seen by our astronauts.

Goodavage's report was published in *Saga UFO Report* in 1974-75 in two sections: "What Strange and Frightening Discoveries Did Our Astronauts Make on the Moon?" and "Did Our Astronauts Find Evidence of Aliens on the Moon?" Excerpts from astronaut voice transcripts, interviews with scientists, and speculation by philosophers all seemed to provide overwhelming evidence of something strange going on around the moon.

In fact, the answers to Goodavage's two title-questions are "None at all" and "Not a bit," respectively, Goodavage seems to have deliberately re-edited the transcripts, raised questions he would have been an idiot not to have known the real answers to, and twisted the honest comments of naive scientists into something apparently sinister, ominous, and exciting.

Now these are serious accusations against a well known and widely read author. How can the average reader verify or refute the charges that Goodavage deliberately constructed a counterfeit mystery for motives as yet unknown?

Anyone familiar with space jargon is immediately struck by the fuss Goodavage makes over ordinary terms, and by Goodavage's published misconceptions and factual atrocities. "CAPCOM," says the author, means 'captain of communications,' and it refers to the astronaut in Mission Control who speaks to the crew in flight (actually, it stands for 'capsule communicator,' which any NASA official could have told him). "EMUs and PLSSs," which Goodavage suggests are code words for alien artifacts, and simply abbreviations for "Extravehicular Mobility



Humankind's first steps on another world helped unleash a new wave of intellectual and scientific progress—and a new type of folklore, the whispered rumors of "outer space mysteries." Photograph courtesy of NASA

Units" and "Portable Life Support Systems," used on moonwalks. "Graben" is a common geologic term, not a UFO classification.

Goodavage also seems to have a bad memory and worse research habits. For instance, he describes Alan Shepard's 1961 space flight, "... precariously perched atop a Redstone rocket in an incredibly cramped Gemini capsule... It would be two long agonizing years before the first American would achieve earth orbit." It was, of course, a Mercury capsule, and it was only nine months before John Glenn made his ride into orbit.

But Goodavage's moon hoax was based on more than sloppy homework: the major evidence for aliens on the moon' is manufactured part and parcel from distorted Apollo voice transcripts by means of out-of-context selections, juxtapositions of unrelated comments, and (when it suits the purposes) what seems to be purely fictional phrases.

"Here's an example of what a rich harvest (the transcripts) yielded after many days of digging," boasts Goodavage, presenting this report from Apollo 16:

CAPCOM: You talked about something mysterious....

ORION: OK, Gordy, when we pitched around, I'd like to tell you about something we saw around the LM. When we were coming about thirty or forty feet out, there were a lot of objects, white things, flying by. It looked like they were coming—it looked like they were being propelled or ejected, but I'm not convinced of that....

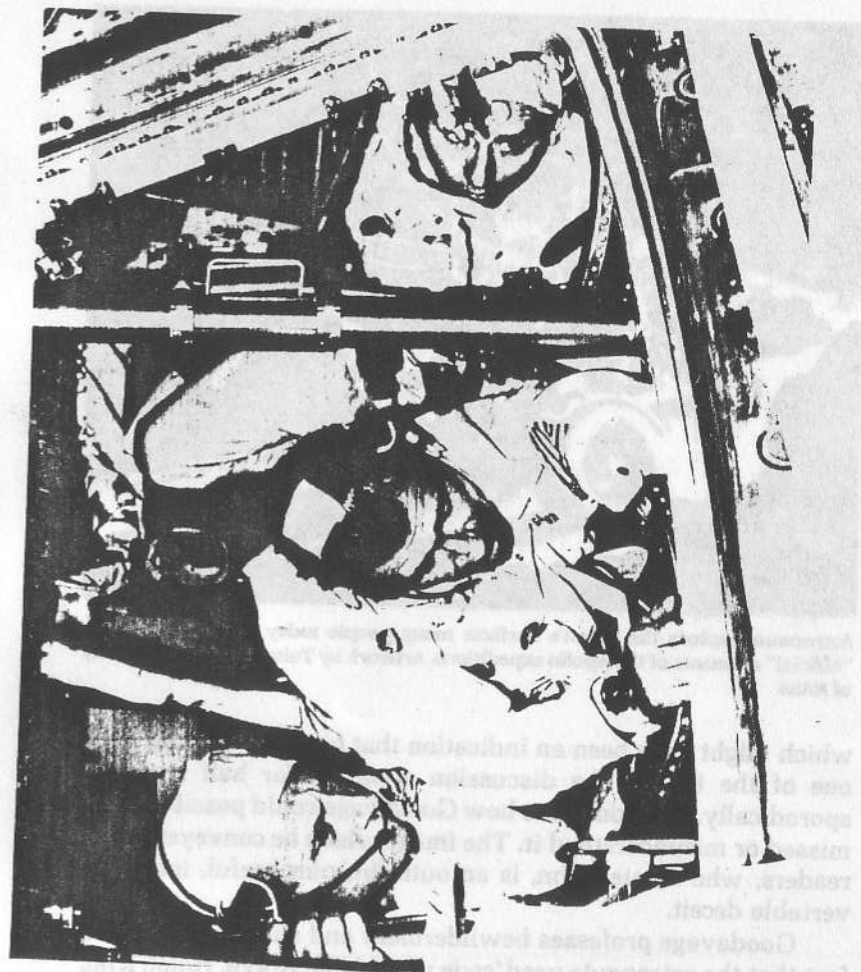
"By what?" Goodavage demands. "By intelligent life from other worlds?"

Picture the scene Goodavage has conjured up: Two astronauts on the lunar surface, turning around to look at their lunar module and being startled to see a flight of white objects, UFOs, buzzing their landing site, propelled by rockets or something like that.

But Goodavage spent days reading the transcripts, so we can be sure he knows *exactly* what the answer to his questions are. He would have been a moron not to have realized the real meaning of the astronaut's comments, since it was right in the portion of the transcript he chose to omit:

On the Apollo spaceship, only four hours outbound from earth, and nowhere near the surface of the moon, the crew is reporting on the extraction of the lunar module from its booster rocket garage.

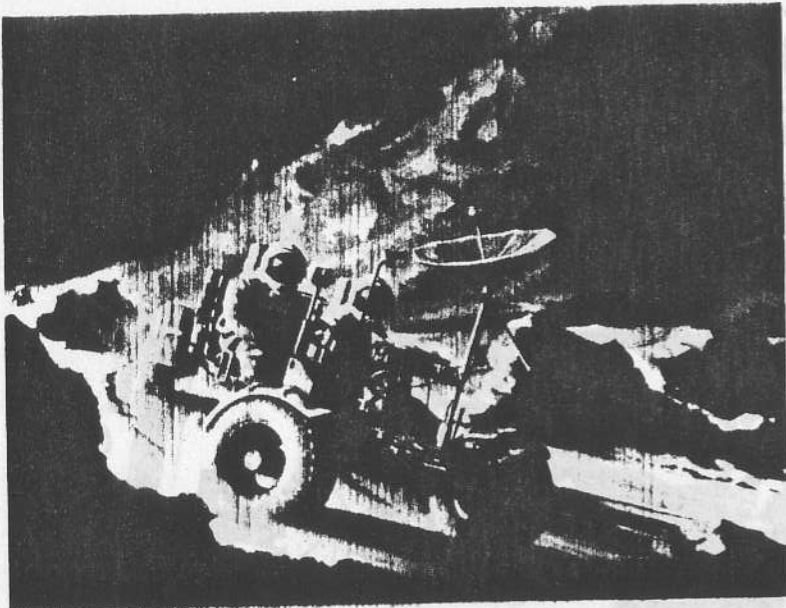
ORION: Okay, Gordy, when we pitched around I'd like to tell you a little bit about something we saw on the LM. When we were coming around about thirty or forty feet out



The Apollo-12 flight reportedly had numerous encounters with unidentified flying objects during their moon expedition in 1969. Were these authentic or just rumors? Photograph courtesy of NASA

we had a lot of white particles, looked like it was coming out from around the lunar module. Quite a number of them and as we got closer it looked to me that the primary—most of the particles were coming between the ascent propulsion tank over quadrant-1 and this omni-antenna. It looks like this was being jettied out from either some outgassing or something, and we assumed it's Mylar insulation, but not convinced of that.

The Apollo crew continued to describe the particles which were flaking off a panel on the side of the lunar module, and



Astronauts explore the Moon's surface: many people today do not believe the "official" accounts of the Apollo expeditions. Artwork by Teledyne Ryan, courtesy of NASA

which might have been an indication that fuel was leaking from one of the tanks. The discussion went on for half an hour, sporadically, and I don't see how Goodavage could possibly have missed or misunderstood it. The image which he conveyed to his readers, who trusted him, is an outright, purposeful, incontrovertible deceit.

Goodavage professes bewilderment and suspicion over the fact that the astronauts used 'code words' like Bravo, Hotel, Kilo, Romeo, and Whiskey to conceal what they were doing, when any radio operator could have told him that they were code terms for letters of the alphabet, letters used to designate map coordinates, crater sub-groups, film magazines for the cameras, and sample bags for moon rock and dust. Nobody who spent days, or even half an hour, reading the transcripts could possibly have any doubt of this.

What is the point in belaboring what should now be obvious. Goodavage used tricks and chicanery to conjure up a non-existent mystery for which he proposes nonsensical and unnecessary solutions. There are two reasons to drive this point in once again: first, Goodavage is a noted UFO mythologizer, and UFO buffs should be given an accurate idea about how far they can trust

him; second, he set off a series of new moon hoaxes which are still gathering momentum, and every one of them turns back to his articles as their basis for facts.

Beyond the myth-making of the sensationalists, astronomers have been fascinated with the question of whether the face of the moon is changing. Over the past century they have sought evidence for contemporary physical alterations of lunar topographic features. After one famous false alarm, they may have found that evidence.

The crater Linné is a lonely dot on the plains of the Mare Serenitatis. In the late 1860s it became famous when an astronomer, comparing what he could see with charts made thirty years before, announced that the crater had vanished. In its place was only a shallow white depression.

As dozens of astronomers turned their telescopes on Linné, many theories were voiced. Some thought it had been a volcano which melted or exploded. Others suggested that the walls had collapsed in a moonquake. One desperate theorist even proposed that Linné had been hit by another meteorite.

The reported disappearance of Linné is a famous case of a moon mystery widely publicized in Fortean literature and in modern moon myths. Unfortunately, interested readers are now being denied the true solution.

Linné is still there. Photographs from Apollo 15 reveal that it is a very fresh (relatively speaking! It could be millions of years old.) impact crater about 1½ miles across, with steep sides, and surrounded by a bright ejecta field about five miles in diameter. There is no indication in the photographs that there has been any physical change at all since the time when the crater was formed.

How could the crater appear to vanish? The answer lies in its freshness and in the small instruments used by so many of the moon watchers in the nineteenth century, instruments for which a 1½ mile crater was barely at or beyond the limits of resolution.

Depending on sun angle, Linné can appear as a white patch with or without a mark in the middle, a wide shallow crater, a domed crater, a smooth white dome, and other aspects. As with the Martian canals being observed in the late 1800s, much of what was seen (or not seen) was in the mind of the beholder.

The man who made the first maps in the 1830s looked at Linné again after its reported disappearance, and wrote that he could see no change in its appearance. This tipped astronomers off, and they paid more careful attention to the illumination conditions. Within a few years, Linné 'looked' normal again, so normal that one disappointed observer proposed that it had

'changed back.'

The Apollo 15 photos show a quite ordinary impact crater, perhaps the freshest of its size ever photographed. Post-impact modification is slight and there is absolutely no sign of volcanism.

The surrounding white patch, misinterpreted by early observers as the floor of a much larger crater, led to the estimates of crater size of about four to seven miles across. That crater Linné never existed. The smaller, but very real, crater Linné stands as a stark monument "to the perils of misinterpreting visual lunar observations near the resolution limit of small Earth-based telescopes," according to geologist Richard J. Pike. It is just the kind of prosaic, disappointing solution too often deliberately hidden by the moon mythmakers.

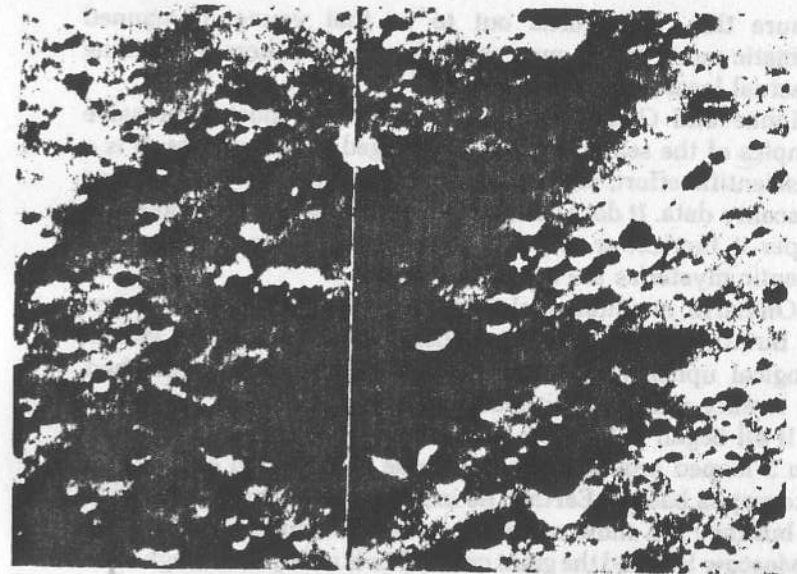
Another very fresh moon crater, however, may actually have been seen at its birth. Space scientist Dr. Jack Hartung recently suggested that a medieval chronicle of a celestial event on July 28, 1178 A.D., may refer to the actual meteorite impact which created the twelve mile wide crater Giordano Bruno.

According to a report of Gervase of Canterbury, who interviewed the eyewitnesses, a group of five men were sitting out one evening watching the crescent moon shortly after sunset. Suddenly "the upper horn split in two" and from it "a flaming torch sprang up, spewing out, over a considerable distance, fire, hot coals, and sparks." The chronicle goes on to describe other visual effects associated with the event.

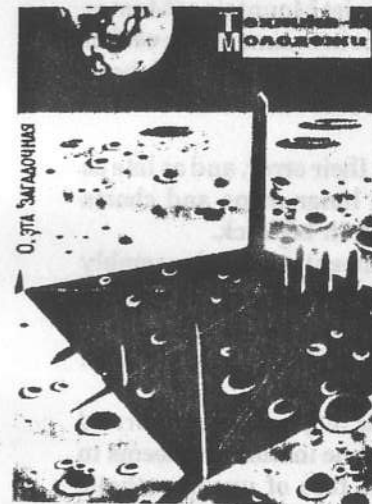
Hartung was fascinated with the report, and decided to search Apollo photographs for any fresh craters in the region of the reported 'flaming torch.' He also confirmed that the moon was indeed a crescent and was really visible just as the chronicle described it on the specified day.

One candidate immediately was found: the farside crater Giordano Bruno (36 N, 105 E—just over the eastern edge of the moon). It had a spectacular ray pattern indicating freshness, a pattern so spectacular that photoanalysts in the 1960s had overestimated its diameter by a factor of three. As a matter of fact, it has the largest ray-to-crater-diameter ratio of any crater on the moon, indirect and independent proof that it is the youngest crater on the moon.

If Bruno really is only eight hundred years old (and astronomers are still considering alternate explanations, as well as the chilling odds that the chance of it occurring when it did was only one in a million), the floor should be warmer than normal. Thermal measurements from unmanned orbiting probes could



Long shadows on the moon, seen by a robot scout ship in 1966, immediately led to speculation and controversy. Courtesy of NASA



The Russians were convinced the objects were very tall. (This is the May 1968 issue of "Technology-youth" magazine.)



A fanciful view of the moon spires, based on American research. Courtesy of Argosy magazine

measure this. If it turns out to be that young, unmanned automatic moon rovers may some day be sent there to examine the actual location.

Linne and Giordano Bruno are the two most impressive examples of the search for newly changed lunar features. It is a real scientific effort, often hampered by unreliable observations and scanty data. It does not need sensationalistic mythmakers to hamper it further, or to try to make it any more exciting. The authentic mysteries are exciting enough.

On Earth, mountains take tens of millions of years to rise and fall. But the moon has just undergone a much more violent geological upheaval: An entire mountain range has vanished, only twenty years after it was first discovered.

It all began in October 1959 when the Russian space probe *Luna 3* looped around the hidden side of the moon and relayed photographs back to Earth. The images were blurry and washed out, but they did show some hitherto-unknown features, such as the Moscow Sea and the giant crater Tsiolkovsky. Although some skeptics proclaimed that the Russian photos were a hoax, subsequent U. S. probes confirmed their essential accuracy.

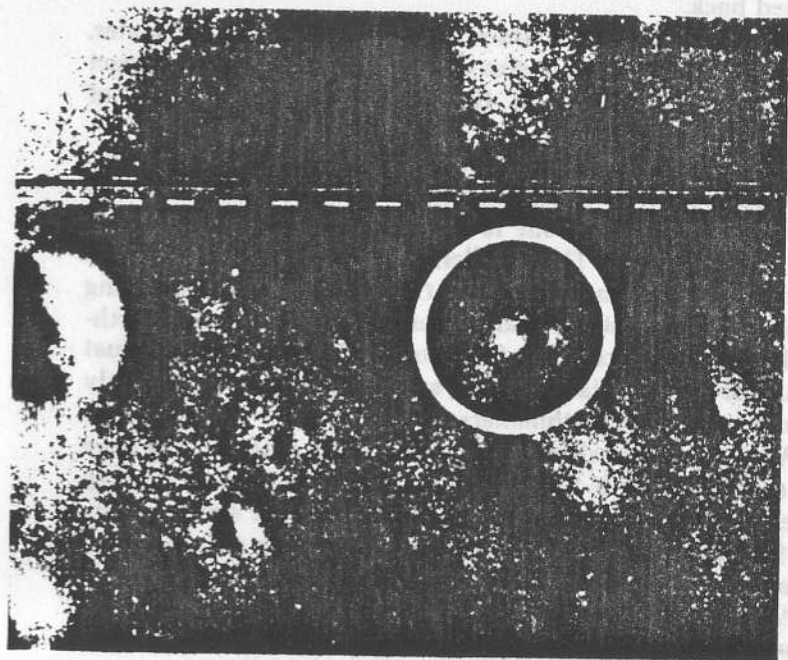
Well, not completely. On the *Luna 3* photos, a prominent linear feature was proudly labeled the Soviet Mountains (Montes Sovietici). But later U. S. probes, with better cameras, revealed that the area was in fact quite flat and that what had been interpreted as a towering mountain range was only a smear on the original blotchy photo.

But the Russians refused to concede their error, and as late as November 1978 they were still issuing lunar maps and charts with the Soviet Mountains firmly rooted in bedrock.

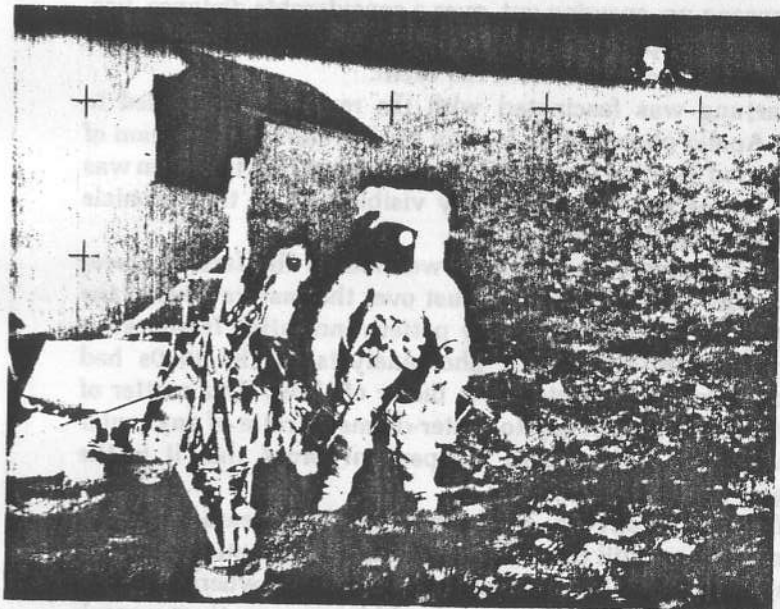
The issue came to a head at the seventeenth general assembly of the International Astronomical Union in Montreal in August 1979, with American space scientists digging in their heels against the Soviet scientists' insistence on official international blessing for the phantom mountain range.

When the Russians showed up, their maps no longer carried the name of the Soviet Mountains. Someone in Moscow seems to have decided it was a lost cause in the face of unsympathetic American scientists with suitcases full of Apollo photos of a flat, cratered plain where the mountain range should have been. But the Russians were not to go home empty-handed. They presented a list of eight new craters for the lunar far side, including one named Lipsky.

"Their maps show a nice, round, rimmed depression there," one American moon mapper remarked. "So we checked our



This pyramidal structure was spotted in the late 1960's. Courtesy of NASA



... it was a surveyor moon robot, much like this one visited by Apollo-12 astronauts in 1969. Courtesy of NASA

photos again. Nothing—there's no crater there at all! Maybe we'll call it the Lipsky Plains or something." Whatever the fate of the crater named Lipsky, the massive Soviet Mountains have evaporated into the mist of politics from which they originated.

The Japanese space program is continuing to gain momentum, and some experts are predicting that Japan will launch scientific moon probes within a few years. But according to the *National Enquirer*, a Japanese spaceman has already been out to the moon—in spirit, if not in body.

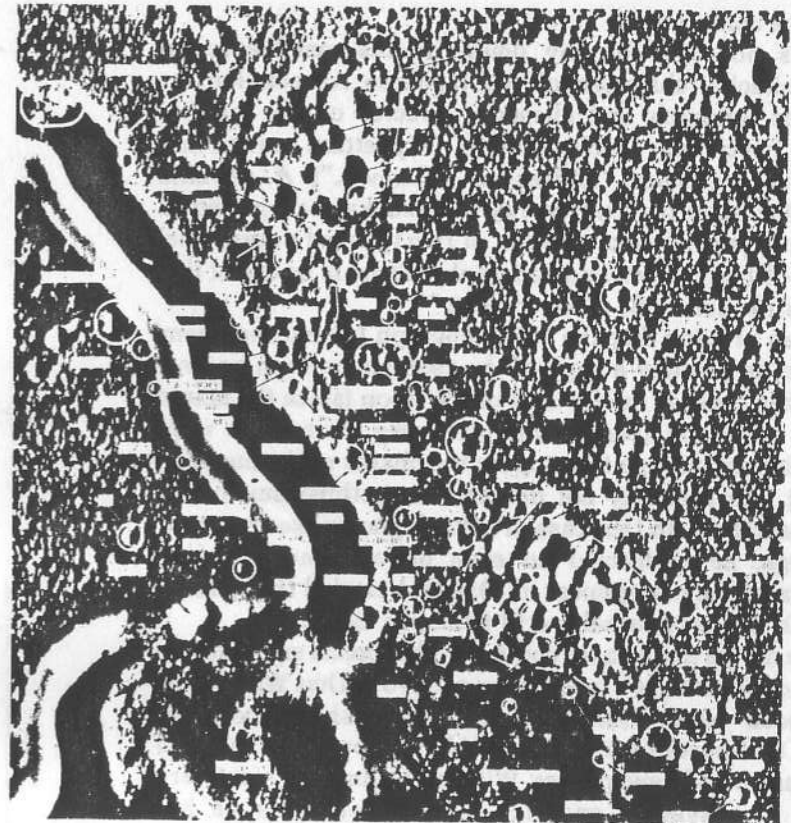
"Psychic Revealed Moon's Dark Side Before Anyone Ever Saw It," shouted the headline in the September 19, 1978, issue of the weekly tabloid. According to author John Cooke (like most NE staffers, an expatriate Britisher getting training in American tabloid press techniques), a Japanese psychic named Koichi Mita "mentally projected an image of the moon's dark side onto a photographic plate—twenty-six years before anyone ever saw it." The picture, which was made in November 1933 in Gifu City, Japan, was confirmed by the Russian moon probe Lunik-3 in October 1959, claims the article.

"Psychic" photographs are no strangers to skeptics, as witness the claims (and exposures) of Ted Serios, Uri Geller, Masuaki Kiyota, and others. What is novel about this new claim is that the photo was allegedly made decades before anyone knew what should have been seen there.

(To be picky, anyone can project an image on the moon's dark side onto any piece of film, since the moon's dark side is black, as is the color of exposed film. Cooke was simply confusing the popular, but incorrect, term "dark side of the moon" for the more correct "far side of the moon." Scientists sending photographic probes make sure that they pass over the target when the near side is dark and the far side is consequently sunlit; otherwise the photographs would not turn out.)

According to Japanese psychic researchers, the "thought" photograph (or "nengraph") had been held under strict controls since it was made. Unfortunately, no records of the original session seem to exist, since Gifu City was burned to the ground during an allied air raid in 1945, but somehow the photo survived. Why it should have been so carefully guarded is puzzling, since it is hard to imagine that its custodians would think that it would ever be verified. Flights to the moon were considered to be a century or more away.

The most disturbing aspect of the whole business is that the nengraph does look very much like one of the Lunik-3 photos, but there is one problem: the Lunik-3 photos do not look much like the



Complex astronaut jargon and weird place names often understandably confused the public. This is an Apollo-15 map of the Hadley Rille area. Courtesy of NASA

moon. As confirmed by later American flights, the Lunik-3 photos are of such poor quality, are so blotchy and washed out, and have so many extraneous features and errors (an entire mountain range, proudly called the "Soviet Mountains," turned out to be a data-transmission error), that they are poor reproductions of the actual view of the far side of the moon.

But there they are, blotches and all, on the alleged 1933 thought photograph. Not even considering the remarkable similarity of the two photos (the angle of view, range, lighting conditions, and numerous other variables are identical), the contents alone lead a skeptic to suspect that the purported 1933 nengraph is a clumsy forgery of the 1959 Russian photo, subsequently placed under the "strict controls" of the original (if, indeed, it ever existed). Such a trick is a classic one in the world of conjuring, particularly when enthusiastic scientists are the ones

enforcing the controls.

"There's no room for any doubt in this case," asserted Toshiya Nakaoka, chairman of the Japanese Association for Psychotronic Research and allegedly director of the Fukurai Institute of Psychology in Niizakadori. (My letters sent to that address were returned "addressee unknown.") A psychic researcher for more than thirty years, Nakaoka was quoted as saying, "Mita gave a demonstration of two types of paranormal ability, out-of-body travel and nengraphy. There is no doubt this nengraph is the same one made in 1933."

But even proving that the 1933 nengraph (whenever it was really made) is actually a copy of the 1959 photograph and not really another view of the far side of the moon (since the actual date of the nengraph session was lost when the records were destroyed, it's impossible to compare the phases of the moon on the photos) will probably not dampen the enthusiasms of the psychic researchers. In that case, if Mita did not make an out-of-body voyage, he performed an even more astounding feat: precognition of the newspapers of 1959 that carried the Russian photo. QED, the paranormal world triumphs again.

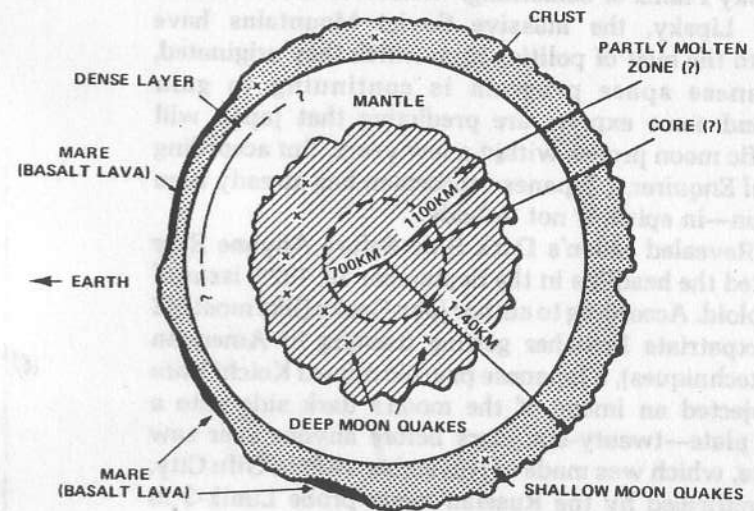
But the myths and hoaxes continue. The topical and spiritual successor to Goodavage's moon hoax of 1975 is Don Wilson and his paperback books *Our Mysterious Spaceship Moon*, and *Secrets of Our Spaceship Moon* also widely excerpted in the UFO pulp magazines and newspapers. Wilson's techniques seem very similar to Goodavage's, and like all good students he has improved on his teacher. Take for example this Mercury-9 UFO sighting as 'reported' by Wilson:

Cooper described the object as being of 'good size,' and claimed: "It was higher than I was. It wasn't even in the vicinity of the horizon...." This indicated that the bogey (NASA's slang term for UFOs) was not a star or other object, either natural or manmade.

Wilson has the chutzpah to actually give a true footnote on the source of Cooper's quotation, lending authenticity to the passage. Obviously he never expected anyone to check up on his footnote, because this is what they would have found:

At five hours into the Mercury flight, Cooper is reporting on auroral activity ('northern lights') in space: "Right now I can make out a lot of luminous activity in an easterly direction. I wouldn't say it was much like a layer. It wasn't distinct and it didn't last long, but it was higher than I was. It wasn't even in the vicinity of the horizon and was not well defined. A good size.... It was a good sized area. It was very indistinct in shape. It was a faint

INTERNAL STRUCTURE OF THE MOON



NASA HQ SL76-2288 (1)
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The interior of the moon, as revealed by Apollo data—not hollow! Credit: NASA

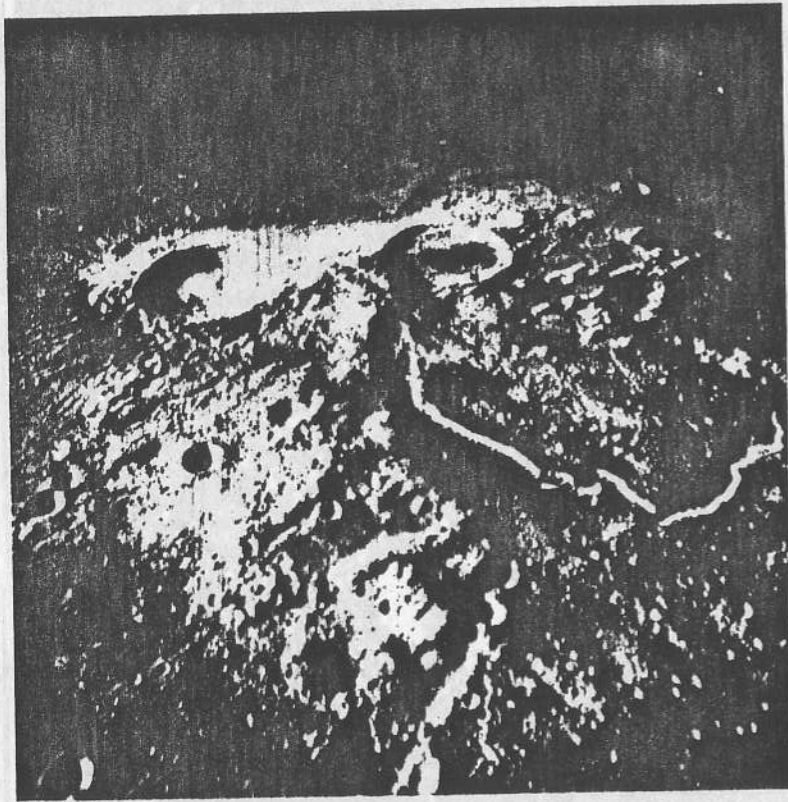
glow with a reddish-brown cast."

Cooper's words can in no way be construed to describe a conventional UFO—until Wilson is done distorting them. This is fraud, pure and simple. It is the reader who is being defrauded.

Cooper, who does believe that some UFOs are authentic and probably represent alien spacecraft, has all the same denounced the UFO accounts associated with his space missions. The fabled Mercury-9 UFO ("also seen by ground personnel," according to the late Frank Edwards) never existed, Cooper has asserted, and "I have the original on-board tapes in my possession" to prove it. The former astronaut went on (in a letter to me in early 1978): "I am really getting antagonistic at various people 'creating' whatever UFO stories they can link with whomever they want in order to make a profit."

The following year, in an interview with *OMNI* magazine, Cooper elaborated: "I've always been honest about my views on the subject. Because the astronauts have been so badly misquoted by irresponsible journalists, it's up to each of us to say what he believes in.... It got so bad that there were deliberately falsified tapes of communications with the astronauts, where UFO material was simply edited in."

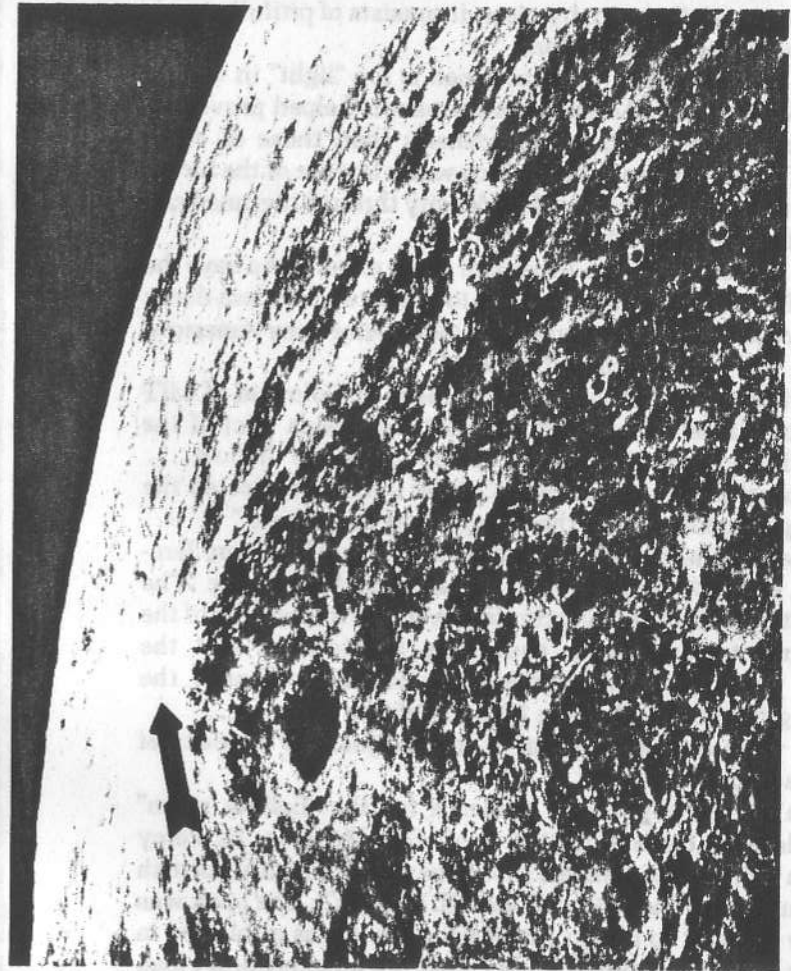
Wilson's main thesis is that the moon is a giant space ark, a



The crater Aristarchus has been the site of many mysterious "lunar transient phenomena" lights and hazes. Credit: NASA

hollow alien spacecraft. Two obscure Russians suggested this in a magazine article in 1970, and it must have looked like a good story. Unfortunately it is just not true—Wilson is totally unable to name any scientist who believes it, despite numerous allusions to 'many scientists' or 'numerous space specialists.' If Wilson had not presented so much distorted evidence in his book, he would probably be the only person in the West who believes the theory.

He writes as if he trusts all of Joseph Goodavage's moon hoaxes, so we can conclude that he never did any of his own original research. He asserts that it's "a mystery" why "craters are rare on earth . . . (while) the moon is a pockmarked world . . . Less than a score of such craters can be found on earth; millions on the moon." Wilson is just ignorant. The last decade has witnessed the discovery and investigation of the earth's equivalent of lunar craters—as documented in a dozen scientific and popular journals.



The crater Giordano Bruno, whose birth may have been witnessed in the Twelfth century A.D. Credit: NASA

Wilson tries to side step any possible criticism of his phony evidence with the UFO standard technique called "the Galileo Effect" gambit: "So-called modern scientific knowledge—concepts that have been entrenched for ages like old superstitions—are not uprooted easily. New ideas . . . are generally rejected offhand, and often with derision, and hostility . . . So too it will probably be with this concept." . . . You know it, Don!

In actual substance, just what is Wilson's much touted evidence that the moon might be hollow? When a reader examines

the evidence carefully, piece by piece, it consists of pitifully weak and irrelevant 'facts' and fictions.

First, Wilson asserts that the moon is too "light" in weight unless it were hollow. Actually, as astronauts helped prove, the rocks from the moon show less density than those of earth because of some differentiation which was a feature of the births of the two neighboring worlds. The density through the moon can be accounted for by solid materials.

Next, Wilson quotes an American space expert who says the moment of inertia of the moon seems to indicate a core less dense than the crust. But the data was from 1962, before any American spacecraft had even reached the moon!

"Another study conducted by Dr. Sean C. Solomon of MIT claimed that latest data of the gravitational fields (sic) of the moon indicated that the lunar sphere could be hollow.... Solomon concluded that the Lunar Orbiter findings indicated 'the frightening possibility that the moon might be hollow.'"

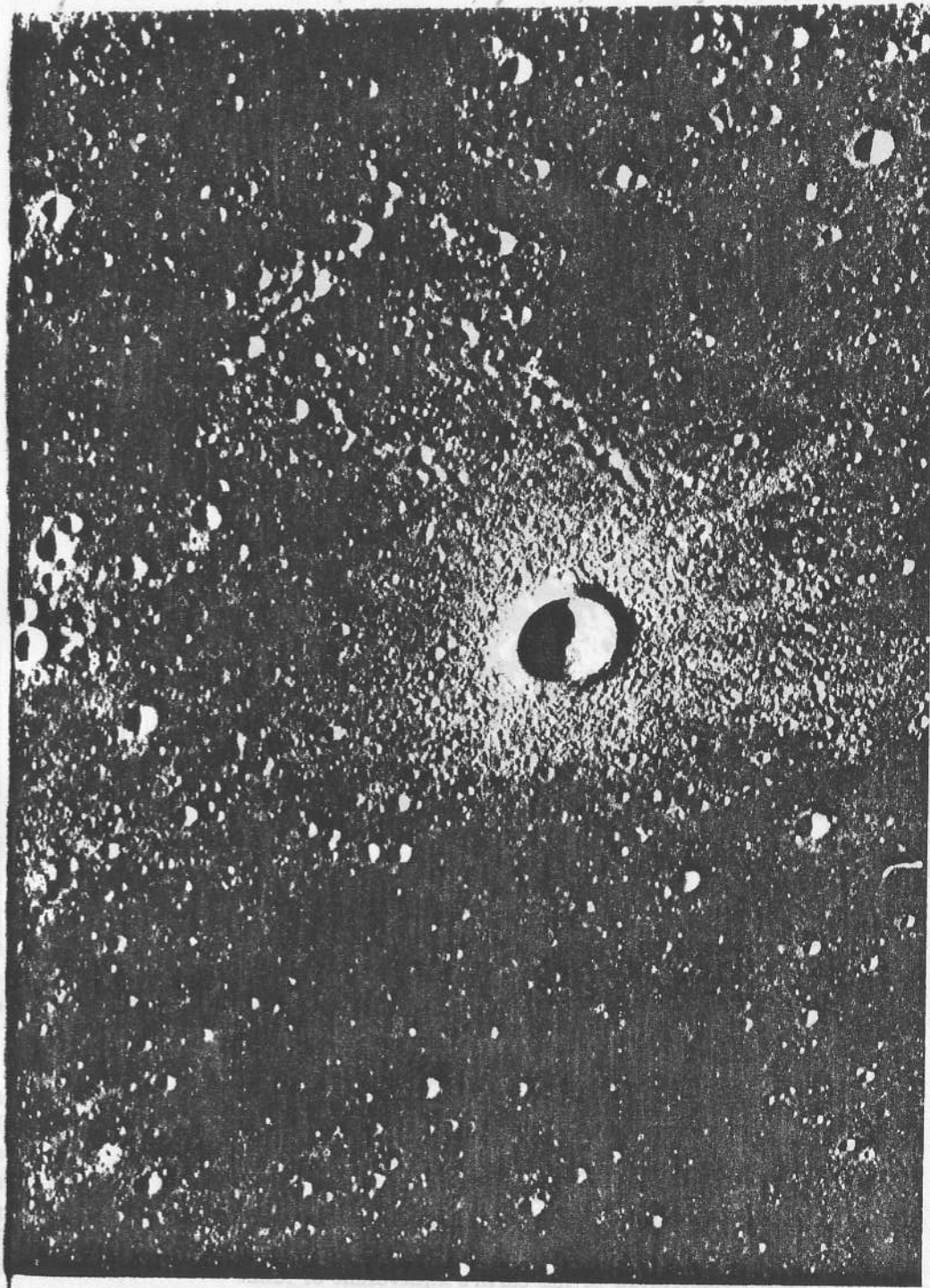
I looked up the vaguely referenced article in "The Moon," Jan.-Feb. 1974, pp. 147-65, and found these concluding words: "The lunar orbiter experiments vastly improved our knowledge of the moon's gravitational field, especially considering that the classical value for (the moment of inertia) indicated the frightening possibility that the Moon might be hollow...."

Now what does this mean? It implies just the opposite of what Wilson claims it does.

Much of the supporting evidence for the "hollow moon" theory allegedly came from the book *Our Moon* by H. Percy Wilkins, a British moon expert (not to be confused with a British UFO enthusiast of the 1950s named "H. Wilkins"). The book was extremely difficult to obtain (try it yourself: it was published in London in 1958 by Frederick Muller, Ltd), but an interlibrary loan request finally found a dusty copy at the University of Oregon in Eugene. It had been read numerous times when it had first come out, but since 1963—when the real moon data began coming in from space probes—it had not been checked out a single time until my request. Yet Wilson considers it one of his best, most up-to-date sources of supportive information!

Nonetheless, the search was worth it. It showed again how blithely Wilson seems to have rearranged—even reversed—the scholarly footnotes he presented to his readers.

Case in point: Wilson claimed that Wilkins said, "Every indication is that the moon, thirty miles beneath its crust, is hollow." What Wilkins really wrote was that "everything points to the more or less hollow nature of the crust of the moon, within



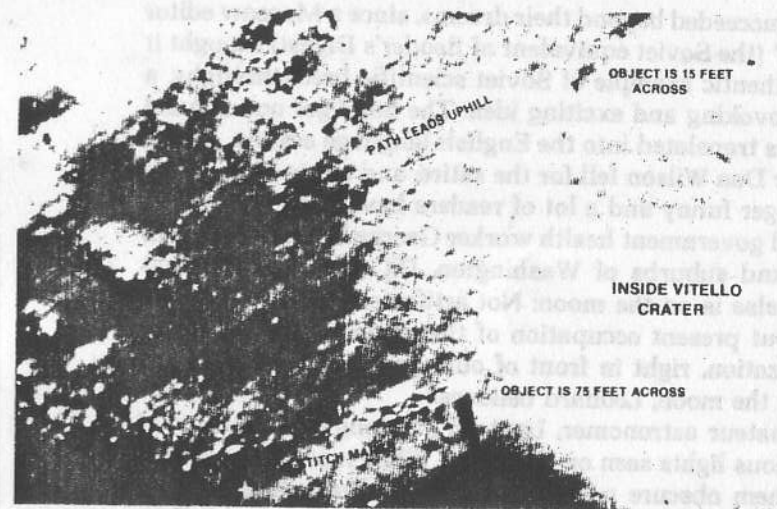
Linné Crater, which appeared to disappear in the nineteenth century. But it's still there, with no sign of dynamic activity. Credit Lunar and Planetary Institute

some twenty or thirty miles of the surface (p. 120): (Wilson occasionally quotes it correctly but out of context, too.) Wilson claimed that Wilkins said that these hollows (which Wilkins thought to be natural caverns) could amount to "no less than fourteen millions of cubic miles" (that is about 2% of the moon's volume). What Wilkins actually wrote (pp. 119-20) was: "Long ago it was calculated that if the moon had contracted on cooling at the same rate as granite, a drop of only 180°F would create hollows in the interior amounting to no less than fourteen millions of cubic miles.... However, it is unlikely that the moon contracted at the same rate as granite; it is almost certain that nothing like fourteen millions of cubic miles of cavities were formed...." Wilkins concluded (p. 123) that "the moon, then, would seem to be a world, doubtless cold and solid in the centre, but honey-combed near the surface beneath the giant craters and domes." This was a reasonable supposition for the 1940s and the 1950s, and is now known to be not true—but an authentic report of Wilkins' theories in no way could support Don Wilson's wild ideas, so Wilson took extensive liberties with Wilkins' ideas.

In a way, the hollow moon books are masterful examples of scholastic fraud, and show great skill, imagination, and effort on the part of their author. It's too bad he chose such an obviously crackpot idea—if he had used the same techniques in politics, economics, or religion, he might have written a classic which could have been seriously debated in academic circles for decades!

Wilson's first book did not make much of a splash outside the world of UFO enthusiasts (serious ufologists thought it was nonsense, too—but somehow their followers never got the unambiguous word to that effect). A favorable review did appear in the Lewiston (Maine) *Daily Sun* in mid-1979: "Don Wilson has come up with some very interesting facts that support life in outer space." But the only other paper that seems to have reviewed it is the West Chester (Pennsylvania) *Local News*, whose editor complained that "the book is sloppily written and poorly edited. It is so repetitious it might make the reader wonder whether the author slapped together notes and fragmentary writings." There were few other ripples in the real-world but the book's greatest influence has already been felt on subsequent UFO books and magazine articles, which have been using it as a reliable data source.

And now comes the best part, so get ready for a laugh. Just who are Vasin and Shcherbakov, the great Soviet scientists from the Academy of Science who are the originators of the 'hollow



Three tabloid headlines show how popular Leonard's theories became.

moon?

Any attempt to find these names in standard reference works such as "Who's Who in Soviet Science," "Who's Who in Russia," or data bases of all scientific papers published in the USSR in the past twenty-five years is bound to fail, as I found out when I made those searches. I can find no Soviet scientists of any renown who go by those names.

Their true status was revealed early in 1977 when I received an amazing piece of information from colleagues at the prestigious Vernadskiy Institute in Moscow. I was told that Vasin was a journalist specializing in engineering and space topics. Shcherbakov was a friend of his. They have never been associated in any way with the prestigious Academy of Sciences.

But the most astounding part of the letter disclosed that the "hollow moon theory" was entirely a joke! It was a spoof! The article was written for a scientific journal as humorous relief, as a tongue-in-cheek satire on the later discredited suggestion of Josef Shklovskiy that the moons of Mars are hollow space vehicles of enormous size.

What Vasin and Shcherbakov set out to do in their humorous put-on was to show just how wild a space theory could get and still not be disprovable in any rigorous sense. The theory was never a serious one and the scientists, who read it in manuscript form, realized it so the authors could stack the deck in order to show how easily it could be done.

They succeeded beyond their dreams, since a Moscow editor of 'Sputnik' (the Soviet equivalent of Reader's Digest) thought it was an authentic example of Soviet scientific breakthroughs, a thought provoking and exciting idea. The hoax got out of hand when it was translated into the English-language edition. By the time author Don Wilson fell for the satire, and wrote his books it was no longer funny and a lot of readers have been misled.

Retired government health worker George Leonard, living in the Maryland suburbs of Washington, D.C., has claimed that somebody else is on the moon: Not artifacts, not traces of past activity—but present occupation of the moon by an intelligent alien civilization, right in front of our eyes. UFOs on earth are ships from the moon, Leonard believes.

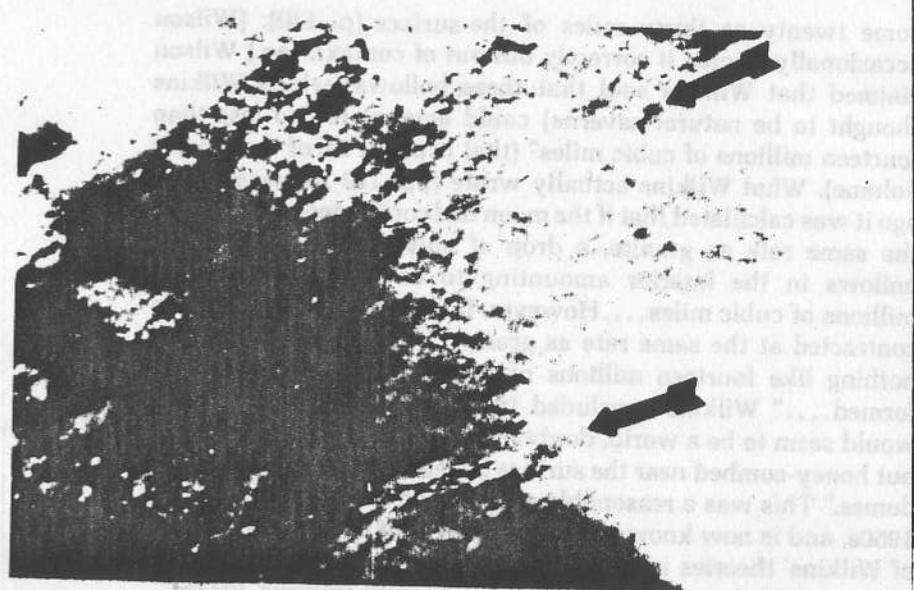
An amateur astronomer, Leonard had long been fascinated by mysterious lights seen on the moon. While most astronomers consider them obscure natural events (and we'll discuss them later), Leonard is convinced that the only explanation is that they are traces of the activities of his secret moon inhabitants.

When the first moon photos were sent back by American space probes, Leonard carefully searched them for signs of alien artifacts which he already expected were there. He spent weeks staring at the photographs on file at the Public Information Office at NASA headquarters in Washington. Amid the lights and shadows of the harsh lunar landscape (not 'terrain,' to be accurate, but 'lurain!'), Leonard found what he was looking for.

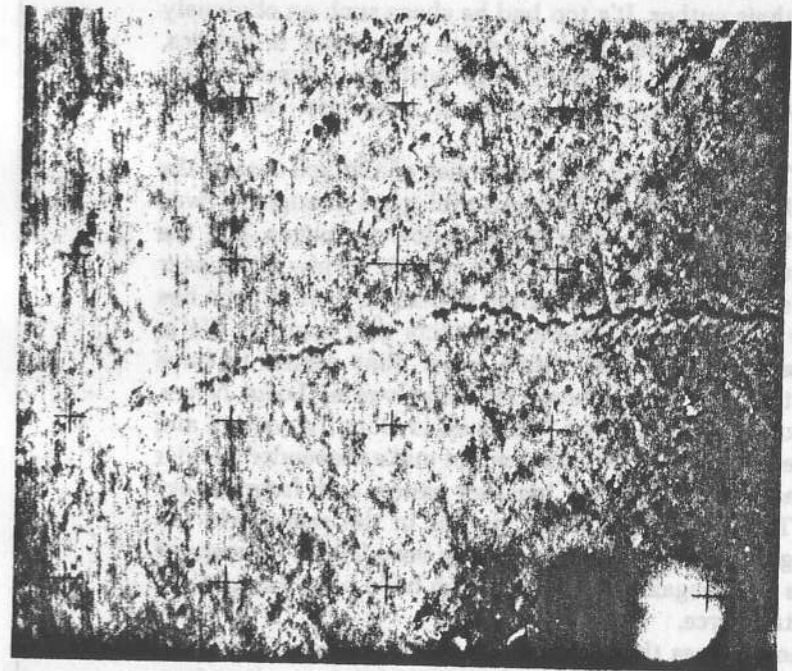
He "located" manufactured objects, towers, platforms, cranes, hieroglyphics, trap doors, pipes, and other objects, some of them miles in size. Once he found them, he realized that NASA, too, must have seen them. Since the space agency has never announced such discoveries, and since space officials profess ignorance, bewilderment, amusement and annoyance when he tries to make them admit it, the only logical conclusion is that NASA is deliberately covering up some evidence.

In fact, just like the astronomers who mapped hundreds of Martian canals—imaginary, non-existent canals—two generations ago, Leonard has been seeing things which aren't there, created by illusions of debris, crevices, shadows, ejecta blankets, wall slumping, and miscellaneous detritus. The simple truth is that there is nobody else on the moon. Not one of Leonard's hundreds of catalogued objects exists.

The quality of reprinted photographs is insufficient for any reader to verify that the artifacts are or are not there. Anyone who wants to check up Leonard and me must obtain his or her own prints.



Two boulders left tracks on the surface, as seen by unmanned "lunar orbiter" in the late 1960s. Credit: NASA



Boulder tracks down a mountainside seen out the window of Apollo-17 on the surface, December 1972.

Leonard's problem was that he knew practically nothing about how moon scientists were analyzing and distributing the lunar data. He had read a few clippings, haunted the headquarters Public Information Office, visited the nearby Goddard Space Center, and claims to have flown to California to interview a renegade ex-NASA scientist who confessed the whole coverup ("Dr. Sam Wittcomb" is the pseudonym of an apparently entirely fictitious character which Leonard should have saved for a science fiction novel, not a book alleged to be based on fact). But Leonard had never heard of the top American moon study center, the Lunar and Planetary Institute adjacent to NASA's Johnson Space Center in Houston. Worse, he was satisfied to use publicity photographs which were several generations degraded from the original crystal clear moon pictures—Leonard did not even seem to know there were crystal clear moon pictures.

I visited the Lunar & Planetary Institute (next door to the Johnson Space Center south of Houston) to track down the original prints of the shots Leonard claimed he could see artifacts in. The artifacts were not there. I telephoned Leonard to inform him of my discovery of higher quality photographs, and he asked me how his moon machines look in the better pictures. There was a mixture of disappointment and distrust in his voice when I told him that the moon machines evaporated in the cold light of reality. When I told him that I was working in the NASA space program myself, he immediately decided I was part of the NASA coverup and that he could safely disregard my advice as part of a secret campaign to discredit him.

In the photographs, which I encourage everyone to examine for themselves, there are no traces of artificial objects. A "super rig" a mile high was only a pile of boulders near a crater wall. A "latin cross" was a debris mount (Leonard omitted, out of ignorance rather than deception, additional photographs which showed overhead closeups of the region.) "Rolling boulders" were just that. A "ladder" was only an ordinary crater chain. A "pure energy entity" turned out to be precisely what Leonard said it could not be: a splotch of white dust on the rim of a crater. A "manufactured object" on the floor of a crater is only a landslide.

Amazed readers should not take my word for it, since they would only be exchanging one authority for another. Instead, go buy the high quality prints from the Space Sciences Data Center, or visit the archives in Houston or Washington or Flagstaff. Either Leonard or I need to have our eyes—and head—

examined, and a curious reader should judge for himself or

Leonard also refers to excessive seismic activity caused by his lunarian civilization(s). Such activity does not exist. The moonquakes heard by the ALSEP seismic sensors are very weak; they even detected the footsteps of the astronauts who had turned them on.

At the photo interpretation laboratory in the annex building at the LPI south of Houston, specialists had spent some time before the Apollo landings searching the orbital photographs for boulder tracks. They wanted to determine the nature of the surface, how strong it was, how easily it was packed down, how sticky it was. During moonquakes and impacts eons ago, rocks and had been jarred or thrown loose from mountainsides, bouncing and rolling downhill.

During this search, the analysts accidentally came across a photo of a tiny artificial pyramid only six feet high. It turned out, of course, to be one of the Surveyor robots landed on the moon in 1966. Leonard claims that careful searches like this must have missed his moon machines thousands of feet high, or else that all the moon scientists (none of whom he had ever met) are one and all a pack of liars.

Time and again Leonard shows how meagre is his grasp of ordinary scientific concepts, and how deep seated in his loathing of 'establishment scientists.' He says we do not pick up the lunarian radio traffic because they may use different voice frequencies than those audible to the human ear. He forgets—or never learned—that the radio frequencies of a signal carrier have nothing really to do with the frequencies of the sound pattern they are carrying, and that we could hear or detect the radio signals no matter what the configuration. But the moon is radio-wise dead, dead, and quiet. Again, many times he refers to dirt-moving devices which operate like vacuum cleaners or snow blowers, not for a moment pausing to realize why a vacuum cleaner would not function in the lunar vacuum.

Checking up on the book's claims, a skeptical reader is ultimately driven to the dilemma of two unpleasant verdicts: sloppiness or incompetence. Genuine puzzles seem deliberately distorted, such as the sighting on Apollo 17 of a light flash on the moon. Leonard claims it could not have been caused by cosmic rays hitting the pilot's retina, a common space effect"...not has the Light Flash Phenomenon from cosmic rays ever confused the highly trained astronauts," he asserts. In fact, if he had bothered to do original research and read the actual flight transcript, or listened to the actual voice tapes (as I have), he would discover

that the astronauts were discussing the possibility that the Light Flash Phenomenon was indeed the cause of the flash they had seen, although nobody was sure.⁴⁵ They were indeed confused.

The David McKay Publishers were so confident in the comical possibilities of Leonard's book that they took out a double column ad for it in the October 24, 1976 *New York Times Book Review* section. Hypes the blurb: "Evidence the government has suppressed reveals unmistakable signs of underground life, massive structures, and vast machines at work on the Moon." The evidence is "incontrovertible," says the ad: "What the astronauts reported and what the photographs actually show have been discussed inside NASA, but officials will not talk about it publicly. The astronauts themselves used code words in describing many things they saw, but the purpose and meaning of these code words has been kept secret...." Evidently *Publishers Weekly* liked the book, because they supplied a quotation used at the end of the advertisement: "Leonard makes a detailed presentation of the 'evidence' for the existence of extraterrestrials on the moon. He has spent years studying key photos—of Tycho, King Crater, the Bulliadus-Lubinicky area—... His photos, to which he has added his own drawings for clarity and emphasis, are truly mind-boggling when one begins to see what he sees: immense 'rigs' apparently 'mining' the moon; strange 'geometricities,' markings, symbols, lights, evidences of change and movements."

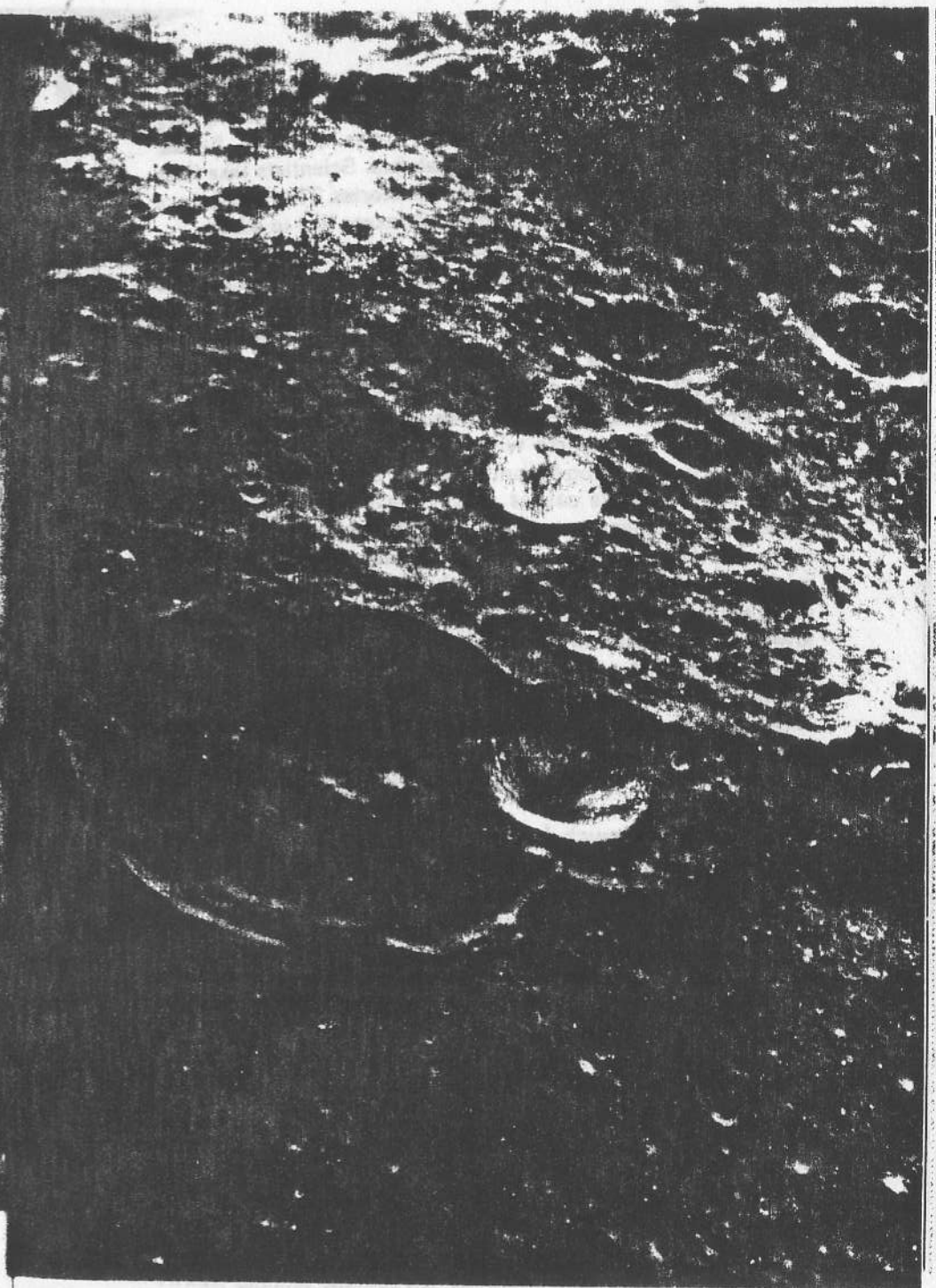
Examination of printed photographs is difficult because of the reduction in clarity required for book production. So beginning in 1976 I issued a series of "no-lose guarantees" challenges to Leonard and/or anyone else who believes "somebody else is on the moon." Pending an agreement between our two parties, anybody who wants to can go and buy their own copies of these disputed photographs—and if they see what Leonard claims is there, I'll reimburse them all expenses (but if they can't see what Leonard claims is there, he pays their expenses). Funning thing is—in five years, nobody has agreed to pick up the other side of this challenge!

(In mid-1981 Leonard wrote to me and asked me not to publicly criticize his book anymore, implying it had been an honest mistake. Although the book is out of print, it is still being circulated, quoted, and used as a reference—so in light of Leonard's unwillingness to publicly say the book was wrong, I feel compelled to publish a refutation of it.)

The greatest mystery of the moon remains the reports of lights and shadows on the surface, which come and go



Author confers with George Leonard in his suburban Washington, D.C. home.



Resurrected "Moon machine" photos were being distributed in 1981 in California. George Leonard called this a "T-scoop cutting away central mountain . . .," but recently recanted his whole book and wants to forget the entire thing.

Insert: This is what some people think they can see in this crater—

The high-resolution Apollo photo show that the "structures" really are only hills, crevices, and craters. Credit: Lunar and Planetary Institute

unexpectedly. Called 'Lunar Transient Phenomena' (LTP), they consist of hundreds of documented cases of glows, flashes, obscurations, mists, and colored patches. Scientists take them quite seriously and have a number of theories. They also know a lot more about them than the moon hoaxers like to admit.

The distribution of LTP sightings is not random, showing a preference for the edges of the lunar maria or a few young craters (there are very few reports from the lunar highlands), suggesting a volcanic connection. There are no coincidences between the most active LTP sites and any of the moonquake regions charted by the ALSEP stations, nor have the ALSEP ion detectors found any correlation with LTP either. The crater Aristarchus accounts for a third of all reports with other sightings in Alphonsus, Schroter's Valley, Piton Mountain, Plato, Dawes, and Posidonius.

Several possible causes of LTP have been suggested, and since the phenomenon manifests itself in so many different ways, several of the theories could be right simultaneously. Tidal effects might release internal gases such as those spectroscopically analyzed by Kozyrev in 1958; sunrise effects and other effects of low-angle illumination on surface glass could account for some brightenings; the earth's magnetosphere brushing against the moon, either as a magnetic tail, a magnetopause, or a bow shock could excite lunar ions to luminescence in a manner similar to the aurora borealis ("northern lights") on earth. Direct solar plasma interactions with the lunar surface, caused by solar flares, is also suggested.

Apollo added much data to the question of dust activity near the moon. Although the moon does not have a real atmosphere, tiny particles are constantly being driven off the surface by solar radiation. Observations by astronauts in orbit showed sunbeams before orbital sunrise, indicating the presence of suspended dust clouds. An instrument called the Lunar Ejecta and Micro-meteorite (LEAM) sensor was left on the moon as part of one ALSEP station and it confirms the presence of dust particles moving away from the sunlit side of the moon at dawn and dusk. Orbital detectors have spotted transient belches of gas from the lunar interior.

A special session of the Seventh Annual Lunar Science Conference in 1976, hosted by the Lunar Science Institute in Houston, was devoted to "Recent Activity on the Moon." Both moonquakes and LTP were discussed, and physical links between latent volcanism, extra-lunar triggering mechanisms, and visual observations were analyzed. An evening seminar which I personally attended was devoted to a lively discussion and

debate about LTP.

In concluding that LTP must be an artificial phenomenon, not a natural one, the moon hoaxers are in the same frame of mind as the primitive savages who watched a thunderstorm, did not understand it, and concluded that the gods were making thunder and lightning. Natural explanations are sabotaged and any real attempt to solve the mysteries is derailed.

And no list of moon hoaxes would be complete without the claim that the entire Apollo program is a fake. This concept, being promoted by a West coast author, is having a little trouble getting accepted by the news media. (It seems that there are certain standards.) Santa Cruz, California, writer William Kaysing is trying to convince people that the entire Apollo moon program never happened.

There have always been people who could never believe that men have walked on the moon. The U.S. Information Agency took an opinion poll a few years ago in a number of Latin American, Asian, and African countries. They discovered that most people had not even heard of the moon flights, that many who had heard of them dismissed them as propaganda or science fiction, and that many of those who did believe that men had been to the moon were convinced that it had been the Russians! But even in North America and Europe, a fringe element has claimed all along that the moon flights were faked.

Kaysing believes (or professes to believe) that astronauts actually never step into the Saturn rockets at Cape Kennedy, but actually are whisked away to Nevada while the world watches the launch of an empty space capsule. Hollywood special effects men (and we know how good they are!) create the moon TV scenes somewhere in Arizona. When it is time to return, the men get into another capsule which is dropped from a high flying cargo plane so it can float into the view of the newsmen. The moon rocks are not from the moon at all: "You can pick them up anywhere—a meteorite, a piece of rock from the earth," Kaysing says. "They're common."

Kaysing may have moon rocks in his head, but the idea is fun to think about. It is trivially easy to refute point by point, but like all good hoaxes it will be impossible to stamp out, as it returns every few years to puzzle and mislead new generations of readers.

Moon mythologizers of the 1970s have claimed a spiritual ancestor in a character named Morris K. Jessup, a UFO writer of the 1950s. In *The Case for the UFO* (1955, Citadel, NYC) and *The Expanding Case for the UFO* (1957, Citadel, NYC). Jessup

outlined a series of lunar mysteries which convinced him that the moon was a base for UFOs. Wilson and Leonard lean very heavily on Jessup's exhaustive list of lunar phenomena which seemed to indicate intelligent activity far out in space. Jessup, meanwhile, leaned heavily on the catalogs of Charles Fort, who had filled several books with data he claimed science had deliberately ignored (this, a generation before Jessup's books).

Wilson calls Jessup a "noted astrophysicist and mathematician," a "renowned scientist" and similar praises. This is a buildup for an obscure astronomy student instructor from the midwest who has published only two short scientific papers in his whole career. Jessup was with the astronomy department of the University of Michigan in the 1920s, and dropped out of a doctoral program in 1931. He spent the rest of his life as an auto parts salesman in Washington, D.C.

Jessup was a mysterious character who appears now and then in the pseudo-science literature as a source of strange stories. Charles Berlitz (*Without a Trace*, 1977) connects him with the Carlos Allende fantasy of the 'Philadelphia Experiment' disappearing destroyer in World War II. Jessup's suicide at age 58 on May 20, 1959, when he was found dead in his station wagon with a hose from the exhaust in the window, has achieved the mythic status of a "termination with extreme prejudice" by either UFO invaders or government secret agents.

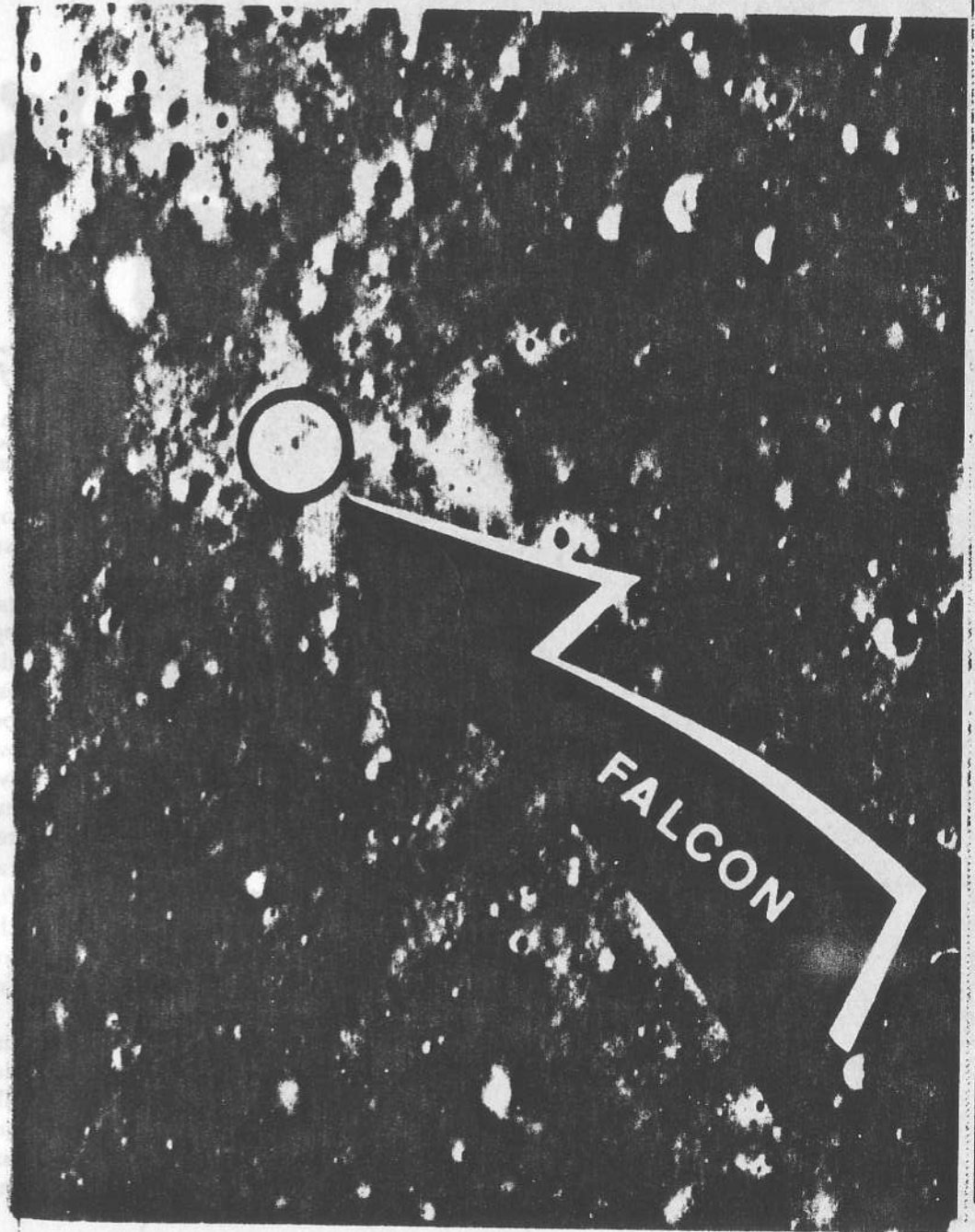
One basic question about these kinds of stories is: really, what harm do they do? Perhaps these theories are amusing and entertaining; perhaps few people really believe them anyway. So who is hurt by these harmless fables and fairy tales?

There is an old Kentucky proverb that answers this. It goes this way: "It ain't what you don't know what'll hurt you—it's what you do know what ain't so."

And that is the heart and essence of the problem. It is never funny to be misinformed. In our modern technological society, ignorance and delusions about science, and a lack of the ability to tell truth from falsehood, can lead people to wrong decisions which they, or their entire society, may have to pay dearly for.

If only a handful of people want to believe that the moon is hollow, who is hurt? If the Hare Krishna people believe that space flight is impossible, so does the Flat Earth Society (alive and well in 1981!), and they deserve each other.

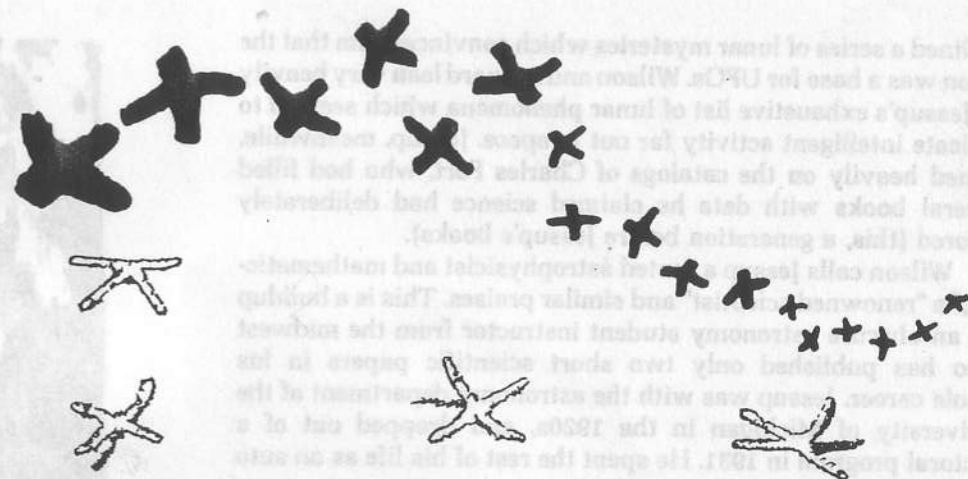
But this avoids the question, since even those who do not really believe the myths have at least heard of many of them (or of others I haven't documented), and they may therefore lump the myths and the facts together as just two differences of legitimate



An actual artificial object photographed on the moon's surface: the Apollo-15 lunar module, July 1971. Courtesy NASA



On the ridge of this crater, wrote George Leonard, are "x-drones making spiral cut" (in his chapter entitled "pushing the moon around: super rigs"). Credit: NASA



A recent California drawing of the X-drone machines (bottom) looks for all the world like a lost pile of Purina cat chow (top). Courtesy Mark Gaines and Jim Safran.

opinion. The truth, these people may suppose, "probably lies somewhere in between." And they miss the truth.

There is another factor, involving education. Many young people, especially those with a strong interest in science and space, do not have the perspective or the guidance to see through the hoaxes. Instead, they may take them very seriously indeed (and I speak from personal experience!) Some of them may be permanently imprinted with such pseudo-sciences and may waste years of intellectual effort. Others may throw the baby out with the bath water when they discover they've been duped. Most eventually will mature and will grow out of their naivité through reading and discussing things and developing their critical faculties. Some, however, can and will be intellectually scarred for life with the bitter disillusionment that comes with learning that somebody you trusted, or a book in which you had thought you had glimpsed the truth, was brazenly lying to you. That is not funny and it is not harmless.

The appeal of the moon myths seems to be that they are understandable while real science and real space exploration are not. In a sense, they are 'surrogate science,' useful to give the illusion of mental activity and intellectual pursuits. Most people are not very confident in their abilities to understand modern science, and the blame lies with education and with the news media.

This intellectual retreat from authentic science cannot be considered but as a detriment—and those forces which encourage and accelerate this abdication, may be guilty of absolute harm in

a society such as ours where some basic scientific information and judgment can and must be mastered by the citizenry, both as voters and as consumers.

If the moon myths in themselves are not so damaging, the atmosphere which allows them to flourish and often triumph is certainly an intellectually crippling one, all too reminiscent of the bizarre irrational and anti-science cults which preceded the fall of democratic Germany in the 1930s. Such irrationality and non-rationality must not be tolerated, humored, or laughed at. The professional moon mythmakers should be put out of their lucrative business by vigorous confrontations with the truth, to make falsehood unprofitable.

The puzzle of the origin of the moon continues, but it is not true that "the great mysteries of the moon have come no closer to solution. . . . One can search the scientific reports of the Apollo flights in vain and still not find a serious inroad to these mysteries. . . ." (Leonard) The real nature of the moon, and the restrictions it puts on any theory of origin, are better understood every year. New pieces to the puzzle are found; old pieces are discovered to have been parts of another puzzle and are discarded. The facts are already exciting. The pity is that the people who are fed the fantasies would probably enjoy the facts better.

The moon has many mysteries. Some are very old and some are new. Some are counterfeit. All are fascinating, especially when the boycotted facts are added, and the fabulists and falsifiers are identified and confronted. The unique mythology of the moon today is artificial and phony; the unique and authentic scientific challenges of the moon today are exhilarating and intellectually satisfying.

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